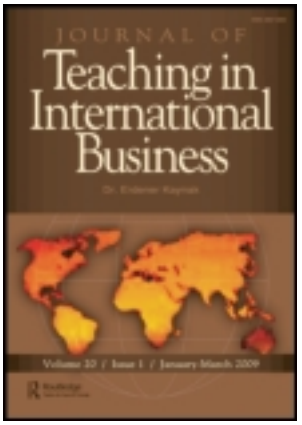

Journal of Teaching in International Business

Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/wtib20

Exploring the Differences of Undergraduate Students' Perceptual Learning Styles in International Business Study

Ning Ding [a] & Wei Lin [a]

[a] International Business School (IBS), Hanze University of Applied Science, Groningen, The Netherlands

Version of record first published: 11 Apr 2013.

To cite this article: Ning Ding & Wei Lin (2013): Exploring the Differences of Undergraduate Students' Perceptual Learning Styles in International Business Study, Journal of Teaching in International Business, 23:4, 310-324

To link to this article: http://dx.doi.org/10.1080/08975930.2012.779915

Journal of Teaching in International Business, 23: 310–324, 2012

ISSN: 0897-5930 print / 1528-6991 online
DOI: 10.1080/08975930.2012.779915

Routledge
Taylor & Francis Group

Exploring the Differences of Undergraduate Students' Perceptual Learning Styles in International Business Study

Ning Ding and Wei Lin

International Business School (IBS), Hanze University of Applied Science, Groningen, The Netherlands

More than 45,000 international students are now studying for bachelor programs in The Netherlands. The number of Asian students increased dramatically in the past decade. The current research aims at examining the differences between Western European and Asian students' perceptual learning styles, and exploring the relationships between students' learning styles and their academic achievements in international business (IB) study. One hundred and seventy-two students from a Dutch university participated in the survey research. Western European students significantly outperformed Asian students in academic performances. Significant differences in learning styles were also found between Western Europeans and Asian students in English, second language, business subjects, and group project learning. Besides, in comparison with Asian students, Western European students preferred to learn from hearing words, taking notes of lectures, and getting involved in some classroom experiences such as role-playing. They may benefit more from lecture-based subjects than Asian students. Based on the findings, practical recommendations are offered for instructors in international higher education.

Keywords: Perceptual learning styles, International business education, Ethnic difference

1. INTRODUCTION

From 1997 to 2004, the number of students who leave their country of origin and study in another country rose from 1.75 to 2.7 million (OECD, 2005, p. 287). According to the Netherlands Organization for International Cooperation in Higher Education (Nuffic, 2011), there are approximately 60,000 international students in The Netherlands and approximately 77% of them are enrolled for bachelor programs in Dutch universities. It is particularly noticeable that more and more Asian students choose to study in The Netherlands. For example, China has become the second main country of students' origin. In 2010–2011, 5,400 Chinese students studied in The Netherlands. In comparison with the number in 2007–2008, this is an increase of over 30% (Nuffic, 2011). Some larger Dutch HBOs (Universities of Applied Sciences) show a significant international engagement (OECD, 2007). Due to the good reputation in international business (IB) education and the high quality of high education, more and more Asian students choose to

Correspondence should be addressed to Ning Ding, International Business School (IBS), Hanze University of Applied Science, P.O. Box 70030, 9704 AA Groningen, The Netherlands. E-mail: n.ding@pl.hanze.nl

study business in the Dutch HBOs. The increasing number of international students directly leads to a growing diversity in the classrooms, characterized by more heterogeneous and multicultural learning styles. It is evident that students vary in their learning styles—characteristics, strengths, and preferences in the way they take in, process, and retain information (Felder, 1996). If lecturers are unaware of students' diverse learning styles and their instructional methods deviate largely from what students previously have experienced, students' existing cognitive framework may be threatened and their learning effectiveness may be negatively influenced as well (Valiente, 2008). Knowing students' learning styles, instructors can gain insights into the characteristics of students and tailor the instructional methods to adapt to students' learning preferences.

However, in contrast to the increasing influx of international students in the Dutch higher education, in particular Asian students, there is relatively little research investigating how students' learning styles vary, for example, across ethnicities. Moreover, few studies have critically explored the relationship between students' preferences of learning styles and their learning achievement (Bacon, 2004). To be specific, it is still unknown whether there is a difference of students' preferences of learning styles between European and Asian students in business education, and whether the preferences of learning styles are related with students' academic performances in undergraduate business study.

Since little attention has been paid to students' learning styles in many International Business Schools (IBS) of Dutch HBOs, this research attempts to investigate students' learning styles in undergraduate business education through the lens of their ethnicities. Furthermore, this research also aims at exploring the relationship between students' learning styles and their academic achievements in undergraduate business study. The research questions are formulated as below:

Q1. Whether there is a difference of students' perceptual learning styles across ethnicities in IBS?
Q2. Whether there is a relationship between students' perceptual learning style and their learning achievement in IBS study components such as English, second language, business subjects, and group projects?

In the Learning Styles section, we will first review the previous research that addressed the differences of students' learning styles. Then, we are going to discuss the prevalent instructional methods of three essential learning components in IB study, which are language (English and second language), business subjects, and group project learning. In the Methodology section, the information about the sample, instrument, and research procedure will be provided. The analyses will be presented in the Results section. Finally, we are going to offer some instructional suggestions for education practitioners in IBS in Western Europe.

2. LEARNING STYLES

In the past 25 years, there is an increasing attention to student learning styles (Lemire, 2000). According to Kolb (1984), learning is "the process whereby knowledge is created through the transformation of experience" (p. 38). One of the most influential definitions of learning style is made by Keefe (1979). He defines learning styles as "characteristic cognitive, affective, and physiological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment" (p. 4). Grasha (1990) defines learning styles as "the preferences students have for thinking, relation to others, and particular types of classroom

Journal of Teaching in International Business 2013.23:310-324.

environments and experiences" (p. 26). Cassidy (2004) stresses that students' learning style is a combination of cognitive, affective, and psychological characteristics describing how they interact with the environment. Reid (1995) claims that learning style is the student's natural; habitual; and preferred way of absorbing, processing, and retaining new knowledge. Learning style consists of different components that vary across individuals. According to Felder (1996), some students prefer to learn more actively and interactively while others like to learn individually. Felder also stated that how much students learn in the class relies on their ability, preparation for the lesson, and their learning style as well as the lecturers' teaching style.

Dunn, Dunn, and Price (1975) categorize learning styles as visual, tactile, and kinesthetic. These categorized were named as perceptual learning style. Research on American school children revealed that learners have four basic perceptual learning channels which are visual, auditory, kinesthetic, and tactile learning (Dunn, 1983, 1984).

Gardner (1991) identifies seven distinct intelligences such as visual-spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, linguistic, and logical-mathematical. He points out that students differ in the strength of the profile of intelligences, and they use this profile to solve problems and make meaning of the world.

Reid (1995) added two social aspects of learning which are group and individual learning preferences. According to Reid (1987), visual learners prefer to study with visual aids such as movies, pictures, diagrams, and graphs. Through these they can obtain and retain information easily. For auditory learners, they learn best when they hear the information and discuss it in class. They like to attend the lectures and seminars, and they tend to be active in classroom discussions. Kinesthetic learners prefer to get involved in classroom activities such as role playing, while tactile learners like to practice on their own such as working on an experiment in the laboratory. Tactile learners also prefer writing notes in lectures and believe that doing can strengthen their memorization of the information. Tactile learners learn best by being active in class (Sarasin, 1998).

Group learners prefer studying with other students, discussing homework, or solving problems together, while individual learners tend to study independently and find it more comfortable to study on their own. Individual learners like to be left alone and read materials all by themselves.

Reid (1987) has also classified three levels of learning styles as major, minor, or negative. These three levels indicate the whether students can function as a learner well. For example, a student with negative learning style preferences may have difficulty in learning. In this case, the instructional style needs to be adjusted to match the learning style.

In the previous research, both Dunn and Griggs (2000) and Mulalic, Shah, and Ahmad (2009) found a significant gender difference in auditory and kinesthetic learning styles. Male students preferred kinesthetic and auditory learning in comparison with their female counterparts. The former researchers looked into Mexican and Anglo-American students and the latter studied Malaysian students. Heikinheimo and Shute (1986) found that Asian students do have difficulty in understanding lectures, taking notes, answering questions, and writing essays. Potential explanations are the Asian students have insufficient facility in English and they tend to be shy and passive in classrooms.

Researchers have also examined how national culture influences learning-style preference. Some found that Asian and European learners prefer different pedagogical methods (e.g., Lindsay & Dempsey, 1983). European students prefer to be actively involved in learning through their own discovery and exploration. In contrast, Chinese students tend to accept the teacher's instructions and prefer a passive learning approach (Ladd & Ruby, 1999). As a result, Chinese students

Journal of Teaching in International Business 2013.23:310-324.

want the instructions to be more structured while Western students like to hold more control and take more responsibilities in the learning progress (Dejoy & Dejoy, 1987). Rodrigues (2004, 2005) distinguished four active-like instructional techniques such as case studies, individual research projects, group projects, and classroom discussions; and six passive-like instructional techniques—for instance, lectures, textbook reading, guest lectures, video demonstration, classroom presentation by students, and computerized learning assignments. Biggs (1996), Volet and Renshaw (1996), and Wong (2004) found that, although Asian students come from a so-called "spoon-feeding" learning environment characterized by teacher-centered style, they are able to adapt to a more student-centered style of learning.

2.1. Essential Components in Business Learning

Undergraduate students in IBS may vary largely in their language and cultural backgrounds, age, and previous education. They often sit in one intensive study program characterized by homogeneous instructional styles, and the majority of the lecturers may be unaware of the diversity of their students' learning styles. As a result, unanticipated consequences are to be expected. Business education in Dutch HBOs does not only emphasize the individual learning performances, but also students' group working skills and language proficiency. Thus, besides some business-related subjects that are mainly assessed individually, students are also required to improve their English to a proficiency level. In addition, students need to learn a second language such as French, Spanish, and German to adapt to an increasing internationalized job market and business career. Therefore, IB study in Dutch HBOs normally consists of three essential components: business subjects, language including English and second language, and group project work. The prevalent instructional methods for these study components vary and, therefore, meet students' preferences of learning styles differently.

2.1.1. Language Learning

Business employers stated a real need for business graduates' language skills other than English (Prestwich & Ho-Kim, 2008). Thus, both English proficiency and second language learning are highly valued in IBS in The Netherlands. Language classes emphasize primarily students communication skills, and students are given ample opportunities to work in pairs or groups, get involved in classroom discussions, or give oral presentations. Such kind of instructions may be especially suitable for those who have preferences of the visual and auditory styles. In the research about second language learning, Wenden (1986) has found that students vary in the strategies they employ because they have diverse learning styles, affective styles, and cognitive styles. Reid (1987) has conducted a large-scale survey research to investigate ESL students' preferred learning styles and found that ESL students strongly preferred kinesthetic and tactile learning styles.

2.1.2. Business Subjects

Business subjects include management accounting, financial accounting, economics, marketing, statistics, mathematics, behavior management and organization, law, and so on.

Journal of Teaching in International Business 2013.23:310-324.

In undergraduate business education, the widely adopted instructional method for these subjects is still lecture-based. Such lecture-based courses have been criticized for not meeting the needs of students with diverse learning styles (Karakaya, Ainscough, & Chopoorian, 2001). McKeachie (2002) claimed that in a typical 50-minute lecture class, students retain 70% of what is conveyed in the first 10 minutes but only 20% from the last 10 minutes. Learning these subjects rely largely on what students hear in the lectures and how much they can keep in mind. Thus, it can be assumed that students who prefer auditory learning style may outperform those who have lower preference of auditory learning style.

2.1.3. Group Project

The days that business graduates hold some subject scores are gone. Employers seek business graduates who are equipped with the knowledge and skills meeting the work requirements (Floyd & Gordon, 1998). Therefore, there is a pressing need for students' communication, problem-solving, and team-working skills. Group work is getting increasingly important in business education, and many business schools require that business students have some experiences of working in group or teams (Blease, 2006). Group work is a coordinated and synchronous activity within which students try to carry out a task through reflection, negotiation, and correction and shared meaning making (Roschelle & Teasley, 1995; van Boxtel, 2000; Webb & Farivar, 1999). In group work, the group is the learning unit (Suthers, 2006), and can be viewed as a learning unit made up of two or more interdependent learners (Dillenbourg, Baker, Blaye, & O'Malley, 1995), and knowledge is distributed among learners, and mostly it is not evenly distributed. In order to achieve the final group product, group members need to communicate with each other, and work on a solution. Thus, group work involves individual knowledge elaboration and doesn't reduce it (Stahl, Koschmann, & Suthers, 2006). Thus, individual learning styles may be closely related with the group achievement. Besides, students' preference of group learning styles may be a predictor of their achievement in group projects.

However, Reid (1987) revealed that group learning was considered as a negative learning style by students in many majors including business. Mulalic et al. (2009) also found that group work may be less suitable for Eastern students than for Western students. They looked into Malaysian students' learning styles and found that those who dislike challenging others may feel quite uncomfortable in group discussion and get confronted with different viewpoints. They may feel stress to undertake team projects with verbally expressive students. They tend to concentrate on their individual part and are reluctant to assemble the final product.

Entwistle (1988) points out that students' academic achievements in higher education is influenced by "the match between how material is presented and how students process it" (p. 62). Nelson (1995) found that there is a correlation between students' learning style and their learning achievement. Domino (1979) also claimed that college students taught in preferred learning styles outperformed those who were taught in instructional styles that largely deviated from their preferred styles. Zapalska and Dabb (2002) suggest that each student has his specific learning style and the classroom instruction should be tailored to best accommodate students' learning styles. Therefore, it is essential to investigate how students learn and perceive.

Journal of Teaching in International Business 2013.23:310-324.

Journal of Teaching in International Business 2013.23:310-324.

3. METHODOLOGY

3.1. Sample

We collected the data from an International Business School (IBS) of a Dutch University of Applied Sciences (HBO) in The Netherlands. We administered the questionnaire to 197 IBS students with the help of their teachers. One hundred and seventy-two responses were taken as valid with complete information; 97 (56.4%) were female students and 75 (43.6%) were male students. Among them, 113 were done by students from Western European countries such as Germany (43, 25%), The Netherlands (55, 32%), and 15 (9%) from Spain or France, etc. Forty-six (27%) were Asian students and among them 39 (23%) were from China. Thirteen (8%) students came from Eastern European countries such as Poland, Estonia, etc. The average age of students was 19 years old. As for the demographic information, these sample subjects fully represented the students' composition in this school.

3.2. Instrument

We adopted the questionnaire developed by Reid (1987). Although the instrument was originally designed for students of language study, it suits the undergraduate business education well. First, it has taken students' social aspects in learning into consideration; for example, the group and the individual style. Second, it matches the prevalent business instructional methods as well, which are lecture-based subjects, group-based discussions and project work, class-based presentations, etc.

The questionnaire consists of 30 Likert-scale questions. Scores were based on a 5-point scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). With the help of the local teachers, the questionnaires were administered by our research assistants from their class visit in the business school. Data collection lasted over one study period—Fall 2011. After screening the data, we removed those subjects who did not major in business. In order to collect students' demographic information, we also asked for students' nationality, age, and gender as well as their student number so that we were able to track their academic scores.

International consistency reliability (Cronbach's α) was examined for four learning styles (visual, tactile, auditory, and kinesthetic) and two social aspects (group and individual). The reliability coefficients were .78 for visual style, .73 for tactile style, .65 for auditory style, and .75 for kinesthetic style. For group and individual styles, the reliability coefficients were .78 and .81, respectively.

4. RESULTS

We first looked into students' average scores of the three IBS study components, that is, language including English and second language, business subjects, and group projects. In the Dutch school system, "10" represents the full point of the exam while "5.5" is the passing grade. Students' average scores as well as the standard deviations are listed in Table 1.

The one-way ANOVA test was conducted with students' ethnicities as the independent variable and their academic scores as the dependent variable. Significant differences in academic

TABLE 1
Average Scores and Standard Deviations of Students' Academic Performances in IBS

	Language			
	English	*Second Language*	*Business Subjects*	*Group Projects*
Western European ($n = 113$)	5.38 (2.50)	7.09 (2.05)	5.87 (1.74)	5.94 (2.08)
Asian ($n = 46$)	4.04 (3.17)	4.77 (3.37)	4.66 (3.22)	4.70 (3.33)
Eastern European ($n = 13$)	4.67 (3.38)	5.45 (3.91)	4.31 (3.46)	3.55 (3.50)
Total	4.97 (2.82)	6.35 (2.81)	5.43 (2.44)	5.43 (2.68)

Journal of Teaching in International Business 2013.23:310-324.

performances were found among Western European, Asian, and Eastern European students in English ($F = 3.89$, $p = .02$), second language ($F = 13.58$, $p = .00$), business subjects ($F = 5.88$, $p = .00$), and group project learning ($F = 7.49$, $p = .00$). Western European students significantly outperformed Asian students in English ($p = .02$), second language learning ($p = .00$), business subjects ($p = .01$), and group project performances ($p = .02$). In contrast, there is no significant difference between Western European and Eastern European students in these study components.

Our first research question examines the difference of perceptual learning styles among students in the IBS program. Table 2 lists the results of students' preferences about perceptual learning styles and how it differs between female and male students.

Through the lens of students' ethnicities, we've found that Western European students preferred auditory ($p = .00$) and kinesthetic ($p = .00$) learning styles significantly more than Asian students do. This indicated that Western European students liked to learn from hearing words and taking notes of lectures. In comparison with the Asian students, Western European students also preferred getting involved in some classroom experiences such as role-playing. For the rest of learning style preferences, there was no significant difference among Western European, Asian, and Eastern European students.

As for the second research question, whether there is a relationship between students' perceptual learning style and their learning achievement IBS, we used the two-tailed regression analyses to explore the relationship between students' academic scores and their learning style preferences. Results can be found in Table 3.

It was found that students' academic performances in English, second language, business subjects, and group projects had significant correlations with five perceptual learning styles—namely, visual, tactile, auditory, kinesthetic, and individual learning style.

4.1. Language Learning—English

For *English learning*, students' scores were generally correlated with their visual ($r = .27$, $p = .00$), tactile ($r = .32$, $p = .00$), auditory ($r = .32$, $p = .00$), kinesthetic ($r = .34$, $p = .00$), and individual styles ($r = .17$, $p = .00$), but were not correlated with their preference of group style ($r = -.05$, $p = .95$).

However, for Western European students, it was noticeable that students' group styles were negatively and weakly correlated with their English learning ($r = -.23$, $p = .01$). This indicated

TABLE 2
Students' Preferences About Perceptual Learning Styles

		Mean Scores of Style Preference (Standard Deviation)
Visual	Western European ($n = 113$)	32.97 (6.58)
	Asian ($n = 46$)	32.09 (8.00)
	Eastern European ($n = 13$)	31.69 (7.25)
	Total	32.64 (7.01)
Tactile	Western European ($n = 113$)	34.65 (5.52)
	Asian ($n = 46$)	32.00 (8.07)
	Eastern European ($n = 13$)	34.00 (9.56)
	Total	33.90 (6.70)
Auditory	Western European ($n = 113$)	36.44 (5.04)*
	Asian ($n = 46$)	32.04 (6.42)*
	Eastern European ($n = 13$)	32.62 (8.18)
	Total	34.98 (6.03)
Kinesthetic	Western European ($n = 113$)	35.98 (5.97)*
	Asian ($n = 46$)	30.96 (7.58)*
	Eastern European ($n = 13$)	31.85 (6.56)
	Total	34.33 (6.84)
Group	Western European ($n = 113$)	32.37 (7.03)
	Asian ($n = 46$)	30.74 (7.09)
	Eastern European ($n = 13$)	30.00 (7.53)
	Total	31.76 (7.09)
Individual	Western European ($n = 113$)	33.13 (7.33)
	Asian ($n = 46$)	32.26 (8.04)
	Eastern European ($n = 13$)	32.15 (8.58)
	Total	32.83 (7.59)

Note. *There are significant differences between Western European and Asian students ($p = .00$).

that the more students preferred working with other students, the less successful English scores they could get. This finding was in line with Reid's findings in 1987.

In contrast, for Asian students, there were strong and positive correlations between their English achievement and their visual ($r = .50$, $p = .00$), tactile ($r = .49$, $p = .00$), auditory ($r = .48$, $p = .00$), and kinesthetic ($r = .48$, $p = .00$) styles.

As for the Eastern European students, there was a kind of strong and positive correlation between students' English scores and their group learning styles ($r = .67$ $p = .01$). For those who preferred to work in groups, they tended to get higher English scores. Regarding tactile ($r = .76$, $p = .00$), auditory ($r = .74$, $p = .00$), and kinesthetic ($r = .74$, $p = .00$) learning styles of Eastern European students, there also existed positive and strong correlations with their English learning.

4.2. Language Learning—Second Language

Regarding students' second language learning, we've found that, in general, the achievement was positively correlated with students' visual ($r = .28$, $p = .00$), tactile ($r = .41$, $p = .00$), auditory ($r = .46$, $p = .00$), kinesthetic ($r = .40$, $p = .00$), and individual ($r = .00$, $p = .00$) learning styles.

Journal of Teaching in International Business 2013.23:310-324.

TABLE 3
Relationship Between Students' Average Scores and Their Perceptual Learning Styles

	Visual	*Tactile*	*Auditory*	*Kinesthetic*	*Group*	*Individual*
English						
$n = 172$	$r = .27^*$ ($p = .00$)	$r = .32^*$ ($p = .00$)	$r = .29^*$ ($p = .00$)	$r = .34^*$ ($p = .00$)	$r = -.05$ ($p = .95$)	$r = .17^*$ ($p = .02$)
Western European ($n = 113$)	$r = .09$ ($p = .33$)	$r = .04$ ($p = .64$)	$r = -.04$ ($p = .66$)	$r = -.11$ ($p = .26$)	$r = -.23^*$ ($p = .01$)	$r = .16$ ($p = .09$)
Asian ($n = 46$)	$r = .50^*$ ($p = .00$)	$r = .49^*$ ($p = .00$)	$r = .48^*$ ($p = .00$)	$r = .48^*$ ($p = .00$)	$r = .16$ ($p = .30$)	$r = .29$ ($p = .05$)
Eastern European ($n = 13$)	$r = .39$ ($p = .19$)	$r = .76^*$ ($p = .00$)	$r = .74^*$ ($p = .00$)	$r = .74^*$ ($p = .00$)	$r = .67^*$ ($p = .01$)	$r = -.21$ ($p = .50$)
Second Language						
$n = 172$	$r = .28^*$ ($p = .00$)	$r = .41^*$ ($p = .00$)	$r = .46^*$ ($p = .00$)	$r = .40^*$ ($p = .00$)	$r = .05$ ($p = .50$)	$r = .22^*$ ($p = .00$)
Western European ($n = 113$)	$r = .05$ ($p = .60$)	$r = .01$ ($p = .96$)	$r = .01$ ($p = .93$)	$r = .20$ ($p = .84$)	$r = -.24^*$ ($p = .01$)	$r = .20^*$ ($p = .03$)
Asian ($n = 46$)	$r = .53^*$ ($p = .00$)	$r = .64^*$ ($p = .00$)	$r = .66^*$ ($p = .00$)	$r = .59^*$ ($p = .00$)	$r = .21$ ($p = .16$)	$r = .33^*$ ($p = .03$)
Eastern European ($n = 13$)	$r = .45$ ($p = .13$)	$r = .74^*$ ($p = .00$)	$r = .85^*$ ($p = .00$)	$r = .75^*$ ($p = .00$)	$r = .56^*$ ($p = .046$)	$r = -.05$ ($p = .88$)
Business Subjects						
$n = 172$	$r = .37^*$ ($p = .00$)	$r = .43^*$ ($p = .00$)	$r = .41^*$ ($p = .00$)	$r = .40^*$ ($p = .00$)	$r = .04$ ($p = .63$)	$r = .23^*$ ($p = .00$)
Western European ($n = 113$)	$r = .17$ ($p = .07$)	$r = .04$ ($p = .69$)	$r = -.12$ ($p = .22$)	$r = .04$ ($p = .68$)	$r = -.26^*$ ($p = .01$)	$r = .21^*$ ($p = .03$)
Asian ($n = 46$)	$r = .59^*$ ($p = .00$)	$r = .69^*$ ($p = .00$)	$r = .68^*$ ($p = .00$)	$r = .59^*$ ($p = .00$)	$r = .21$ ($p = .16$)	$r = .34^*$ ($p = .02$)
Eastern European ($n = 13$)	$r = .50$ ($p = .08$)	$r = .72^*$ ($p = .01$)	$r = .88^*$ ($p = .00$)	$r = .80^*$ ($p = .00$)	$r = .50$ ($p = .08$)	$r = -.03$ ($p = .93$)
Group Projects						
$n = 172$	$r = .41^*$ ($p = .00$)	$r = .47^*$ ($p = .00$)	$r = .47^*$ ($p = .00$)	$r = .49^*$ ($p = .00$)	$r = .12$ ($p = .11$)	$r = .27^*$ ($p = .00$)
Western European ($n = 113$)	$r = .16$ ($p = .08$)	$r = .14$ ($p = .15$)	$r = .14$ ($p = .15$)	$r = .20^*$ ($p = .04$)	$r = -.07$ ($p = .44$)	$r = .21^*$ ($p = .03$)
Asian ($n = 46$)	$r = .70^*$ ($p = .00$)	$r = .74^*$ ($p = .00$)	$r = .67^*$ ($p = .00$)	$r = .73^*$ ($p = .00$)	$r = .28$ ($p = .06$)	$r = .42^*$ ($p = .00$)
Eastern European ($n = 13$)	$r = .53$ ($p = .06$)	$r = .72^*$ ($p = .01$)	$r = .70^*$ ($p = .01$)	$r = .65^*$ ($p = .02$)	$r = .37$ ($p = .22$)	$r = .74^*$ ($p = .00$)

Note. *There is a significant correlation at the .05 level (two-tailed).

For Western European students' second language learning, a positive and significant correlation was found between students' individual learning styles and their scores ($r = .20$, $p = .03$). It indicated that if students tended to work alone and study individually, they were more likely to get a bit higher score in second language learning. Once again, students' group learning styles were negatively and weakly correlated with their second language scores ($r = -.24$, $p = .01$).

For Asian students' second language learning, there were also significantly positive and moderate correlation between students' scores and their preferences of visual ($r = .53$, $p = .00$), tactile ($r = .64$, $p = .00$), auditory ($r = .66$, $p = .00$), and kinesthetic ($r = .59$, $p = .00$) styles. There was also a positive and weak correlation between students' performances and their individual style ($r = .23$, $p = .03$).

The second language scores of Eastern European students were strongly and positively correlated with their tactile ($r = .74$, $p = .00$), auditory ($r = .85$, $p = .00$), kinesthetic ($r = .75$, $p = .00$) styles, and the scores were also moderately and positively correlated with students' group styles ($r = .56$, $p = .046$).

4.3. Business Subjects Learning

Generally, students' performances in business subjects such as management accounting, statistics were positively correlated with their visual ($r = .37$, $p = .00$), tactile ($r = .43$, $p = .00$), auditory ($r = .41$, $p = .00$), kinesthetic ($r = .40$, $p = .00$), and individual ($r = .23$, $p = .00$) styles. There was no significant correlation between students' business subjects learning and their group style ($r = .04$, $p = .63$).

For Western European students, their performances in business subjects had a significantly negative and weak correlation with their preference of group style ($r = -.26$, $p = .01$). Besides, it was also found that their achievements in business subjects were positively and moderately correlated with their preference of individual learning style ($r = .34$, $p = .02$).

Asian students' performances in business subjects were correlated with their preferences of visual ($r = .59$, $p = .00$), tactile ($r = .69$, $p = .00$), auditory ($r = .68$, $p = .00$), and kinesthetic styles ($r = .59$, $p = .00$). Besides, a significantly positive and moderate correlation was found between their performance and their preference of individual style ($r = .34$, $p = .02$).

There existed strong and positive correlations between Eastern European students' preferences of tactile ($r = .72$, $p = .01$), auditory ($r = .88$, $p = .00$), and kinesthetic ($r = .80$, $p = .00$) learning styles.

4.4. Group Project Learning

Generally, students' group projects performances were significantly correlated with students' visual ($r = .41$, $p = .00$), tactile ($r = .47$, $p = .00$), auditory ($r = .47$, $p = .00$), kinesthetic ($r = .49$, $p = .00$) and individual ($r = .27$, $p = .00$) styles.

Regarding the achievements in group projects, for Western European students, these were moderately correlated with students' preferences of kinesthetic ($r = .20$, $p = .04$) and individual ($r = .21$, $p = .03$) styles. There was no significant correlation with the preferences of other learning styles.

Journal of Teaching in International Business 2013.23:310-324.

For Asian students, their scores of group projects were significantly highly correlated with their visual (r = .70, $p = .00$), tactile ($r = .74$, $p = .00$), auditory ($r = .67$, $p = .00$), kinesthetic ($r = .73$, $p = .00$), and individual ($r = .42$, $p = .00$) styles. No significant correlation was found between Asian students' scores and their preferences of group learning style.

Eastern European students' performances in group projects were strongly correlated with their tactile ($r = .72$, $p = .01$), auditory ($r = .70$, $p = .01$), kinesthetic ($r = .65$, $p = .02$), and individual ($r = .74$, $p = .00$) styles. No significant correlations existed between Eastern European students' achievements and their preferences of visual and group learning styles.

5. CONCLUSION

The aim of this research is to identify the learning style preferences of undergraduate students majoring in IB, to examine the differences between students from different ethnicities, and explore the relationships between their learning style preferences and their study achievements. The findings may have wide-ranging implications in the areas of curriculum design, student recruitment, teacher training, and instructional materials preparation. It is believed that by investigating student learning styles, we are able to reinvigorate our teaching practices and boost students' learning achievement in business education. Furthermore, this research builds on the premise that neither our instructional styles nor students' learning styles are immutable. Both can be modified over time and get adapted to different instructional contexts. In the recent 20 years, student-centered education has been more and more emphasized. In higher education, students should be placed first and instructors should recognize the need to respect diverse learning styles (Rodrigues, 2004, 2005).

With the increasing number of Asian students in Dutch higher education, especially those from China, it is self-evident that we need to gain more insights into how these students learn and how their learning differ from European students. In The Netherlands, HBO (university of applied sciences) is different from a research university in curriculum design, instructional methods, and student recruitment. IB education in HBOs lays emphases on building up students' communication skills, teamwork skills, and application of business knowledge in practices. In the Dutch HBOs, the undergraduate IB normally contains three essentials study parts: language including English and second language, business subjects, and group projects. As a result, students are exposed to various instructional methods. For example, management accounting or statistics are taught through lectures; English and second languages are taught through classroom presentations and report writing, while projects are accomplished through intensive group work. Our analyses on students' learning achievement did reveal a significant difference between Western European and Asian students. Asian students scored lower in all these study components than Western European students did. But this was not the case for Eastern European students.

It was found that, in comparison with the Asian students, the Western European students prefer the auditory learning style. This finding is in line with the research conducted by Heikinheimo and Shute (1986).Western European students are more likely to listen to the teachers' instructions and join the lectures. As mentioned before, most business subjects in the business schools are lecture-based. This indicates that Western European students may profit more than Asian students do from these lectures.

Journal of Teaching in International Business 2013.23:310-324.

Moreover, echoing the findings by Rodrigues (2004, 2005), the current research reveals that the Western European students also prefer kinesthetic styles in comparison with the Asian students. For instance, Western European students like more to get involved into some class activities such as role-playing or experiments. Therefore, for some subjects which stress a lot on classroom discussions and activities such as language learning, Asian students may benefit less than Western European students do.

A further analysis explored the relationship between students' achievements and their learning styles. As revealed in this study, Asian students' preferences of auditory and kinesthetic styles are moderately correlated with their language learning, and these preferences are also positively and strongly correlated with their achievements of business subjects and group projects. It can be concluded that, with the aim to improve the learning performances of Asian students, we should provoke students' preferences of auditory and kinesthetic styles; for instance, providing some instructional help to strengthen Asian students' communication skills and listening skills so that they can join the class discussions more effectively. In language courses, the instructors may offer more opportunities for Asian students to read the instructional materials aloud or hear from tapes. As for business subjects, Asian students should be encouraged to take notes during lectures.

Journal of Teaching in International Business 2013.23:310-324.

5.1. Discussion

Gardner (1991) claims that our educational system tends to treat all students in a uniform and universal manner. Considering the broad spectrum of students' learning styles, learning effectiveness can be maximized if disciplines could be presented through a variety of ways. However, Peacock (2001) claimed that there exists a serious mismatch between students' learning styles and the teaching styles of the lecturers.

Dunn and Griggs (2000) found that making students aware of their learning style and helping them develop study skills compatible with their preferred learning style may have a positive effect on students' academic performances. In the current study, the majority of our subjects were university freshmen. In this regard, it is strongly recommended that the instructors should help students to find out what their learning styles are, and help them to define whether there is a gap between their learning styles and the prevalent instructional styles in IB education. Zapalska and Dabb (2002) develop a VARK instrument, aiming at allowing teachers to get a better understanding of students' different learning styles and overcoming the mismatching with their teaching styles.

Admittedly, matching instructional styles to students' preference of learning styles is not a panacea that can solve all study problems. Students' learning may also be influenced by their prior knowledge of the subjects, motivation, the amount of study time, etc. Some researchers also claim that focusing on students' learning styles limits the ability of teachers to understand the complexities of individual students' experience (Neuman & Bekerman, 2000; Spizzica, 1997). This may hamper the conceptualization of a quality education for international students. Wong (2004) argues that learner herself can be flexible to adapt their learning styles to different instructional approaches. As previously noted, Asian students are able to adapt to new teaching styles within two or three months. Moreover, apart from the research on learning styles, Van Auken, Wells, and Borgia (2009) point out that Chinese students prefer a vertical structure with regard to the power-distance relationship with their instructors. For Chinese students, the role of instructor

is more like a father rather than a guide or coach. Based on this, Chinese students tend to play a passive role in classroom.

All in all, based on our research findings, we strongly recommend instructors to be explicit and self-reflective of the matching between own instructional styles and students' learning styles.

5.2. Limitations

The current study has its limitations. First, this was a cross-sectional study without investigation in the development of students' learning styles during the 4-year undergraduate study. As previously mentioned, learning style is not immutable. Students may get more accustomed to the instructional methods after a certain study period. Accordingly, their learning styles may also experience a change. Therefore, a longitudinal study is highly recommended to explore the changes of students' learning styles over time. Second, the current investigation was conducted on the basis of survey questionnaire. Lacking qualitative information hinders us to seek for more insightful explanations for the disadvantages of Asian students' learning. In the coming study we are going to collect more qualitative data through staff and student interviews or classroom observations. Finally, a larger sample size with more Eastern European students would be beneficial in a future study. Currently, no significant differences were found in learning achievements between Western European and Eastern European students. Perhaps this resulted from a relative small sample size of this particular group.

Journal of Teaching in International Business 2013.23:310-324.

ACKNOWLEDGMENTS

We are deeply appreciative of the dedicated teaching staff and management team in the International Business School of Hanze University of Applied Sciences. Jane K. Siebeneck, academic advisor, initiated the research and proposed using a methodical technique in solving problems in educational practices. In addition, the management team showed great enthusiasm in applying research to improve education quality at Hanze University of Applied Sciences. With their encouragement and support, we were able to attract a large number of students in data collection.

AUTHOR BIOGRAPHIES

Ning Ding a lecturer at the International Business School of Hanze University of Applied Sciences, The Netherlands. She received her PhD from the University of Groningen, majoring in computer-supported collaborative learning. Since 2010, she has been working at the Hanze University of Applied Sciences.

Wei Lin is a student assistant at the International Business School of Hanze University of Applied Sciences, The Netherlands. From 2008 until 2012, she studied at the Hanze University of Applied Sciences. In 2012, she received BS from the International Business School.

REFERENCES

Bacon, Donald R., (2004), "An examination of two learning styles measures and their association with business learning", *Journal of Education of Business* 79 (4), 205–208.

Biggs, J. (1996), Western misperceptions of the Confucian-heritage learning culture. In D.A. Watkins and J.B. Biggs (eds.), *The Chinese Learner: Cultural, Psychological and Contextual Influences*. (pp. 45–67). CERC and ACER, Hong Kong: The Central Printing Press.

Blease, Derek, (2006), "The organisation and assessment of group work at Loughborough University: internal report", retrieved from:http://www.engcetl.ac.uk/downloads/publications/engCETL_Past_Projects_WebPA

Cassidy, Simon, (2004), "Learning styles: An overview of theories, models and measures", *Educational Psychology* 24 (4), 419–444.

Dejoy, Judith Klippel, and David M. Dejoy, (1987), "Self-directed learning: The time is now", *Training and Development Journal* 41 (9), 64–66.

Dillenbourg, Pierre, Michael J. Baker, Agnes Blaye, and Claire O'Malley, (1995), "The evolution of research on collaborative learning", in Reinman, Peter, and Spada, Hans (eds.), Learning in Humans and Machines: Towards an Interdisciplinary Learning Science (Elsevier; Oxford, United Kingdom).

Domino, George, (1979), "Interactive effects of achievement orientation and teaching style on academic achievement", *ACT Research Report* 39, 1–9.

Dunn, Rita, (1983), "Learning style and its relation to exceptionality at both ends of the spectrum", *Exceptional Children* 49 (6), 496–506.

Dunn, Rita, (1984), "Learning style: State of the scene", *Theory Into Practice* 23 (1), 10–19.

Dunn, Rita, Kenneth Dunn, and Gary E. Price, (1975), "The Learning Style Inventory", (Price Systems; Lawrence, KS).

Dunn, Rita and Shirley A. Griggs, (2000), "Practical Approaches to Using Learning Styles in Higher Education", (Bergin & Garvey; Westport, CT).

Entwistle, Noel, (1988), "Styles of Learning and Teaching", (David Fulton; London, United Kingdom).

Felder, Richard M., (1996), "Matters of style", *ASEE Prism* 6 (4), 18–23.

Floyd, Callum J., and Mary Ellen Gordon, (1998), "What skills are most important? A comparison of employer, student and staff perceptions", *Journal of Marketing Education* 20 (2), 103–109.

Gardner, Howard E., (1991), "The Unschooled Mind: How Children Think and How Schools Should Teach", (Basic Books; New York, NY).

Grasha, Anthony F., (1990), "Using traditional versus naturalistic approaches to assessing learning styles in college teaching", *Journal on Excellence in College Teaching* 1, 23–28.

Heikinheimo, P. S., and J. C. M. Shute, (1986), The adaptation of foreign students: Students views and institutional implications. *Journal of College Student Personnel* 27, 399–406.

Karakaya, Fahri, Thomas L. Ainscough, and John Chopoorian, (2001), "The effects of class size and learning style on student performance in a multimedia-based marketing course", *Journal of Marketing Education*, 23 (2), 84–90.

Keefe, James W., (1979), "Learning style: An overview", in Student Learning Styles: Diagnosing and Prescribing Programs (NASSP; Reston, VA).

Kolb, David A., (1984), "Experiential Learning: Experience as the Source of Learning and Development", (Prentice Hall; Englewood Cliffs, NJ).

Ladd, Paula D., and Ralph Ruby Jr., (1999), "Learning style and adjustment issues of international students", *Journal of Education in Business* 74 (6), 363–367.

Lemire, David, (2000), "Research report—A comparison of learning styles scores: A question of concurrent validity", *Journal of College Reading and Learning* 31 (1), 109–116.

Lindsay, Cindy P., and Bobby L. Dempsey, (1983), "Ten painfully learned lessons about working in China: The insights of two American behavioural scientists", *Journal of Applied Behavioural Science* 19 (3), 265–276.

McKeachie, Wilbert. J., (2002), "McKeachie's Teaching Tips: Strategies, Research, and Theory for College and University Teachers", (11th ed.), (Houghton Mifflin; Boston, MA).

Mulalic, Almasa, Parilah Shah, and Fauzia Ahmad, (2009), "Perceptual learning styles of ESL students", *European Journal of Social Sciences* 7 (3), 101–113.

Nelson G. L., (1995), "Cultural differences in learning styles", in Reid, Joy M. (ed.), Learning Styles in the ESL/EFL Classroom (Newbury House; New York, NY).

Journal of Teaching in International Business 2013.23:310-324.

Neuman, Yair, and Zvi Bekerman, (2000), "Cultural resources and the gap between educational theory and practice", *Teachers College Record* 103 (3), 471–484.

Nuffic, (2011), "Mapping Mobility 2011: International Mobility in Dutch Higher Education", (Author; The Hague, The Netherlands).

OECD, (2005), "Education at a Glance 2005: OECD Indicators", (OECD, Paris, France).

OECD, (2007), "Thematic Review of Tertiary Education", retrieved from http://www.oecd.org/netherlands/37411491.pdf

Peacock, Matthew, (2001), "Match or mismatch? Learning styles and teaching styles in EFL", *International Journal of Applied Linguistics* 11 (1), 1–20.

Prestwich, Roger, and Thu-Mai Ho-Kim, (2008), "Knowledge, skills and abilities of international business majors", *Journal of Teaching in International Business* 19 (1), 29–55.

Reid, Joy M., (1987), "The learning style preferences of ESL students", *TESOL Quarterly*, 21 (1), 87–110.

Reid, Joy M., (1995), "Learning Styles in the ESL/EFL Classroom", (Heinle & Heinle; Boston, MA).

Rodrigues, Carl A., (2004), "The importance level of ten teaching/learning techniques as rated by university business students and instructors", *Journal of Management Development* 23 (2), 169–182.

Rodrigues, Carl A., (2005), "Culture as determinant of the importance level business students place on ten teaching/learning techniques", *Journal of Management Development*, 24 (7), 608–621.

Roschelle, Jeremy, and Stephanie D. Teasley, (1995), "The construction of shared knowledge in collaborative problem solving", in O'Malley, Claire E. (ed.), Computer Supported Collaborative Learning (Springer-Verlag; Berlin, Germany).

Sarasin, Lynne C., (1998), "Learning Style Perspectives: Impact in the Classroom", (Atwood; Madison, WI).

Spizzica, Mia, (1997), "Cultural differences within "Western" and "Eastern" education", in Golebiowski, Zofia, and Borland, Helen (eds.), Academic Communication Across Disciplines and Cultures (Victoria University of Technology; Melbourne, Australia).

Stahl, Gerry, Timothy Koschmann, and Dan Suthers, (2006), "Computer-supported collaborative learning: An historical perspective", in Sawyer, R. Keith (ed.), Cambridge Handbook of the Learning Sciences (Cambridge University Press; Cambridge, United Kingdom).

Suthers, Daniel, (2006), "Technology affordances for intersubjective meaning making: A research agenda for CSCL", *International Journal of Computer-Supported Collaborative Learning* 1 (3), 315–337.

Valiente, Carolina, (2008), "Are students using the 'wrong' style of learning? A multicultural scrutiny for helping teachers to appreciate differences", *Active Learning in Higher Education* 9 (1), 73–91.

Van Auken, Stuart, Ludmilla G. Wells, and Daniel Borgia, (2009), "A comparison of Western business instruction in China with US instruction: A case study of perceived program emphases and satisfaction levels", *Journal of Teaching in International Business* 20 (3), 208–229.

Van Boxtel, Carla, (2000), "Collaborative concept learning. Collaborative learning task, student interaction, and the learning of physics concepts", Doctoral Dissertation, (Print Partners Ipskamp, Utrecht University, Utrecht, The Netherlands).

Volet, S., and P. Renshaw, (1996), Chinese students at an Australian university: Adaptability and continuity. In D.A. Watkins and J.B. Biggs (eds.), *The Chinese Learner: Cultural, Psychological and Contextual Influences* (pp. 205–220) CERC and ACER, Hong Kong: The Central Printing Press.

Webb, Noreen W., and Sydney Farivar, (1999), "Developing productive group interaction in middle school mathematics", in O'Donnell, Angela N., and King, Allison A. (eds.), Cognitive Perspectives on Peer Learning (Lawrence Erlbaum Associates; Mawah, NJ).

Wenden, Anita L., (1986), "What do second-language learners know about their language learning: A second look at retrospective accounts", *Applied Linguistics* 7 (2), 186–205.

Wong, Joseph Kee-Kuok, (2004), "Are the learning styles of Asian international students culturally or contextually based?", *International Education Journal* 4 (4), 154–166.

Zapalska, Alina M., and Helen Dabb, (2002), "Learning styles", *Journal of Teaching in International Business* 13 (3–4), 77–97.

Journal of Teaching in International Business 2013.23:310-324.