

LEARNING READINESS AMONG INTERNATIONAL STUDENTS IN SELECTED UNIVERSITIES IN CHINA

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ABSTRACT

Nowadays, there are many issues encountered by international students that affect their academic achievement. Therefore, this study aims to study international student learning readiness in selected universities in China. To achieve the research objectives, a quantitative survey was conducted by distributing questionnaires to 275 international students from the following regions: Central Asian, South Asia, Southeast Asia, Middle East and North Africa, and Europe. The data were analyzed using descriptive statistic methods such as percent, mean and standard deviation, as well as inference statistic method (Pearson Chi Square). This study found significant relationship between students' origins and their performance with the value of $p < 0.05$. Their effectiveness level of learning readiness was also good with mean scores ranging from 4.61 to 5.80. The implications of these research findings suggest that stakeholders, especially policy makers and universities, need to identify specific mechanisms to improve students' physical, emotional, spiritual, intellectual and social achievement to generate human capital-based labor.

Keywords: *International Students, Learning Readiness, Selected Universities*

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There is a need for every organization to make changes in line with a changing environment. Hence, organizations, including educational institutions, must have the latest guidelines so that their management meets market needs. This statement aligns with the views of the United Nations Education, Scientific and Cultural Organization (2009, pp. 13) as follows.

" The success of creating inclusive education as a key to establishing inclusive societies depends on agreement among all relevant partners on a common vision supported by a number of specific steps to be taken to put this vision into practice. The move towards inclusion is a gradual one that should be based on clearly articulated principles that address system-wide development and multi-sectoral approaches involving all levels of society... "

The policy outlined in the above statement is a long-term education plan for a country. China is no exception, with some changes, particularly in the education sector. The Report of The Organization for Economic Co-operation and Development (OECD, 2016) found that China has implemented changes to its education policies since the early 1980 's. According to the report, the overall changes were implemented by the government, starting from facilitating communities to access education to the government's efforts to promote quality education as a need of society. Comprehensive and advanced changes in education policies are intended to meet the needs of the environment, in particular, changes in the trends in society and the national economy (Na, 2015).

At the national level, the Ministry of Education has developed a document on changes in strategy, responsibility, and the education system, and this has become a major guideline for education stakeholders in China. At the same time, at the local government level, there is a strategic plan called The Five Year Plan or The Five-Year Guidelines for the development of society, science and technology, and the economy.

The confidence of the Chinese Government in the economic contribution of investment in education is very clear. Opinions have been reported in the China Year Book (2015) that the development of education in the 21st century must focus on higher education. Higher education is able to provide benefits to people and the economy. Similarly, reports by the *Economist Intelligence Unit* (2015) indicate that higher education in China has played an important role in improving the economy, advancing science and fostering technology progress as well as community development through training experts and talented individuals.

As reported by the China Education and Research Network (2018), the recommendation to develop the education field was decided by the resolution of the 14th Central Communist Party Congress in 1992. The resolution determined China's priority to develop the education field in order to improve other fields i.e. the economy, science and technology as well as community. At the 15th Central Communist Party Congress in 1977, the government had developed a strategic plan on the premise that China would be unable to develop its economy, science and technology as well as the community if the education system were still left behind. Therefore, in 1998, a directive to build a world-class University came from the government. This stated that the economy, science, and technology, as well as the community could be improved only if led by experts and talented individuals who are trained in higher education institutions (Vilma Seeberg, 2018).

In the field of science and technology, the study of Yu, Chunni and Qing (2018) found that there was a rapid increment throughout the 1990s to the 2010s. In fact, the Government's intention is to make China a science powerhouse by 2020 through investment in education. To achieve this objective, the Chinese Government has increased its financial aid, implemented policy reforms and added institutions of higher learning focused on technology. For example, in 2012, the Chinese Government spent USD164 billion on research and development. This figure contributed to the *Gross Domestic Product* (GDP) at a level of USD328 billion. In comparison, the United States has been spending a total of USD447 billion but the revenues were USD133,560 billion. Figure 1 shows the expenditure by China on research and development which is expected to continue growing by 2025 compared to other developed countries. Since 2011, development of science and technology has accounted for 51.7 percent of the China's economy.

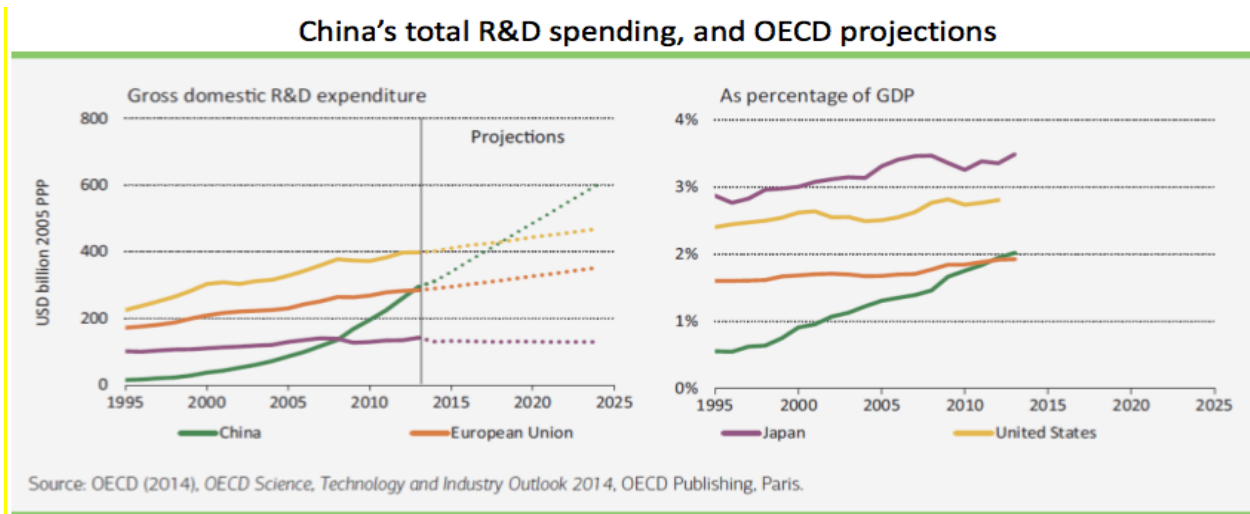


Figure 1. China National Expenditures on Research And Development Compared To Other Developed Countries Source. The Organization for Economic Co-operation and Development (OECD, 2014). *OECD Science, Technology and Industry Outlook 2014*. Paris: OECD Publishing. Retrieved at <http://ifuturo.org/documentacion/Science%20Technology%20and%20Industry%20Outlook%202014.pdf>

Similarly, the number of people in the field of science and engineering has increased. In 2010, China had 2.4 million staff in the Engineering field and 0.8 million in the Science field. Meanwhile, the United States had 1.4 million people in the Engineering field and 2.9 million people in the Science field. The statistics in Figure 2 shows the increment in the number of Science and Engineering professionals for China over the preceding years. This situation suggests that China will overtake the United States as a major producer of products based on Science and Technology in the year 2022.

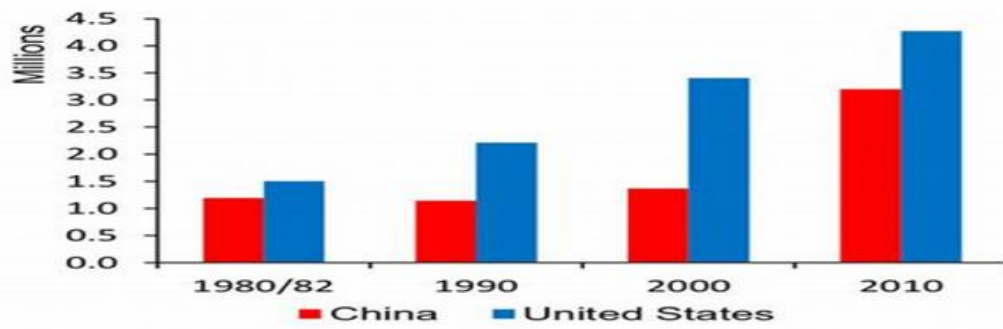


Figure 2. Employment Of Engineering And Science Fields Between The Years 1980 To 2010: A Comparison Between China And The United States Of America Resource. Lauren F Friedman. (2015). 3 charts show that China's scientific dominance over the US is a done deal. *Business Insider*. Retrieved at <https://www.businessinsider.com.au/chinas-scientific-dominance-is-a-done-deal-2014-6>

The Government's efforts to invest in education in order to produce human capital have been analyzed from an economic perspective. Human capital depends on professionals who possess high knowledge, skills and value to meet the needs of the market (Rivkin, Hanushek & 2016). At the beginning of China's development, the Government was less aware of the contribution of human capital to the country's economic improvement (Chow & Li, 2012; Bosworth field & Collins, 2008; Money & Yao, 2003). However, after the reformation era in 1978, China's economic growth in GDP stood at an average level of 9.82 per cent between the years 1978 to

2008. The Government still considers the growth due to the contribution more of physical capital than of human capital (Li, Whalley, Zhang Zhao &, 2008).

The human capital contribution to China's economic growth has been pointed out by some researchers in China (such as Whalley and Zhao, 2010). Results of their study found that, during the years 1978 to 2008, the percentage of human capital increased 7.6 percent annually and contributed 33.2 per cent to China's economic growth compared to 45.1 per cent for physical capital. Data in their study indicate that the contribution of human capital rose to almost 40 percent in the last century with physical capital at 68 percent. In detail, the contribution of human capital to the growth of China's economy is 43 percent. The percentage increased to 59 per cent in the period 2003 to 2008 as graduates born during the era of the transformation of higher education entered the local market (Li et al, 2008).

Due to its awareness of the importance of education to the economy, science and technology as well as to community fields, the Chinese Government has been improving the quality of education, especially higher education. The former President of China, President Hu Jintao, said that the improvement in the quality of higher education in the context of China involves the following factors (a) improvement of quality is the main agenda and must be urgently pursued in developing higher education, (b) university quality in China was measured through graduates' standards, especially with regard to undergraduates, in the form of skills, innovation and practice, and (c) it is necessary to develop collaborative innovation through enhancing capability of national innovation, promoting an innovative culture among individuals and enhancing research (Australian Government, Department of Education and Training, 2018).

Bian (2014), Liu and Zhang (2007) as well as Meng (2015) said the quality of a University can be measured through assessment by external parties. This concept is called internationalization. Internationalization is a process of strengthening higher education institutes so as they are able to compete at an international level through the preparation of universities for the international environment and requirements (Knight, 2017). One aspect of the internationalization process is student mobility involving types of student exchanges, Chinese students studying abroad or international students sponsored by the Chinese government (Ennew & Greenaway, 2012).

The number of international students in China has increased from year to year. For example, in 2011, the Ministry of Education (2018) reported there was a total of 291,611 international students from 194 countries. The number increased in 2014 to 380,000 students from 200 countries. In March 2018, a total of 489,200 international students from over 250 countries are recorded. This figure surpassed the target of the ministry through the slogan of *Study in China 2010* that is, 500,000 international students by the year 2020.

However, the Chinese Government's aim to develop a world-class higher education through the internationalization process will be retarded if their international students experience various challenges. The researchers found that there were two contributing factors to student learning ineffectiveness, namely language and culture. For example, Hong (2010) found that the language factor was causing international students in China a lack of facility in communicating with local students. A Study by Kalsoom BeBe Sumra (2017) about the challenges facing international students because of the perceptions of students and lecturers also supports these findings. Her research found that there was a significant relationship between language and culture and the personal and academic achievement of students. The implications of this include student students' misunderstanding of the local community's culture (Jiongmei, 2017) and psychological factors that affect their academic performance (Huang, & Klinger, 2016; Jiongmei, 2017; Yu, 2017).

A contributing factor to this lies in the fact that the approach of Chinese education at home is quite different from the external community that was influenced by the previous Government policy (close the door to the world) (Chunyan, 2016). Zhang (2017) said the phenomena is due to the loose internationalization regulations. This is in line with the rules on Regulations on Foreign Students 1985 saying that the purpose of the international student recruitment is to strengthen relations among countries in various fields (Institute for International Education, 2017). In other words, internationalization policy through allowing international

students to study in China can make it possible for China to collaborate with foreign countries as well as to expand its power in the Asian region (Zhang, 2016).

Based on the previous discussion, two questions arise: (a) Which backgrounds of international students leads to this problem?, and (b) what are the reasons that these problems surface? Do they come from language or culture or policy factors? The relative lack of studies of this problem contributes to unclear information about international students. This view is supported by meta-analysis studies by Kalsoom BeBe Sumra (2017) that found that the lack of studies of international students to identify students' perceptions is due to political factors. It is forbidden to touch on political issues, particularly the relationship of students' governments with China.

Considering the phenomena discussed above, this study aims to identify the performance of international students in the selected universities in China in terms their learning readiness. The findings of this study should provide clear information for education stakeholders, particularly policymakers, education leadership, and academicians about strategies to enhance the quality of international students, especially policies about international university students' recruitment in China.

RESEARCH PURPOSE

This research is carried out to identify the learning readiness of international students in the selected universities in China.

RESEARCH OBJECTIVES

This research is carried out to achieve the following objectives.

- a) To analyze the significant relationship between students' origins and their performance; and
- b) To study the effectiveness of international student learning readiness in selected universities in China.

LITERATURE REVIEW

This section discusses the following aspect.

Learning

The concept of learning is derived from psychology. Ebbinghaus (1885) and Thorndike (1911) states that learning has been the main focus in the field of psychology. Indeed, to date, the concept of learning remains a major study in various areas of psychology. As a result, there are no specific definitions of the concept of learning. Bouton (2017) and Schwartz, Wasserman and Robbins (2002) agreed to this by stating that the authors of the influential psychology book text do not include specific definitions of learning in their books.

Instead, they provide a general definition. For example, Lachman (1997) states that most textbooks provide a definition of learning as a process of behavioral change as a result of experience enhancement. Kennedy (2014) added that learning is much deeper than memorization and information recall. Deep and long-lasting learning involves understanding, relating ideas and making connections between prior and new knowledge, independent and critical thinking and the ability to transfer knowledge to new and different contexts.

In short, learning is a process of behavioral changes as a consequence of the addition of knowledge, skills and values.

Learning Readiness in The Context of Chinese Culture

Majority researchers (such as Brookfield, 1995 and Merriam, Caffarella, Wlodkowski and Cranton, 2001) found that experience, history, culture, self-reflection and learning methods are parts of mechanisms to influence adult learning.

In other words, the latest trends have changed from simply identifying self-factors, to taking into account the external environmental factors that affecting students' learning. For example, Hiemstra and Burns (2017) say that recent research on student learning readiness is more focused on relationship relationships among students, their willingness to learn and environmental factors such as technology, education policies, friends and culture.

However, there is less discussion on the aspects of culture. This is probably because some policy makers feel sensitive when talking about culture in relation to students' learning (Merriam, 2007; Perrot, Deloney, Hastings, Savell, & Savidge, 2001). However, this opinion only could be applied in the western context (Merriam et al., 2001).

In China there are some studies on the relationship between student learning readiness and culture. A study by Salili (1996) found that the home education of a Chinese family to educate students to be stresses obedience, not the adoption of learning styles involving freedom of choosing or self- management of assignments. Studies by Biggs and Watkins (1996), and Watkins and Biggs (2001) reported that students in China, Taiwan and Hong Kong were passive and introverted, but complaint about the classroom management secretly. Their studies also found that students were less likely to ask questions or were not interested in volunteering to ask questions in the classroom. This phenomenon is due to the culture and beliefs of Chinese communities that impact their thinking and learning behavior (Chan, 2017; Kennedy, 2014).

From a positive culture perspective, studies by of Chan (2017) and Kennedy (2014) found that Chinese culture emphasizes the value of harmony, collaboration, and] educating students to respect individuals who are more senior in terms of age, for instance by complying with the directions of their parents, family members and teachers. The implication is[that] student learning styles and teaching methods vary (Salili, 1996). Students assumed that their teachers played a major role in their success (Salili, Chiu & Hong, 2016), teachers used power and authority to manage the classroom (Chan, 2017; HO, Salili, Biggs & Hau, 2011).

In addition to culture, the education system in China also affects student learning readiness. Salili, Chiu and Hong (2016) support the statement with their study findings that the Chinese education system, which is examination-oriented, contributed to strict classroom management, with teachers using their power and authority to control student discipline so that teachers can focus on teaching and learning processes. In fact, student learning styles tend to depend on being spoon-fed so that the expectations of teachers and schools are achieved.

In conclusion, culture that includes the beliefs, norms and values of Chinese communities affect student learning readiness. In addition, an education system that is examination-oriented also affects learning styles.

RESEARCH FRAMEWORK

This framework involves one theoretical framework and five theories to develop the research conceptual framework (a) Model 3Ps Teaching and Learning by Biggs (2013), (b) the theory of learning by Entwistle and Ramsden (1983), and (c) theories of Self-Direction in Learning Readiness by Guglielmino (1997), Candy (1991), Knowles (1975) and the National Chapter's School Resource Center (2017).

(a) Model 3Ps Teaching and Learning by Biggs

Biggs (1987) built a model of teaching and learning to reflect the process of student learning. This model was derived from Dunkin and Biddle (1974) and Biggs (1987) was to improve the existing model by adding one factor, personal, in presage variables. This model was applied to build the research conceptual framework because some scholars had adopted their models from Biggs' (Drew & Watkins, 1998; Lizzio & Wilson, 2005; Zhang, 2016).

This model assumed that the relationship among variables is systemic rather than linear. In other words, student learning is an interactive and dynamic process (Brockett & Hiemstra, 1991; Garriosn, 1997). The model

listed three variables that affect student learning i.e. (i) an early indicator factor that reflects before learning has occurred or presage factor, (ii) process (while learning) and (iii) product (learning outcomes). These variables are displayed in Figure 3.

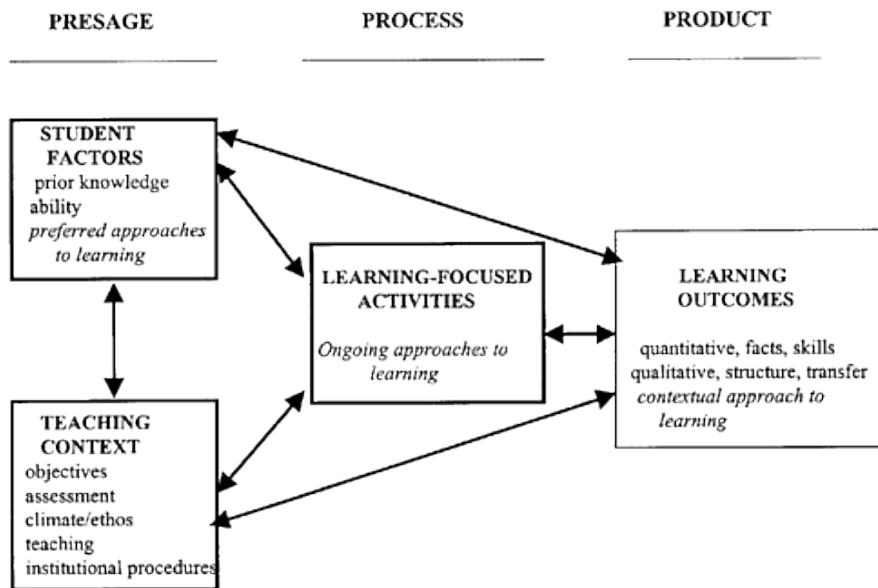


Figure 3. 3 Ps Teaching and Learning by Biggs (1987)

Source. Nga D. Tran. (2015) Reconceptualization of Approaches To Teaching Evaluation In Higher Education. Issues in Educational Research, 2015, Vol 25(1), 50-61 Retrieved at <http://www.iier.org.au/iier25/tran.html>

Based on Figure 3, here is description of three variables.

(i) *Presage Factor*

Presage is a variable that occurs before learning activities begins. Input of the presage factor influences the effectiveness of the process and product variables. In an early study by Biggs (1987) two sub variables were found in the presage factor i.e. personal factors and situations. Personal factors involve intellectual ability, personality and home environment. The situation includes the course structure, the time allocated for the task (Biggs, 1987), features of teacher personality, teaching methods and teacher learning and assessment (Biggs & Moore, 1993).

Biggs' further study found personal factors involves three aspects as follow: basic or existing knowledge, ability and motivation. The Situation factor is more focused on teacher factors involving five aspects: objectives, assessment, classroom environment, teaching and organization regulations or procedures.

(ii) *Process Factor*

This variable refers to the learning strategies used by students. The effectiveness of process factors is strongly influenced by this variable and the presage factor. In the context of students' learning, their learning strategy is influenced by personal factors and teaching factors (Biggs, 2013; Ramsden, 2014). This situation affects the product factor (Marton & Saljo, 1976; Ramsden, 2014).

Process factor also acts as a mediator between presage and product variables (Biggs, 2013; Biggs & Moore, 1993).

(iii) Product Factor

These outcome variables are associated with learning process. According to Ainsworth and Viegut (2016) the effectiveness of these variables can be measured through formative and summative evaluations. They added that summative assessment includes formal and informal assessments for identifying progress and mastery of student learning. Formative assessment is a formal evaluation to identify student achievements over the course of schooling.

Both evaluations involve feedback of both a quantitative and a qualitative nature. Quantitative refers to the student achievement that is evaluated through number or statistics such as examination grades (Lizzio & Wilson, 2005). The qualitative involves verbal assessment such as recorded observation of student academic progress.

(b) Learning Theory by Entwistle and Ramsden (1983)

A Qualitative study of Entwistle and Ramsden (1983) found that student learning approaches is to understand lessons in order to achieve the objectives of learning are as follows.

- (i) Meaning: an attempt to understand the meaning of a text. For example, students strive to understand a text intended for comprehension;
- (ii) Reproducing: an effort to memorize the text content for examination purposes;
- (iii) Achieving: related to student learning strategies that are driven by the future success and meaning and reproducing variables;
- (iii) Non-academic: refers to negative elements that hinder the effectiveness of student learning such as being less disciplined and less motivated.

(c) The Contents of the Process Variable

Contents of process variables in a research conceptual framework involve four research studies about the theory of self-directed learning readiness. Researchers and their research findings are shown in Table 1.

Table 1
Findings about Self-Direction Learning Readiness

Research Domains	National Chapter School Resource Center (2017)	Knowles (1975)	Candy (1991)	Guglielmino (1977)
<ul style="list-style-type: none"> ▪ Adequate knowledge base for the content being presented 	<ul style="list-style-type: none"> ▪ Content knowledge 			
<ul style="list-style-type: none"> ▪ Adequate cognitive functioning 	<ul style="list-style-type: none"> ▪ Cognitive skills 	<ul style="list-style-type: none"> ▪ Setting personal goals ▪ Diagnosing one's own learning needs 	<ul style="list-style-type: none"> ▪ Teacher instruction 	
<ul style="list-style-type: none"> ▪ Adequate Study Skills and Strategies 	<ul style="list-style-type: none"> ▪ Expeditions (Journey) 	<ul style="list-style-type: none"> ▪ Making decisions on resources and learning strategies 		<ul style="list-style-type: none"> ▪ Attitude ▪ Value
<ul style="list-style-type: none"> ▪ The disposition for learning 	<ul style="list-style-type: none"> ▪ Habits of Success 	<ul style="list-style-type: none"> ▪ Assessing the value of the outcomes 	<ul style="list-style-type: none"> ▪ Self-control 	<ul style="list-style-type: none"> ▪ Abilities ▪ Belief

Research finding discussion is as follows.

(i) *Guglielmino (1977)*

Guglielmino (1977) made an assumption that the availability of student learning depends on a variety of situations ranging from classroom management up to a self-management plan and self-management in conducting a project (Jones, 1992). His research emphasizes the importance of student personality characteristics that are able to alter their learning situations. The personality features include attitude, values, beliefs and abilities. The learning situation includes learning objectives, activities, materials, energy levels and priorities to learn.

(ii) *Knowles (1975)*

Knowles (1975) describes the availability of learning as a process or an individual effort independently or without expecting help from others. The characteristics of student learning readiness include diagnosing one's own learning needs, setting personal vision, making decisions on resources and learning strategies and assessing learning outcomes.

(iii) *Candy (1991)*

Candy (1991) assumed that learning readiness is an outcome of education that involves learning methods. As an outcome of education, learning readiness involving autonomy and self-management skill refers to the characteristics of personality, willingness and ability of the student to conduct their studies. This theory includes two important aspects of learning readiness namely self-control and autodidaxy or teaching methods in formal or informal settings.

(iv) *National Chapter School Resource Center (2017)*

National Chapter School Resource Center (2017) establishes four key elements for student willingness to learn namely, knowledge content involving a private effort (personalized) to bridge the gap in knowledge through the knowledge mastery of all subjects, cognitive skills (students need to develop professionalism, critical thinking, effective communication and skills based on problem-solving), expected (related to the learning outcome that is exploring the nature of employment and applying knowledge acquired) and attitude to succeed (students independently learn and develop the attitude to succeed).

(d) Research Conceptual Framework

A conceptual framework is an argumentative concept chosen for investigation or an anticipated relationship between variables that are appropriate and useful. It is apparent that at this stage of finding solutions to the research problem, the researcher is supposed to identify the problem and the relevant variables that contribute to it. The framework is the foundation on which the entire research is based.

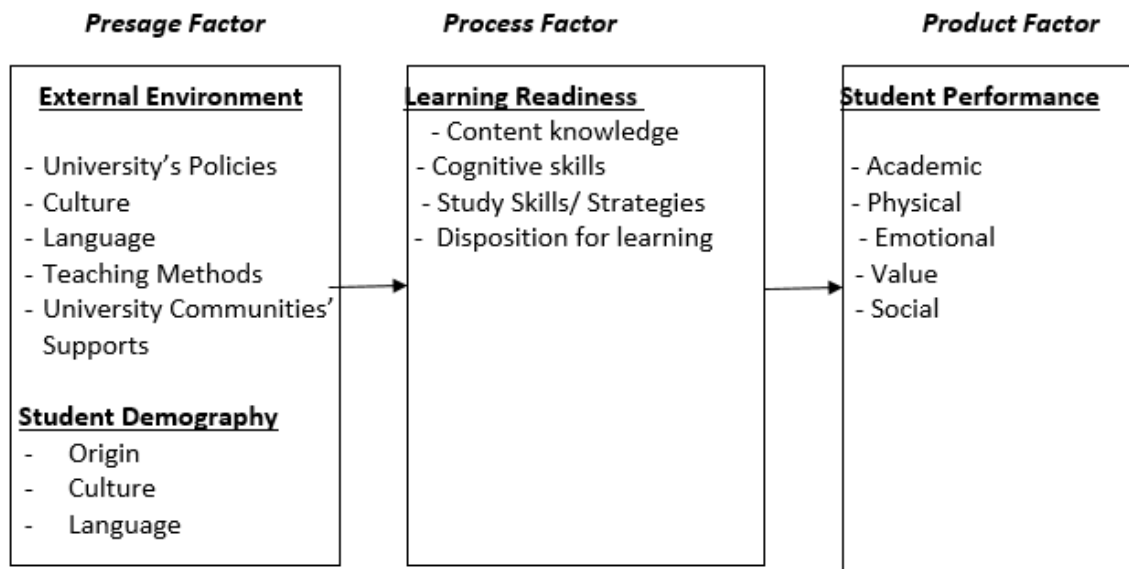


Figure 4. Research Conceptual Framework

Figure 4 shows the research conceptual framework that underpins this study according to four main variables known as (a) student demography and external environment as a presage factor, (b) learning readiness as a process factor and (c) student performance as a product factor. This study proposes the presage factors that are raw materials need to be improved through learning readiness activities in process factors to create a perfect student.

RESEARCH METHODOLOGY

This section is explained as follows.

Research Design

Research design involves a systematic plan with an inquiry strategy that describes how research is supposed to be carried out based on certain underpinning assumptions (i.e. paradigms of social research) leading up to the data collection. In other words, research design is the logic through which a researcher addresses the research questions (Mason, 2017), and gains data for the study (Denzin & Lincoln, 2016). Therefore, the research design aims to understand the processes and not the product of scientific inquiry (Cohen & Manion, 2014).

This research applied a quantitative method that used descriptive and inferential statistics. The descriptive statistics involves mean and standard deviation to identify the effectiveness of the international students' learning readiness. The inferential statistics identifies differences among two or more valuables i.e. Chi Square Independent is to identify the relationship between student achievement and their origins.

Population and Sampling

Purposive sampling was used to select the respondents. Purposive sampling is a sampling technique in which the researcher relies on his or her own judgment when choosing members of a population to participate in the study (Yin, 2015). Purposive sampling is a non-probability sampling method and it occurs when elements selected for the sample are chosen by the judgment of the researcher. Researchers often believe that they can obtain a representative sample by using sound judgment, which will result in saving time and money.

The respondents for this research were international students from all years of study in selected universities in Beijing, Hubei, Jiangsu and Shanghai. The respondents' size is 275 international students. This figure aligns with Creswell's (2014) suggestion for social science studies in which to identify behavior of human being. His suggestion is between 30 to 400 people. The features for quantitative respondents are: (i) studying at the university for more than a year, and (ii) volunteering to participate in this research. The specific explanation of the respondent profile is in Table 2.

Table 2
Quantitative Respondent Profile

Number	Item	Amount	Percent	
1.	Country Origin	Central Asia	7	2.50
		South Asia	174	63.30
		Southeast Asia	61	22.20
		Middle East and North Africa	16	5.80
		Europe	17	6.20
		Total	275	100.00
2.	Gender	Male	208	75.60
		Female	67	24.40
		Total	275	100.00
3.	Age	18 to 22	24	8.73
		23 to 27	116	42.18
		28 to 32	77	28.00
		33 to 37	46	16.73
		38 to 42	8	2.91
		43 to 47	4	1.45
		Total	275	100.00
4.	Level of Study	Bachelor	11	4.00
		Master	113	41.09
		Doctorate	151	54.91
		Total	275	100.00

Table 2 indicates that most respondents are from the South Asia region. The countries included in this region are Bangladesh, India, Nepal, Pakistan and Sri Lanka. There are 174 students from this region. This figure comprises 63.30 percent of the total number of students. The Southeast Asia region includes Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand and Vietnam. There are 61 respondents from this region (22.20%). The Europe region includes Belarus, Georgia, Hungary, Poland and Ukraine. There are 17 respondents from this region (6.20%). The Middle East and North Africa regions include Egypt, Iraq, Palestine, Saudi Arabia and Syria. There are 16 respondents from this region (5.80%). The Central Asia region includes Azerbaijan, Mongolia, Russia, Turkmenistan, and Uzbekistan. This region has 7 international students. This figure represents 2.50%.

There are 208 male students involved in this research. This figure represents 75.60 percent. There are 67 female students (24.40%).

Most respondents' age is between 23 and 27, 116 students. This figure represents 42.18 percent. Ages between 28 and 32 is 77 students (28%), 33 to 37 is 46 students (16.73), 18 to 22 is 24 students (8.73%), 38 to 42 is 8 (2.91%) and 43 to 47 is 4 students (1.45%). [There are 77 students between 28 and 32 (28%), 46 between 33 and 37 16.73%), 24 from 18 to 22 (8.73%), 8 from 38 to 42 [2.91%), and 4 from 43 to 47 (1.45%).]

The respondents involved in this research are doctoral, master's and bachelor's degree students. There are 151 doctorate [doctoral] candidates. This figure represents 54.91 percent. Master's candidates are 113 (41.09%) and bachelor's candidates are 11 (4%).

Instrument

An Instrument is a device that is used to collect, measure and analyze data related to the subject. An *Instrument* helps to distinguish between instrument and instrumentation, considering that the *instrument is the device* and *instrumentation is the course of action* i.e. the process of developing, testing, and using the device (Ary, Jacobs & Razavieh, 2014).

Instruments fall into two broad categories, researcher-completed and subject-completed, distinguished by those instruments that researchers administer versus those that are completed by participants (Yin, 2015). Researchers chose which type of instrument, or instruments, to use based on the research question.

For this research, instrument was designed by the researcher through analyzing relevant literature, particularly for the learning readiness section. Table 3 shows sections and amounts of items based on their domains.

Table 3
Content of Questionnaire

Section	Item	Amount
A	Respondent Demography	8
B	Learning Readiness	
	(a) The disposition for learning	15
	(b) Adequate Study Skills and Strategies	12
	(c) Adequate cognitive functioning	9
	(d) Adequate knowledge base for the content being presented	2
Total		46

Table 3 indicates there are two sections to the questionnaire's content: Section A is respondent demography consisting of 8 items and section B is learning readiness with 38 items. A 7-Point- Likert Scale were used to identify respondents' agreement on their learning readiness. It is ranged from 1 is "Almost Never True to Me" through 7 is "Almost always True for Me".

Pilot Test

A pilot study was conducted to test the research instruments' validity and reliability. Therefore, the ambiguities and unclear questions could be identified and necessary modifications made (Ary, Jacobs & Razavieh, 2014). This means that the researcher will be assisted in modifying the instrument before carrying out the field work.

A pilot test is a small scale research prior to beginning the field work. The Researcher analyzed the instrument to identify the suitability of items being used in this context by making item arrangement and the instructions in the questionnaire. This is to make sure that respondents understand the message that the researcher would like to convey (Gould-Williams, 2013). The pilot test is able to get inputs in order to retain the useful items or delete the useful ones. The pilot test includes the following processes.

(a) Validity

Validity refers to how strong the outcomes of the hypothesis are. It answers the question 'are we right?' In other words, the extent to which a research instrument consistently has the same results if it is used in the same situation on repeated occasions (Yin, 2015).

The instrument verification was carried out from late June through early July 2017. To examine the content validity of the questionnaire, two experts were selected. They are experts in languages and the field of the research. An example of the improvements that were made by the experts was to propose organizing the

learning readiness section into four dimensions: the disposition for learning, adequate study skills and strategies, adequate cognitive functioning and adequate knowledge base for the content being presented

(b) Reliability

Reliability is when the measurement is consistent. It means if a certain kind of instrument is used for a test and the results for the subjects you are being tested are the same for the first and second try, then the instrument is considered reliable (Creswell, 2015).

In this context, instrument reliability was carried out in late August through September 2017 among 30 international students. This figure is suggested by Isaac and Michael (1995) with their recommendation of between 10 to 30 for pilot test respondents.

The data were analyzed using SPSS software, specifically Cronbach's alpha. Cronbach's α is the most commonly used test to determine the internal consistency of an instrument. In this test, the average of all correlations in every combination of split-halves is determined. Instruments with questions that have more than two responses can be used in this test. The Cronbach's α score is a number between 0 and 1. An acceptable reliability score is one that is 0.7 or higher (Shuttleworth, 2015). This research's overall Cronbach's α is more than 0.08. This score is indicated in Table 4.

Table 4
Cronbach's Alpha for Quantitative Reliability

No.	Dimension	Cronbach's Alpha
(a)	The disposition for learning	
(b)	Adequate Study Skills and Strategies	0.90
(c)	Adequate cognitive functioning	0.89
(d)	Adequate knowledge base for the content being presented	0.87
		0.92
	Total	0.91

Data Collection Procedure

After the researcher determined in advance what data should be gathered and what analysis techniques were to be used with the data to achieve the research objectives, the research data collected were largely quantitative. The data collected came from questionnaires. After using the designed instrument and collecting evidence properly, the researcher ensured that it was well constructed.

The instruments were distributed from late July through early December 2017. After pilot tests were carried out, the researcher made amendments and distributed the instruments to the respondents. Permission was requested from the International Centers of selected universities in Beijing, Hubei, Jiangsu and Shanghai. The researcher met the center officers for their help in distributing to the respondents. The centers sent email messages together with the instruments to the respondents with a request to complete the instruments within two weeks. After the end period, researcher came and picked up the instruments.

Data Analysis

Analysis refers to breaking a whole into its separate components for individual examination. Data analysis is a process for obtaining raw data and converting it into information useful for decision-making. Data is collected and analyzed to answer questions, test hypotheses or disprove theories (Charles & Gary, 1989).

To analyse the data, statistical methods that are included under quantitative research are used as follows.

(a) Descriptive Analysis

Descriptive analysis is a process to organize or summarize the analyzed data. Percentage, tables, frequency, mean and standard deviation are some examples of descriptive analysis presentation (Sekaran, 2014). The researcher used this method to identify respondents' demography such as students' origins, gender, age and level of study.

(b) Inferential Analysis

Inferential statistics involves studying a sample of data. This statement implies that information has to be inferred from the presented data. This means that instead of using the entire population to gather the data, the researcher collected a sample or samples from the population and made inferences about the entire population using the sample. There are two types of inferential analysis used as follows.

Pearson Chi-Square

A Pearson Chi-Square is the distribution of the sum of squares of k independent standard normal random variables with k degree of freedom. The chi-square distribution is a special case of the gamma distribution and is one of the most widely used probability distributions in inferential statistics, notably in hypothesis testing or in construction of confidence intervals (Sanders, 2009). In this context, students' origins are independent variables and their achievements are dependent variables. This is to identify whether students' origin has a significant relationship with their achievement.

FINDINGS

This section is presented as follows.

Relationship Between Students' Origins and Their Performance

To answer the research question on the relationship between students' origins and their performance, 275 international students from the selected universities in China were involved in responding to the provided questionnaires. The collected data were analyzed using Pearson Chi-Square. Pearson Chi-Square was used to test the following hypothesis. Null hypothesis is to be rejected if observed p value is less than the significant level of expected p value, $p < 0.05$. This analysis also draws a conclusion on the relationship between students' origins and their performance.

H_0 : There is no significant relationship between students' origins and their performance

There are two assumptions that need to be fulfilled prior analyzing the sample using Pearson Chi-Square.

(a) Normality Test

A Normality test is used to determine if a data set is well-modeled with a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed (Oldrich, 1976). The Kolmogorov-Smirnov test (K-S test or KS test) is a nonparametric test of the equality of continuous, one-dimensional probability distributions that can be used to compare a sample with a reference probability distribution (one-sample K-S test), or to compare two samples (two-sample K-S test) (Marsaglia, Tsang & Wang, 2003). Babu and Rao (2004) said that the strength of using the KS test is that it can be universally applied without restriction to any scientific problem. For example, there is no restriction on the size of the sample, and critical values of probabilities are widely available, with asymptotic formulae for large samples (roughly $n > 30$) and tabulated values for small samples.

The Kolmogorov-Smirnov test is constructed as a statistical hypothesis test by determining a null hypothesis, H_0 , that the two samples we are testing come from the same distribution. Then, we search for evidence that

this hypothesis should be rejected and express this in terms of a probability. If the likelihood of the samples being from different distributions exceeds a confidence level that we demand, then the original hypothesis is rejected in favor of the hypothesis, H_1 , that the two samples are from different distributions.

H_0 : There is no significant difference between students' origins and the normal distribution.

Table 5 indicates that student origin data were used to identify data normality. Since the significance expected value is $p=0.000 < 0.05$, the assumption that the student origin data are normally distributed is rejected. This means that the sample is not normally distributed.

Table 5
Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Student Origin	.271	275	.000	.866	275	.000

(b) Independent Test

The Pearson Chi-Square is carried out for the purpose of assuming that the collected data are from the dependent sample. There is a significant relationship or dependability among variables, if the observed p value is expected to be less than the significant level of p value, $p < 0.05$. In opposite, if the obtained p value is expected to be more than the significant level of p value, $p < 0.05$.

The result of independent test is performed in Table 6.

Table 6
Independent Test for Students' Origins and Their Performance

	Value	df	Expected Sig (2-sided)
Pearson Chi-Square	73.051	52	.029
Likelihood Ratio	52.186	52	.467
Linear-by-Linear	3.252	1	.071
N of Valid Cases	275		

Table 6 explains that the expected value of obtained p for Pearson Chi-Square is .029. This shows that Pearson Chi-Square analysis is significant when $p < 0.05$. Therefore, sample variants are obtained from the independent sample. This analysis indicates that the assumption of dependent data is occupied when Chi Square, $\chi^2(52)=73.051$, $p=.029$.

(c) Pearson Chi-Square

Pearson Chi-Square is the distribution of the sum of squared standard normal deviates. The distribution's mean is equal to the degrees of freedom and the variance of the chi-square distribution is two multiplied by the degrees of freedom.

This is the distribution used when conducting a chi square test comparing observed versus expected values and when conducting a chi square test to test for differences in two categories.

In this context, the Pearson Chi-Square analysis is significant when $p < 0.05$ [$\chi^2(52) = 73.051$, $p = .029$]. Therefore, the null hypothesis, that there is no significant relationship between students' origins and the normal distribution, is rejected. This means that there is a significant relationship between students' origins and their performance. Due to the fact that the students were from developing countries, most students' performance based on grade performance average are average i.e. in the range of 3.00 to 3.99. This is shown in Table 7.

Table 7

Grade Performance Average Based on Students' Origins

	Total	Mean	Standard Deviation
Central Asia	7	3.71	0.49
South Asia	174	3.77	0.44
Southeast Asia	61	3.62	0.52
Middle East and North Africa	16	3.88	0.50
Europe	17	3.88	0.49

In conclusion, the demography factor of international students, their origins, influences their performance. In other words, the student recruitment factor needs to be revised by education stakeholders especially the government, university and community.

Effectiveness of International Student Learning Readiness

To answer the question of the effectiveness of international student learning readiness, 275 international students from selected universities in China were involved in responding to the provided questionnaires. The collected data were analyzed using mean and standard deviation. The mean interpretation score by Pallant (2017) was also used to identify the international student learning readiness effectiveness level. Table 8 indicates the effectiveness level of international students' learning readiness.

Table 8

Interpretation of International Student Learning Readiness Effectiveness Level

Mean Score Range	International Student Learning Readiness Effectiveness Level
1.00 – 2.20	Very Weak
2.21 – 3.40	Weak
3.41 – 4.60	Average
4.61 – 5.80	Good
5.81 – 7.00	Very Good

Source: Pallant, J. (2017). *SPSS: Survival manual (8th Ed.)* England: Open University Press

The interpretation of international student learning readiness effectiveness was developed through this mathematical operation: largest min score minus the smallest one. Then, being divided the result with the proposed scale. This means that the largest mean score, 7, is subtracted by the smallest one, 1. The result of the subtraction is being divided by 5. Therefore, the score range is 1.2.

In general, the effectiveness level of international student learning readiness is shown in Table 9.

Table 9
Effectiveness of International Student Learning Readiness

Region	N	Mean	Standard Deviation	Effectiveness Level
Central Asia	7	4.70	1.20	Good
South Asia	174	5.39	1.12	Good
Southeast Asia	61	4.78	1.08	Good
Middle East and North Africa	16	5.55	0.88	Good
Europe	17	5.37	0.78	Good
Overall	275	5.16	1.01	Good

Table 9 indicates that the mean total score is 5.16 and its standard deviation 1.01. This score means that effectiveness level of international student learning readiness is good. Referring to the regions, Central Asia's mean score is 4.70 and its standard deviation 1.20. This implies that the effectiveness level of Central Asia student learning readiness is good. South Asia's mean score is 5.39 (standard deviation 1.12, effectiveness level: Good), Southeast Asia's mean score is 4.78 (standard deviation 1.08, effectiveness level: Good), Middle East and North Africa's mean score is 5.55 (standard deviation 0.88, effectiveness level: Good), and Europe's mean score is 5.37 (standard deviation 0.78, effectiveness level: Good). The following explanation is based on the domains of student learning readiness.

(i) Effectiveness of International Student Learning Readiness: The Disposition for Learning

Table 10 indicates the effectiveness of international student learning readiness in the disposition for learning dimension.

Table 10
Effectiveness of International Student Learning Readiness: The Disposition for Learning

Region	N	Mean	Standard Deviation	Effectiveness Level
Central Asia	7	4.65	1.19	Good
South Asia	174	5.07	1.05	Good
Southeast Asia	61	4.67	1.08	Good
Middle East and North Africa	16	5.60	0.92	Good
Europe	17	5.07	0.87	Good
Overall	275	5.01	0.87	Good

Table 10 explains that the mean total score is 5.01 and its standard deviation 0.87. This scores means that effectiveness level of international student learning readiness is average. Referring to the regions, Central Asia's mean score is 4.65 and its standard deviation 1.19. This implies that the effectiveness level of Central Asia student learning readiness is good. South Asia's mean score is 5.07 (standard deviation 1.05, effectiveness level: Good), Southeast Asia's mean score is 4.67 (standard deviation 1.08, effectiveness level: Good), Middle East and North Africa's mean score is 5.60 (standard deviation 0.92, effectiveness level: Good), and Europe's mean score is 5.07 (standard deviation 0.87, effectiveness level: Good).

(ii) Effectiveness of International Student Learning Readiness: Adequate Study Skills and Strategies

Table 11 indicates the effectiveness of international student learning readiness in adequate study skills and strategies.

Table 11

Effectiveness of International Student Learning Readiness: Adequate Study Skills and Strategies

Region	N	Mean	Standard Deviation	Effectiveness Level
Central Asia	7	4.68	1.21	Good
South Asia	174	5.54	1.22	Good
Southeast Asia	61	4.89	1.13	Good
Middle East and North Africa	16	5.59	0.95	Good
Europe	17	5.37	0.87	Good
Overall	275	5.21	1.08	Good

Table 11 indicates that the mean total score is 5.21 and its standard deviation 1.08. This scores means that effectiveness level of international student learning readiness is good. Referring to the regions, Central Asia's mean score is 4.68 and its standard deviation 1.21. This implies that the effectiveness level of Central Asia student learning readiness is good. South Asia's mean score is 5.54 (standard deviation 1.22, effectiveness level: Good), Southeast Asia's mean score is 4.89 (standard deviation 1.13, effectiveness level: Good), Middle East and North Africa's mean score is 5.59 (standard deviation 0.95, effectiveness level: Good), and Europe's mean score is 5.37 (standard deviation 0.87, effectiveness level: Good).

(iii) Effectiveness of International Student Learning Readiness: Adequate Cognitive Functioning

Table 12 indicates the effectiveness of international student learning readiness in adequate cognitive functioning.

Table 12

Effectiveness of International Student Learning Readiness: Adequate Study Skills and Strategies

Region	N	Mean	Standard Deviation	Effectiveness Level
Central Asia	7	4.83	1.44	Good
South Asia	174	5.59	1.23	Good
Southeast Asia	61	4.90	1.11	Good
Middle East and North Africa	16	5.69	0.94	Good
Europe	17	5.58	1.02	Good
Overall	275	5.32	1.15	Good

Table 12 indicates that the mean total score is 5.32 and its standard deviation 1.15. This scores means that effectiveness level of international student learning readiness is good. Referring to the regions, Central Asia's mean score is 4.83 and its standard deviation 1.44. This implies that the effectiveness level of Central Asia student learning readiness is good. South Asia's mean score is 5.59 (standard deviation 1.23, effectiveness level: Good), Southeast Asia's mean score is 4.90 (standard deviation 1.11, effectiveness level: Good), Middle East and North Africa's mean score is 5.69 (standard deviation 0.94, effectiveness level: Good), and Europe's mean score is 5.58 (standard deviation 1.02, effectiveness level: Good).

(iv) Effectiveness of International Student Learning Readiness: Adequate Cognitive Functioning

Table 13 indicates the effectiveness of international student learning readiness in adequate cognitive functioning.

Table 13

Effectiveness of International Student Learning Readiness: Adequate Knowledge Base for the Content Being Presented

Region	N	Mean	Standard Deviation	Effectiveness Level
Central Asia	7	4.64	1.14	Good
South Asia	174	5.38	1.31	Good
Southeast Asia	61	4.66	1.24	Good
Middle East and North Africa	16	5.53	1.51	Good
Europe	17	5.47	0.86	Good
Overall	275	5.14	1.21	Good

Table 13 indicates that the mean total score is 5.14 and its standard deviation 1.21. This scores means that effectiveness level of international student learning readiness is good. Referring to the regions, Central Asia's mean score is 4.64 and its standard deviation 1.14. This implies that the effectiveness level of Central Asia student learning readiness is good. South Asia's mean score is 5.38 (standard deviation 1.31, effectiveness level: Good), Southeast Asia's mean score is 4.66 (standard deviation 1.24, effectiveness level: Good), Middle East and North Africa's mean score is 5.53 (standard deviation 1.51, effectiveness level: Good), and Europe's mean score is 5.47 (standard deviation 0.86, effectiveness level: Good).

In conclusion, the effectiveness of international student learning readiness is good when the mean score is more than 4.61.

DISCUSSION

China is a popular destination for international students to pursue a quality education. The Chinese government's attempts to recruit students from outside China began in 1950. Each year, many new international students enroll in programs throughout China's universities. The Ministry of Education (2019) reported an increase of 0.62 percent in international student enrollment compared to 2017. In 2018 a total of 492,185 international students from 196 countries studied at Chinese universities. South Korea leads the number with a population of 50,600, followed by Thailand (28,608), Pakistan (28,023), India (23,198) and the United States (20,996). In a year-on-year comparison, enrollment has increased by 6.86 percent a year. In addition to obtaining quality education, international students choose China in order to study cultural diversity and educational opportunities are offered widely. Liu (2019) supports this statement by presenting her research report that in 2019, 63,049 international students, or 12.81 percent, have been awarded scholarships by the Chinese government.

However, there are challenges among students to achieving success in their studies. Fordham and Ogbu's (2018) research found that internal and external factors are key contributors to students' success or failure. Their research reported that internal factors include background matters such as social-economic status and students' family. At the same time, external factors include the policy of the government and the education institution.

The findings of this research found that there is a significant relationship between students' origin and their achievement. The students who come from different continents have average academic achievement of 3.00 to 3.99. Students with origins in developing countries illustrate the various factors contributing to student learning effectiveness. This statement is supported by Hanushek, Eric and Steven (2016) that developing countries can be some major contributors to the educational disadvantages of children. Among these factors is parental education. A comparative study by Andrew, Gul, Guthrie and Teoh (2018) of developed countries and developing countries on the quality of education found that parents in developed countries have a better educational background. These factors influence their choice of schools and residential areas to ensure that their children receive quality education and living services. From a social perspective, parents in developed countries prefer using the [drop] educated words in their daily conversations with their children. In short,

educated parents are closely related to student success in educational institutions, to regular school attendance, and to a brighter future (Hemingway & Maclagan, 2019).

In addition, the study of Andrew, Gul, Guthrie and Teoh (2018) also found that developing countries offer lower standard income to their citizens compared to developed countries. As a consequence, family income influences students' academic achievement both formally and informally. (Kennedy, 2014). The Economist Intelligence Unit (2015) found that at the formal level, parents are able to provide their children with a quality education in high performing schools. Meanwhile, on the informal level of education, students are involved in extra-curricular and community activities to develop soft skills. The reason for this is that low-income parents are busy working multiple jobs for their survival and have less time for child education such as checking out school assignments, sending children to extra classes and guiding their children's future (Fisher, King & Tague, 2001).

These attitudes strongly influence students' behavior towards learning. This view is expressed by Grusec and Danyliuk (2019) who state that every parent's behavior and beliefs are social influences that shape early childhood experiences. They add that children will respond negatively if parents act with negative emotions. These findings reported that international students who are mostly from developing countries have a relatively good level of practices for readiness to study. In detail, this study found that the characteristics of readiness for international students are good in practicing. The first characteristic is disposition for learning which involves a combination of students' emerging knowledge, skills and values with regard to learning. The findings indicated that the majority of international students have a positive disposition for learning. They have good levels of courage and curiosity, trust and playfulness, perseverance, confidence and responsibility.

They need to have these qualities because of their relatively high academic burden, especially in mastering a new language. This viewpoint is in line with the findings of Yu, Chuuni and Lai Qing (2018) that international students encounter a stressful situation due to several issues in particular, language, a large number of credit hours in one semester, homesickness and lack of social support. To address these issues and to enhance academic achievement, international students use stress coping strategies that are behavioral and cognitive to respond to internal and external demands (Zhang, 2017).

This study also found that learning readiness in terms of adequate study skills and strategies, and adequate cognitive functioning are at the good level of practices among international student in China. This finding implies that international students realize they have to work hard because of the challenges they encounter. Sandhu's (2018) study found that international students encounter challenges that can be placed in two categories: (a) Interpersonal factors are related to the cultural diversity, immigration difficulties, different educational systems and academic restrictions. And, (b) Intrapersonal factors originate from students themselves and include a profound sense of loss, a sense of inferiority and a sense of uncertainty about their future.

To overcome these challenges, Yusliza (2018) categorized students' adjustment into two types: (a) sociocultural adjustments that include behavioral abilities using social skills acquisitions and cognitive factors. In this study, the international students have adapted their skills and strategies of learning by applying the fundamental skills of Bloom's Taxonomy as in Figure 5. The students tend to use fundamental skills i.e. remembering and understanding, to master the course content, and (b) psychological adjustments, which refer to anxiety depression that can be overcome through changes in personality, life and social support. In this research, international students set their vision and mission to enhance high academic performance in a foreign country. In the implementation process of vision and mission, they need the support of parents, friends and the university.



Figure 5. Bloom's Taxonomy Learning

Source. Bloom, B. S. (1956). Taxonomy of educational objectives: The classification of educational goals. Retrieved at <https://www.learning-theories.com/blooms-taxonomy-bloom.html>

This study also found that the content knowledge level of international students is good in order to imply students' learning readiness. Content knowledge is related to the facts, concepts, theories and principles that are taught and learned in specific academic courses (Bouton, 2007). In addition to content knowledge, effective students need to know about classroom management, self-development and learning strategies to create effective, meaningful and informative lessons that will enable them to the knowledge to assist them in forming and increasing their learning experience. In this study, the national higher education policy regarding international student admission has offered them encountering challenges in study, particularly in language. This challenge prevents students from understanding the teaching of their instructors' effectively. To overcome this challenge, international students use a variety of skills and learning strategies such as using dialogue, inquiry, authentic experiences and problem solving to think critically about content.

In short, international students at selected universities in China have a good level of learning readiness. This effectiveness level implies that they need to overcome some challenges, especially attitudes, to succeed in learning.

CONCLUSION

Investment in education is a government-funded effort to produce labor in the form of human capital. Every year the national budget for the education sector increases. The purpose of the investment is to enable the government to gain returns in the form of individual, community and national development. Therefore, the money spent by the government should be used efficiently and effectively to achieve the goal of investing in education.

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