AN ANALYSIS OF UNDERGRADUATE STUDENTS' SELF-DISCIPLINE IN BEIJING, CHINA

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ABSTRACT

The purposes of this study were (1) to study the levels of undergraduate students' self-discipline in Beijing, China; (2) to analyze the factors of undergraduate students' self-discipline in Beijing, China; (3) to compare the levels of undergraduate students' self-discipline under different university authorities in Beijing, China. The survey date were collected by using questionnaires which were developed based on the concept of students' self-discipline. The sample consisted of 414 undergraduate students from three types of university authority in Beijing, China: Type I (the university that is under the Ministry of Education), Type II (the university that is under Beijing City), and Type III (the university that is under the State of Council). The data were analyzed by using descriptive statistics and one-way ANOVA with SPSS, and CFA with LISREL. The research findings were as follows: (1) The overall of undergraduate students self-discipline in Beijing, China was at a moderate level (M = 3.31, S.D. = 0.40). (2) The measurement model of undergraduate students' self-discipline in Beijing, China fitted the data well [χ^2 (3, N = 414) = 4.61, χ^2/df = 1.54, p = 0.20, GFI = 1.00, AGFI = 0.98, CFI = 1.00, SRMR = 0.00, RMSEA = 0.04]. All observed variables yielded significant factor loadings on undergraduate students' self-discipline. Among the five observed variables, healthy habits and work ethics yielded the highest factor loadings. (3) The findings indicated that there was not a statistically significant difference of undergraduate students' self-discipline under different university authorities in Beijing, China (F(2, 411) = 2.82, p = .06).

KEYWORDS: Self-discipline, undergraduate students' self-discipline

1. INTRODUCTION

As learning at university is less directed and controlled than in high school, the degree to which students are able to regulate their own learning is essential for their academic success. Undergraduate students' self-discipline refers to regulating the stream of thought, altering moods or emotions, restraining undesirable impulses, and achieving optimal performance, all constitute important instances of the self overriding its responses and altering its states or behaviors of undergraduate students. More generally, general capacity for self-discipline, deliberate action, healthy habits, work ethics, reliability all reflect the ability to keep good self-discipline (Tangney et al., 2004; Rui & Yi-Lung, 2015; Unger et al., 2016).

Self-discipline plays an important role in achieving important tasks and in reaching goals, at the same time, it is also vital to resist and avoid inappropriate choices, such as eating too much unhealthy food, smoking, or engaging in excessive alcohol consumption (Unger et al., 2016). Self-discipline is important for undergraduate students, which could discipline different aspects on their thinking, motivation and behavior during the learning process (Pintrich & Zusho, 2002). Numerous studies have confirmed the importance of self-discipline for academic achievement (Pintrich & De Groot, 1990).

Self-discipline is playing an important role in the wide range of human behaviors, while one of the most important roles is academic performance (De Ridder et al., 2012). Many of the strongest effects on self-discipline had been found in the area of higher education (De Ridder et al., 2012). There is without any surprise that is because university students are required to spend their own time on a significantly larger degree than high-school students (Parker et al., 2004). University students get high score on self-discipline measure and they postpone less (Steel, 2007). In the mean time, they make the tasks done on time because they can control their study time well (Misra & McKean, 2000). They would not make free-time activities or emotional distractions to stop them from doing their work (Tangney et al., 2004). Thus, it could predict that self-discipline actually holds explanatory value in academic achievement.

Self-discipline would help people to overcome the feelings of fear, anger, envy, and helplessness in a positive way and to show respect to others' rights, at the same time, it also could assist them to express their emotions in an appropriate way. As a consequence, they will be reinforced in a positive self-image. Students will meet their needs and take up their responsibilities at school or home adequately and they prefer to accept the current situation and restriction.

With the development of economy, the thought of people has already undergone tremendous changes in China. As undergraduate students, they can accept new things easily, their thoughts with the change of economic environment and reform present some new characteristics and new development trend. Especially, the advent of Internet era provides realistic condition and environment foundation for undergraduate students' personality and thought liberation. Undergraduate students are the main group of Internet users, they can easily understand the world, stimulate their curiosity, and improve their operational ability through the network. However, it is undeniable that the network not only brings convenience, but also brings many ethical problems. Therefore, the cultivation of undergraduate students' self-discipline can make them benefit from the usefulness of the Internet, and also can make them avoid the negative effects of the Internet. In the meantime, as the network is virtual, previous and traditional means cannot play a role in the present time. So, it becomes more and more urgent to improve undergraduate students' self-discipline level. Only by cultivating self-discipline can undergraduate students make consciously and independently blind themselves and develop their ability in the network era (Lixia, 2006).

Nowadays, as for the current situation of undergraduate students' self-discipline in China, there are lots of news reporting that university students cannot manage their lives well, and cannot hold their temper properly, at the same time, because of lacking the ability of self-discipline, when university students have some conflicts with other students, they do not know how to solve these problems (Takefoto, 2016). Yu (2008) revealed that the self-discipline ability of university students was low, there existed many problem, such as many university students cannot control their time on playing online games, some choose to use fights to solve problems with their classmates, and many students ignore their assignments and cannot submit the assignments on time in Hebei, China.

Having a strong sense of self-discipline is an important symbol of improving undergraduate students' comprehensive quality. At the same time, it is also one key factor for undergraduate students to realize their goal of success. However, before undergraduate students come to university in China, most of them received exam—oriented education, what they would do to guide their daily action mainly base on heteronomy, which is the most common problem faced by undergraduate students (Bo, 2007).

The researcher believed that there was a great need to have a study on the levels of undergraduate students' self-discipline in Beijing, China. The researcher also did confirmatory factor analysis to identify and analyze the main components of undergraduate students' self-discipline.

2. Research Objectives

(1) To study the levels of undergraduate students' self-discipline in Beijing, China.
(2) To analyze the factors of undergraduate students' self-discipline in Beijing, China.
(3) To compare the levels of undergraduate students' self-discipline under different university authorities in Beijing, China.

3. Research Framework
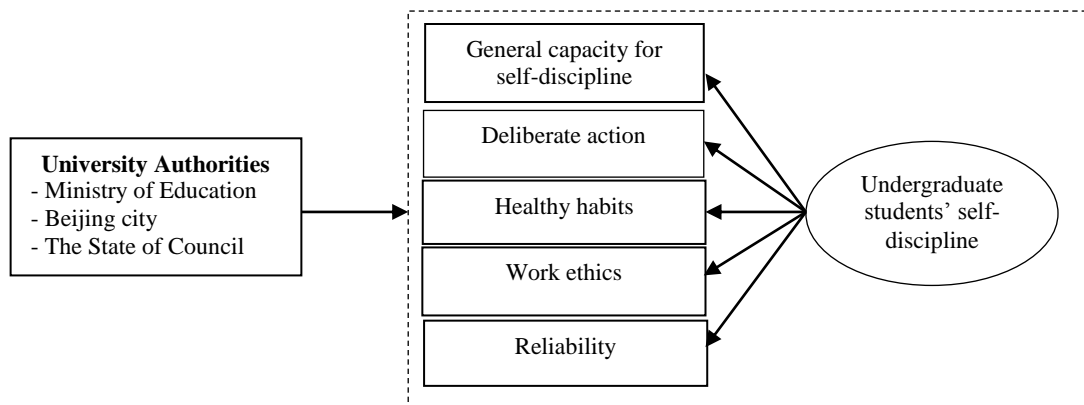
Figure 1 Research Framework

4. Research Methodology

A quantitative survey research method was applied to study undergraduate students′ self-discipline in Beijing, China. The research methodology was prodivided into six parts as following: 1) Population, 2) Determination of sample size, 3) Sampling procedures, 4) Research instrument, 5) Data collection, 6) Data analysis. Each part was detailed below.

1) Population: The population of the study is undergraduate students who study in Beijing, China in the 2014 academic year, including 499,300 undergraduate students. (National Bureau of Statistics of China, 2014).

2) Determination of sample size: This study used Taro Yamane (1967) formula to calculate the total respondents. The number of data required to be collected was 400 undergraduate students in Beijing, China. However, an average of the actual requirement of response rate was about 20 percentages (Wiratchai, 1999), the researcher therefore added up the sample size to 480 respondents in order to substitute for response rate.

3) Sampling procedures: The sample size of this study was 480 undergraduate students in Beijing, China. The sampling procedures were sampled by using stratified random sampling design.

The participants were recruited by using stratified random sampling based on the university authorities. According to Beijing Municipal Education Commission (2015), there are three types of university in Beijing, China; the university that is directly under the Ministry of Education (MoE), the university that is under Beijing city, and the university that is under the state of council.

The researcher then conducted a stratified random sampling in order to select universities regarding the three authorities. There were 58 universities, including 24 universities that were under Ministry of Education, 22 universities that were under Beijing City, and 12 universities that were under the State of Council. 12 universities were selected to represent 20% of all 58 universities. The unproportional sampling was conducted to determine four universities in each university authority. With the simple random sampling, four universities were selected from each type of university authorities. Moreover, the unproportional sampling was conducted to select 40 undergraduate students in each university. As a result, there were required 480 undergraduate students for the study

4) Research Instrument: The instrument of this study was a questionnaire that was developed based on five dimensions of undergraduate students′ self-discipline (Trangney, 2004). As developing the questionnaire, the researcher developed the questions both in English and Chinese language. The drafted questionnaire was submitted to the major advisor and the experts to check the content validity, appropriateness of language used in the questionnaire and the print format.

The questionnaire on undergraduate students′ self-discipline in Beijing, China was divided into two parts. The first part of this questionnaire was used to obtain the participants′ background information (e.g. gender, current year of studying, and major). The second part of the questionnaire was used to study undergraduate students′ self-discipline in Beijing, China including five dimensions, 36 items. General capacity for self-discipline is composed of 11 items, deliberate action comprises 10 items, healthy habits, work ethics, and reliability comprise 5 items respectively. The scale responses were made on a five-point Likert Scale, 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree).

The quality of content validity item-objective congruence (IOC) of this questionnaire was examined. The analysis of congruence was analyzed by three experts who could understand both Chinese and English language. As a result, it was found that the highest index of item-objective congruence (IOC) was 1.00 and the lowest was 0.67. The instrument reliability was investigated by using Cronbach′s Alpha which above 0.50 was kept as adequate reliability.

5) Data Collection: For data collection, the researcher was given an official letter to collect data from 12 universities in Beijing, China by the Faculty of Graduate Studies, Mahidol University, Thailand. The official letter was sent to twelve universities in order to inform about the research objectives regarding analyzing undergraduate students' self-discipline in Beijing, China. Then, the packed questionnaires with approval letter that described the purpose of the study were sent to targeted university administrators by the researcher. The questionnaire data collection was conducted from September, 2016 to October, 2016. There were 414 undergraduate students participated in the research, which were less than the actual requirement (n= 480). Consequently, the response rate was 86.25%.

6) Data Analysis: The data was analyzed by using descriptive statistics (e.g. frequency, percentage, mean, and standard deviation), one-way ANOVA analysis and confirmatory factor analysis (CFA).

5. Research Findings

5.1 Denographic charcateristics of undergraduate students in Beijing, China

The samples consisted of 414 undergraduate students in Beijing, China which largely comprised of female (78.50%), and male (21.50%). The sample in three types of university authority was approximately equal sized group. Type I the university that is directly under the Ministry of Education (MoE) (33.60%), Type II the university that is under Beijing city (33.60%), and Type III the university that is under the state of council (32.90%).The results showed that 174 undergraduate students attended activity club (42.00%), while 240 did not attend any activity club (58.00%). The results also found that 70 undergraduate students were studying in the first year (16.80%), followed by 117 undergraduate students were studying in the second year (28.30%), 94 undergraduate students were studying in the third year (22.70%), and 133 undergraduate students were studying in

the fourth year (32.10%). In regard of the field of study, 198 undergraduate students were form the field of Applied Sciences/ Science and Technology/ Health Sciences (47.80%), while 216 undergraduate students were from the field of Social Sciences/ Liberal Arts (52.20%).

5.2 A study of level of undergraduate students' self-discipline in Beijing, China

Table 1 presented the descriptive statistics of the overall of undergraduate students' self-discipline in Beijing, China. The findings indicated that the overall of undergraduate students' self-discipline in Beijing, China was at a moderate level ($M = 3.31$, *S.D.* $= 0.40$). The range of the overall of undergraduate students' self-discipline in Beijing, China was between 3.03 – 3.64. The mean of reliability and healthy habits were at high level, while the mean of work ethics, deliberate action, and general capacity for self-discipline were at moderate level. The mean of reliability was the highest of all components ($M = 3.64$, *S.D.* $= 0.51$), followed by healthy habit ($M = 3.60$, *S.D.* $= 0.56$), work ethics ($M = 3.15$, *S.D.* $= 0.70$), and deliberate action ($M = 3.12$, *S.D.* $= 0.57$). The mean of general capacity for self-discipline was the lowest of all components ($M = 3.03$, *S.D.* $= 0.38$).

Table 1 Descriptive statistics of the overall of undergraduate students' self-discipline in Beijing, China (n = 414)

Components	Mean	S.D.	Min	Max	Range	level
Overall of undergraduate students' self-discipline	**3.31**	**0.40**	**2.09**	**4.46**	**2.37**	**Moderate**
- General capacity for self-discipline	3.03	0.38	1.91	4.09	2.18	Moderate
- Deliberate action	3.12	0.57	1.30	4.60	3.30	Moderate
- Healthy habits	3.60	0.56	2.00	5.00	3.00	High
- Work ethics	3.15	0.70	1.20	5.00	3.80	Moderate
- Reliability	3.64	0.51	2.00	5.00	3.00	High
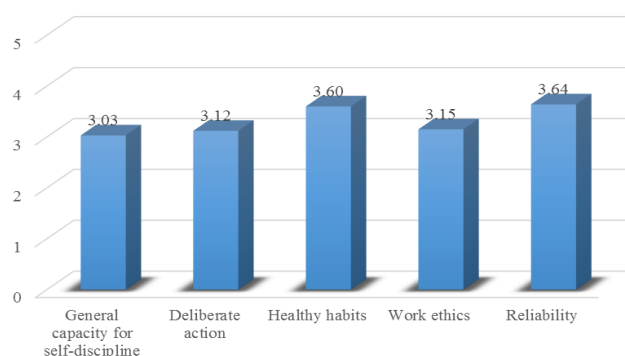
Figure 2 The levels of undergraduate students' self-discipline in Beijing, China

5.3 The factors of undergraduate students' self-discipline in Beijing, China

The measurement model was a latent construct measured by five observed variables; general capacity for self-discipline (GENE), deliberate action (DELI), healthy habits (HEAL), work ethics (WORK), and reliability (RELI).

Firstly, the correlations among the five observed variables were tested as presented in the table 2. The correlations among the five observed variables were ranged from 0.26 ($p < .01$) to 0.50 ($p < .01$). All of the correlations were statistically significant ($p < 0.01$). Bartlett's test of sphericity yielded a $\chi2$ of 526.04 with df of 10 ($p = .00$). This showed that the correlation matrix for the five observed variables were not the identity matrix (all off-diagonal elements were zero). Generally, the Kaiser—Meyer - Olkin measure of sampling adequacy (KMO) for the correlation matrix was greater than 0.50, it will be better if the KMO is greater than 0.70. In this study, the results revealed that the correlation matrix of the study was greater than 0.70 (KMO = 0.81). This showed that the five undergraduate students' self-discipline indicators were highly correlated with each other. Therefore, the data were appropriate for doing confirmatory factor analysis (CFA).

Table 2 Means, standard deviations, and correlation matrix for five components measuring undergraduate students' self-discipline in Beijing, China (n = 414)

Variables	GENE	DELI	HEAL	WORK	RELI
GENE	1.00				
DELI	0.49**	1.00			
HEAL	0.48**	0.38**	1.00		
WORK	0.50**	0.42**	0.50**	1.00	
RELI	0.43**	0.26**	0.40**	0.33**	1.00
M	3.03	3.12	3.60	3.15	3.54
SD	0.38	0.57	0.56	0.68	0.51

Bartlett's Test of Sphericity [χ^2 (10, N = 414) = 526.04, p = .00]

Kaiser – Meyer – Olkin Measure of Sampling Adequacy (KMO) = 0.81

Note: ** $p < .01$.

The measurement model of undergraduate students' self-discipline in Beijing, China fitted the data well [χ^2 (3, N = 414) = 4.61, χ^2/df = 1.54, p = 0.20, GFI = 1.00, AGFI = 0.98, CFI = 1.00, SRMR = 0.00, RMSEA = 0.04]. All observed variables yielded significant factor loadings on undergraduate students' self-discipline. The factor loadings ranged between 0.50 ($p < .01$) and 0.71 (p < 0.01). Among the five observed variables, HEAL and WORK yielded the highest factor loadings. Figure 3 showed the path diagram of the empirically validated measurement model of undergraduate students' self-discipline. The students' self-discipline index of each participant was calculated by using the factor score. The factor score equation could be expressed as follows:
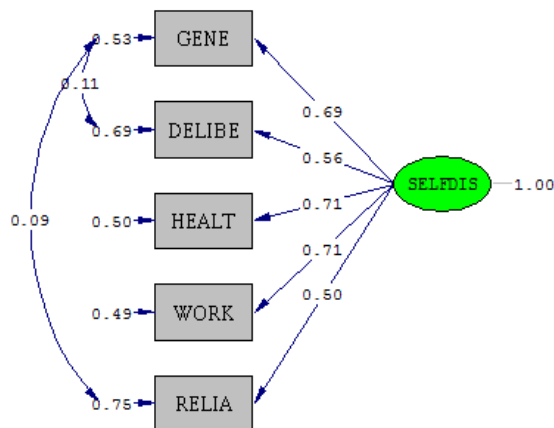
Undergraduate students' self-discipline = 0.64(GENE) + 0.25(DELIBE) + 0.57(HEALT) + 0.49(WORK) + 0.25(RELIA)

Table 3 Standardized parameter estimates for the measurement model of undergraduate students' self-discipline in Beijing, China (n = 414)

Indicators	Standardized factor loadings (β)	Factor loadings			R^2	Factor scores regressions
		b	SE	*t*		
GENE	0.69**	0.26	0.02	13.26	0.47	0.64
DELI	0.56**	0.32	0.03	10.40	0.31	0.25
HEAL	0.71**	0.40	0.03	14.13	0.50	0.57
WORK	0.71**	0.49	0.03	14.25	0.51	0.49
RELI	0.50**	0.26	0.03	9.34	0.25	0.25

Model fit indices χ^2 (3, *N* = 414) = 4.61, χ^2/*df* = 1.54, *p* = 0.20, GFI= 1.00, AGFI = 0.98, CFI = 1.00, SRMR = 0.00, RMSEA = 0.04

Note: **$p<.01$.

Chi-Square=4.61, df=3, P-value=0.20261, RMSEA=0.036

Figure 3 Empirically validated measurement model of undergraduate students' self- discipline in Beijing, China

5.4 A comparison of the levels of undergraduate students' self-discipline under different university authorities in Beijing, China

The findings indicated that there was not a statistically significant difference of undergraduate students' self-discipline under different university authorities in Beijing, China $(F(2, 411) = 2.82, p = .06)$.The undergraduate students' self-discipline under different university authorities in Beijing, China was not different, Type I (The university that is directly under the Ministry of Education(MoE)) $(M=3.13)$; Type II (The university that is under Beijing City) $(M=3.25)$; Type III (The university that is under the State of Council) $(M=3.36)$.

Table 4 A comparison of the undergraduate students' self-discipline under different university authorities in Beijing, China (n = 414)

University authority	n	Mean	S.D.	Levene's Test for Equality of Variance	p	F	p
University authority				1.48	0.23	2.82	0.06
-Type I (The university that is directly under the Ministry of Education (MoE))	139	3.31	0.40				
-Type II (The university that is under Beijing city)	139	3.25	0.37				
-Type III (The university that is under the State of Council)	136	3.36	0.42				

6. DISCUSSION

6.1 A study of level of undergraduate students' self-discipline in Beijing, China

The research findings revealed that overall level of undergraduate students' self-discipline in Beijing, China was at a moderate level. At the same time, each of the factor was separately considered, it was also found that the factor of general capacity for self-discipline, the factor of deliberate action, and the factor of work ethics were at moderate level, while the factor of healthy habits and the factor of reliability were at high level. The findings were corresponded with Zheng (2005) on a study of undergraduate students' self-discipline under the exertion of credit system in Sichuan, China. The results revealed that undergraduate students' self-discipline was at a moderate level. This was congruent with Ma (2007), who studied the strategies of students' self-discipline in Inner Mongolia, China. This study revealed that the level of students' self-discipline was at moderate level and the factor of healthy habits and the factor of reliability were at high level. The findings were also supported by (Yu, 2008) who studied the moral and disciplinary education of college students in the cyber environment in China stated that the level of undergraduate students' self-discipline was at a moderate level. The findings were also congruent with Fu (2014) in a study of the survey and the thinking of undergraduate students' self-discipline in Changsha, China in which the results showed that the level of college students' self-discipline was at a moderate level, the level of the factor of deliberate action was also at a moderate level.

6.2 The factors of undergraduate students' self-discipline in Beijing, China

The measurement model of undergraduate students' self-discipline in Beijing, China fitted the data well. All observed variables yielded significant factor loadings on undergraduate students' self-discipline. CFA (confirmatory factor analysis) findings revealed that there were two highest factor loadings of undergraduate students' self-discipline in Beijing, China. The highest factor loadings were healthy habits and work ethics. The findings were consistent with Unger (2016) that the five-factor structure of student self-discipline showed a reseoable fit and can be replicated with Chinese college students.

6.3 A comparison of the levels of undergraduate students' self-discipline under different university authorities in Beijing, China

There was not a statistically significant difference of undergraduate students' self-discipline under different university authorities in Beijing, China. Therefore, the research hypothesis was rejected. The research findings contracted with the study of Wang (2012) that there was a difference on the level of students' self-discipline between each type of schools. The most probable reason could be because different university authorities followed the same policy of management and administration. It also could be that the uniform educational policy was implemented by different types of university authority.

7. SUGGESTIONS

With regard to the research findings on the level of undergraduate students' self-discipline in Beijing, China, it was found that there was not a statistically significant difference of undergraduate students' self-discipline under different university authorities in Beijing, China. It can be recommended that the findings can be used as a choice for the reserchers or scholars to connect the quantitative results to design a qualitative data collection. For example, to conduct qualitative study to propose guidelines for the development of student affairs administration to enhance undergraduate students' self-discipline in Beijing, China, the reserchers or scholars should be recruited the key-informants from all types of university authorities.

In this study, the researcher focused on comparing the the levels of undergraduate students' self-discipline under different university authorities in Beijing, China by using one-way ANOVA analysis. It would be interesting to validate the measurement model of undergraduate students' self-discipline in Beijing, China under different university authority (Ministry of Education, Beijing city, and The State of Council) by using multiple group analysis such as multi-sample confirmatory factor analysis (MCFA). As the model's validation, a multi-group analysis between groups of invariance has been conducted with the aim of evaluating whether the structures of the measurement model are equivalent in both groups.

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