

Gender differences on Intrinsic Motivation in Hong Kong Higher Education

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Abstract

The purpose of this paper is to investigate if there are different levels of intrinsic motivation towards study, curiosity and external regulation among males and females. This study focuses are attained by conducting a survey (137 students) among a local university in Hong Kong. Results show that among all students, no matter males or females, their levels of intrinsic motivation towards study, curiosity and external are the same.

Burger, Dahlgren, and MacDonald (2006) found that male have higher intrinsic motivation to gamble when compared with female. Another study shows that masculine students have higher intrinsic motivation than feminine students when responding to competition (Conti, Collins, & Picariello, 2001). However, when talking about intrinsic motivation to study, will the result of comparing males and females still be the same?

Most Hong Kong people spend more than twenty years to learn as much knowledge as they can to get high academic qualifications. Among all students, there is a question of how students can gain more than others when learning in the same learning environment, and whether either one gender has higher intrinsic motivation towards learning. Motivation is an essential element to directly affect students' learning and performances.

Some students may feel that they are not active but under obligation to learn. It is due to lack of motivation in learning, which would not result in good performance. According to Olsson (2008, p. 7), motivation is a reason or set or reasons for engaging in a specific activity, especially human behavior. The reasons can be basic needs, an object or a goal.

Self-determination theory (SDT) by Deci and Ryan (1985, 1991) is currently the most comprehensive theories of motivation with empirical support. According to SDT, intrinsic motivation is defined as the doing of an activity for its inherent satisfactions rather than for some separable consequence (Xie, Debacker, & Ferguson, 2006). It is the degree to which an individual chooses to accomplish an activity for pleasure and enjoyment (Olsson, 2008, p. 2).

This type of motivation is known as the most optimal kind of motivation as being entirely autonomous (Noel, Clement, & Pelletier, 2001; Remedios, & Lieberman, 2008; Gao, 2008). Students with intrinsic motivation complete tasks for fun or challenge instead of external stimuli, pressures, or rewards. They often have more interest, confidence and excitement in doing the task.

According to Brophy (2010), intrinsic motivation emphasizes on motivation as self-determination of goals and self-regulation of actions rather than motivation as response to felt pressures. In view of this emphasis of intrinsic motivation, this project tries to investigate different aspects affecting students' learning so that their self-regulation of actions can be improved and learn without pressure. With this improvement, their academic performance can be enhanced at the same time.

As few studies have focus of gender difference on intrinsic motivation for Hong Kong students, this study conducted in a local university in Hong Kong tries to investigate if either one gender possesses higher level of intrinsic motivation.

According to Narayanan, Rajasekaran, and Iyyappan (2007), females have higher intrinsic motivation in learning English than males among engineering university students. Meanwhile, another research by Shang (1998), it was found that females have lower intrinsic motivation in physical education classes than males. A study by Schatt in 2011 focusing on subject of music found that female students have higher instrumental musical practice rate than males while the amount of time spent on practice correlated significantly with intrinsic motivational beliefs. It raises a question whether females possess higher intrinsic motivation, which is investigated in this paper.

In view that Ning and Downing (2010) have conducted a research study among 581 university students in Hong Kong and found that student motivation is the strongest predictor to their academic performance while few attempts to investigate more specific factors such as curiosity and external regulation that whether they affect intrinsic motivation among university students in Hong Kong, the relationship between these factors and intrinsic motivation are deeply investigated so as to improve student intrinsic motivation. Also, whether males or females would have higher level of intrinsic motivation is also studied. These serve as the purpose of this paper. We attempt to fill the research gap by asking the following research questions:

- (1) Is there any difference in the level of intrinsic motivation towards learning between males and females for Hong Kong university students?
- (2) Is there any difference in the level of curiosity between males and females for Hong Kong university students?
- (3) Is there any difference in the level of external regulation between males and females for Hong Kong university students?

These questions are answered by conducting a quantitative survey among a local university in Hong Kong. The result indicates that there is no difference in the level of curiosity, external regulation or intrinsic motivation towards learning between males and females. The result implies that students, no matter males or females, their likeliness to be motivated to work tend to be the same.

Theory Background and Hypothesis

Gender affects the skills or traits people find fascinating or personally relevant (Sansone & Harackiewicz, 2003). It implies that different genders tend to have different perception and thoughts. Different gender may thus be destined to have different level of intrinsic motivation. In this fast-paced society, people need to have high competitiveness, wide range of knowledge and high capabilities in order to achieve eminent performance. Students having good academic performance were found to have higher intrinsic motivation.

In this research, the focus is to find out if there is any difference regarding the level of curiosity, external regulation and intrinsic motivation between males and females. Students in a local Hong Kong university are the targeted group.

Differences in Gender

Most of the previous researches are apt to suggest that female have higher motivation and more desirable learning than male students. Narayanan, Rajasekaran, & Iyyappan (2007) found that female university students studying Engineering or Technology have higher motivation in learning English than males. It was concluded that female students studying learn English better than male students (Narayanan, Rajasekaran, & Iyyappan, 2007).

Further to the explanation provided by Narayanan, Rajasekaran, and Iyyappan (2007), female have better listening skills, more concerned with input, i.e. listening, and tend to have better attitudes towards learning. Contrarily, male are less sensitive, more concerned with output, i.e. talking, and think in a more analytical way than female. These may be reasons explaining

why females perform better in learning.

It should be noted that the above research is for university students learning English. There is a research focusing on another subject, music, conducted by Schatt (2011). The study showed that female students have higher instrumental musical practice rate than males while the amount of time spent on practice correlated significantly with intrinsic motivational beliefs. Motivational beliefs are guides of students' thinking, feelings and actions in learning some subject areas and they can lead to success in learning (Boekaerts, 2002; Clayton, Blumberg & Auld, 2010).

Another research focusing on subject of physical education, the result is different. One study by Shang (1998) in Taiwan focusing on physical education classes in high and also junior high school, it was found that female students have lower intrinsic motivation which is relevant to their interest or enjoyment and perceived competence than male students in most of the sub-scale of the study, but have higher effort put into the learning tasks. It not only proves that learning environment is different for male and female students, but it also emphasizes that males perceive the learning environment as more challenging and competitive while females perceive higher threat than males in physical education classes (Shang, 1998).

From several researchers investigating the levels of intrinsic motivation of students on different subjects, it resulted in different genders having higher intrinsic motivation towards various subjects. Therefore, it should not have any conclusion saying that a particular gender is inclined to have higher motivation on all subjects.

Based on the above evidence, the study hypothesized: Hypothesis 1 (H1): There should have no difference between males and females on the level of intrinsic motivation.

Curiosity

Curiosity is defined as the intrinsic desire to know, to see, or to experience that motivates information seeking behavior (Zelick, 2007, p.147). Acquiring knowledge out of curiosity is considered to be intrinsically rewarding and highly pleasurable since it eliminates states of ignorance and uncertainty (Litman, 2005).

There are not so many literature reviews regarding gender difference in the level of curiosity. In a previous study, it was found that males possess higher level of curiosity than females.

This study was conducted among Israeli college students while there is no significant

difference for the level of curiosity among American college student (Ben-Zur, & Zeidner, 1988).

According to another study by Engelhard and Monsaas (1988), it shows that no significant gender difference was found among the urban elementary school students. It was also discovered by Sanders, Driscoll, Dixon, Pendergrass and Scales (2004) that there is no significant gender difference among middle school students either.

From the above evidence, it is believed that there should be no gender difference in the level of curiosity among the Hong Kong university students.

As a result of the literature review elaborated above, the second hypothesis was: Hypothesis 2 (H2): Both genders possess equal level of curiosity.

External Regulation

External regulation is the most pressured and controlled type of motivation (Vansteenkiste, Sierens, Soenens, Luyckx, & Lens, 2009; Olsson, 2008, p. 147). Externally regulated students study for avoiding punishment, to obtain rewards or to meet external expectations (Vansteenkiste, Sierens, Soenens, Luyckx, & Lens, 2009; Xie, Debacker, & Ferguson, 2006; Olsson, 2008, p. 147). They feel that they are obliged to study. With the external pressured contingencies, they are mentally pushed to put effort into their studies. It is also indicated by Bowman (2007) that rewards and incentives provided by teachers can be used as tools to motivate students in their learning and achieve their goals.

For the wording of external to describe the external regulation, its source can still be internal. For instance, students can push themselves by studying with feelings of guilt, shame and anxiety. It can also be positive feelings of pride and ego enhancement. When students are externally regulated through some internal sources, this type of external regulation is labeled to be introjected regulation. Another research by Olsson (2008) stated that externally regulated people carry out internalization and integration of their behavior. It will form introjected regulation. He also agreed that their behavior is related to or enforced by the expectations of self-approval or avoiding guilt and anxiety. This type of behavior has external locus of causality. With the internalization and integration of behavior becoming more advanced, it will shift to identified regulation and people will have perception of internal locus of causality.

There is limited literature reviews regarding the gender difference on the level of external

regulation. One study by Agina, Kommers, Steehouder (2011) discovered that gender has no effect on the level of external regulation one possesses. That means there is no particular gender possessing higher level of external regulation.

Another study by Balaguer, Castillo and Duda (2007) focusing on sport motivation found that female athletes have lower level of external regulation.

Since the latter one pertains to learning and doing sport while the former one pertains to the targeted students' external regulation in learning, it is believed that there is no gender difference in the level of external regulation among Hong Kong university students.

Based on the above evidence, the third proposed hypothesis was: Hypothesis 3 (H3): Both genders possess equal level of external regulation.

In this study, three elements were analyzed. They are curiosity, external regulation and intrinsic motivation. Their levels within both genders are investigated.

Hong Kong Learning Environment and Education System

Students in Hong Kong need to study with intense academic competition owing to the commercialization of education and rapid expansion of tertiary education (Gao, 2008). Although the increased number of universities may ease the academic competition for higher education places. The number of unemployed university graduate is also increased.

Students in Hong Kong learn in a highly competitive, examination oriented and large classes with excessive amount of homework (Moneta & Siu, 2002). Moreover, English is widely regularly promoted to be essential for individuals' social and career development (Gao, 2008; Davison & Lai, 2007). English is the medium of instruction among all universities in Hong Kong. These are the characteristics of Hong Kong education system, which tends to requires students remembering all knowledge and apply all the knowledge on the paper for the examination. Hong Kong Students may always have surface learning that they will engage in the shortcuts allowed in some courses and attain till the end without deeper understanding (Moneta, & Siu, 2002).

There are eight universities in Hong Kong governed by the University Grants Council (UGC), which has an international membership. UGC has been assigned to ensure all standards and maintain the independence of Hong Kong universities after the handover to China (Kember & Leung, 2011). All universities were founded while Hong Kong was a British colony. They

are consistent with UK standards and practices. Also, owing to the importance of globalization and student exchange among the education, some top Hong Kong universities have been highly international in the outlook and can be compared with any other good universities in other countries. For Hong Kong education system, most university students are Chinese and aged from 18 to 22.

Positive Relationship between Intrinsic motivation and Academic Performance

According to a study conducted by Ning and Downing (2010) in Hong Kong focusing on investigating the relationship between intrinsic motivation and academic performance among university students, it was found that the relationship is positive.

Also, another research by Afzal, Ali, Khan, and Hamid (2010) among 342 university students in Pakistan generates the same findings that intrinsic motivation can promote more optimal learning and better academic performance. In view of these result, intrinsic motivation should be promoted for the sake of student academic performance.

Research Methods

Survey research among university students is used in this study to test the hypotheses stated above since questionnaire as an instrument for studying research problems is a survey tool for collecting data from people about themselves such as attitudes, thoughts, behaviors; or concerning a social unit such as a school (Lanthier, 2002; Siniscalco, & Auriat, 2005). The research was completed in three universities in Hong Kong.

Before the survey is mass produced and used to gather real data, pilot study was carried out to disclose problems and refine the wording, ordering, etc (Litwin, 1995; Hoinville, Jowell & Associates, 1978). Ten of my friends are asked to complete the questionnaires and give feedback independently about the questionnaires.

The survey was then conducted by distributing questionnaires with covering letter explaining the purpose of the research to the university students individually. The questionnaire was averagely completed within 10 minutes. Subsequently, 200 questionnaires were given out to undergraduates from various universities in Hong Kong. A total of 137 responses (with a return rate of 68.5 per cent) were achieved, and the usability rate was 100 per cent since no incomplete questionnaires were found.

There are nine statements (Table 1) for three variables: curiosity (Mot_3, Mot_5, Mot_6,
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Mot_7 and Mot_8), external regulation (Mot_1 and Mot_2) and intrinsic motivation (Motivator_3 and Motivator_4). Those statements were taken from three questionnaires from three journals (Albrecht, Haapanen, Hall, & Mantonya, 2009; Vansteenkiste, Sierens, Soenens, Luyckx, & Lens, 2009; Lepper, Corpus, & Iyengar, 2005). 4-point Likert-type scale which is common rating format especially for educational survey research was assigned to all statements (Siniscalco, & Auriat, 2005; Allen, & Seaman, 2007). Removing mid-point category from Likert scale can reduce social desirability bias arising from respondents (Garland, 1991). Statements in questionnaire were ranked at (1) Very True, (2) Sort of True, (3) Not Very True and (4) Not At All True.

Table 1.

Statements for Three Variables

Variables	Statements
Curiosity	Mot_3 – I work hard in some courses because this represents a meaning choice for me. Mot_5 – I work hard in some courses because I think I can apply what I learn to my future career. Mot_6 – I work hard in some courses because I want to learn new things. Mot_7 – I work hard in some courses because good results in school can help me get a better career. Mot_8 – I work hard in some courses because this is an important life goal for me.
External Regulation	Mot_1 – I work hard in some courses because that's what others (parents, friends, etc.) expect me to do. Mot_2 – I work hard in some courses because that's what others (parents, friends, etc.) force me to do.
Intrinsic Motivation	Motivator_3 – I work harder when I like the teacher. Motivator_4 – I work harder when the subject is interesting and useful.

Data Analysis

The purpose of this study is to test the gender difference on level of curiosity, external regulation and intrinsic motivation. SPSS Version 17 is used to analyze the data in this study. This is sophisticated software for many scientists and other professionals to analyze statistics.

Data analysis including frequency distribution is used to analyze the personal data of respondents. After that, mean and standard deviation are used to study the perception of curiosity, external regulation and intrinsic motivation different genders possess. Independent-

samples t test is then used to test all three hypotheses to see if there is any difference between males and females on the level of the three elements.

Before the analysis, the collected data was examined to ensure that it is valid and reliable. It involves checking the usability and the validity of the responses on the questionnaires collected. Subsequently, reliability analysis using Cronbach alpha, which is a measure of internal consistency about how close elements are related to each other, is carried out to test the reliability of the variables (Nunnally, 1978; Prater and Ghosh, 2006). The test means the freedom from random error (Alreck, & Settle, 1985). The Cronbach alpha values (Table 2) of curiosity, external regulation and intrinsic motivation are 0.757, 0.622 and 0.685 respectively. A value of 0.60 is also used as the practical lower bound (Narasimhan & Jayaram, 1998). Therefore, reliability figures in this study, which exceed the value of 0.60, can be perceived as acceptable. This study can be considered as reliable.

Apart from reliability testing, factor analysis was also utilized to establish construct validity. Results of factor analysis can be used to ensure that questionnaire used in this study is valid (Field, 2005). Factor loading is used to analyze the validity of measurement scales with general value of acceptance as 0.30 (Anderson, & Gerbing, 1998; Fornell, & Larcker, 1981).

The variable of curiosity includes five items. A factor analysis for those items was conducted for the five items. Factor loadings ranged from 0.542 to 0.783. The variable of external regulation includes two items. Factor loadings are 0.852 for both items in the factor analysis. The variable of intrinsic motivation includes two items. Both factor loadings are 0.872. All values of factor loadings in the questionnaire are greater than 0.3. Hence, this scale is retained. As a result, it can be concluded that the measurement scale is valid and reliable.

Table 2.

Mean, Standard Deviation, and Cronbach Alphas of Three Variables

Items	Mean	Standard Deviation	Cronbach alpha
Curiosity	2.0569	.51732	0.757
External Regulation	2.8139	.62722	0.622
Intrinsic Motivation	2.0255	.61334	0.685

Note: n = 137

Findings

The demographic statistics of the respondents were analyzed. Table 3 shows the background

of totally 137 respondents, in which 65.7% are males. 99.3% are between 21 and 25 years old. All of them are studying Engineering in a local university in Hong Kong. More than half of them are year 2 university students. With 56.9% promote to university through Joint University Programmes Admissions System (JUPAS), it indicated that they have been studying and encountering different level of motivation in learning for at least 18 years for education system in Hong Kong.

Table 3.
Descriptive Statistics of Personal Data of Respondents

	N	Minimum	Maximum	Std. Deviation	Frequency	Cumulative Percent
Gender	137	1.00	2.00	.47648		
Male					90	65.7
Female					47	100
Age	137	1.00	3.00	.50523		
Below 21					55	40.1
Between 21 and 25					81	99.3
Above 25					1	100
Year	137	1.00	5.00	.61495		
Year 1					14	10.2
Year 2					79	67.9
Year 3					44	100
Promotion	137	1.00	2.00	.49699		
JUPAS					78	56.9
NON-JUPAS					59	100
Valid N (listwise)	137					

All respondents completed a questionnaire asking their reasons of study in terms of whether they perceive the specific statement as “Very True” (1), “Sort of True” (2), “Not Very True” (3) or “Not at all True” (4). The reasons in the questionnaire pertain to the three variables (curiosity, external regulation and intrinsic motivation) investigated in this study.

Mean and standard deviation were used to examine the level of their perception of the variables. The values of mean, standard deviation and Cronbach alpha are shown in Table II. Results show that university students have slight perception towards having curiosity and intrinsic motivation, but not external regulation. It is indicated by the mean score of 2.0569 for curiosity, 2.8139 for external regulation and 2.0255 for intrinsic motivation.

Independent sample t-test was used subsequently to test if there is any different in the level of curiosity, external regulation and intrinsic motivation between males and females.

H1: This hypothesis predicting that there is no significant difference on the level of intrinsic motivation between males and females was supported since the t value is 0.498 and the significant value is 0.620, which is higher than 0.05. With the mean difference of only 0.05508, it shows no significant difference between both genders.

H2: This hypothesis predicting that there is no significant difference on the level of curiosity between males and females was supported since the t value is -0.112 and the significant value is 0.911, which is higher than 0.05. With the mean difference of only 0.01050, it shows no significant difference between both genders.

H3: This hypothesis predicting that there is no significant difference on the level of external regulation between males and females was supported since the t value is 1.222 and the significant value is 0.224, which is higher than 0.05. With the mean difference of only 0.13771, it shows no significant difference between both genders.

To conclude, all three hypotheses are supported via the above results. It shows that both genders possess equal level of curiosity, external regulation and intrinsic motivation.

Discussion and Implications

Results indicate that the levels of curiosity, external regulation and intrinsic motivation for university students in Hong Kong are nearly the same among different genders. It can be interpreted by the same education environment for both genders. Students in Hong Kong receive education under the same educational systems and approaches among different genders. Therefore, it contributes to both genders having the same level of characteristics affecting their learning and also intrinsic motivation.

Moreover, there is a part of university students in Hong Kong, no matter males or females, studying subjects that they are not interested in owing to the emphasis of education

qualification for students' future careers in Hong Kong society. As a consequence, the education they are receiving cannot make a difference of various perspectives affecting learning on different genders. That is why there is no difference for males and females on the three factors that is supposed to students' learning.

Difference on Level of Intrinsic Motivation between Males and Females

Supported by several researchers with this result, Narayanan, Rajasekaran, & Iyyappan (2007) concluded that female students studying Engineering or Technology learn English better than male students. Meanwhile, from a research of Shang (1998) in Taiwan focusing on physical education classes, it was found that female have lower intrinsic motivation than males but with higher effort put into the learning tasks. Another research conducting by Schatt (2011) focusing on subject of music found that female students have higher instrumental musical practice rate than males while the amount of time spent on practice correlated significantly with intrinsic motivational beliefs.

Therefore, it should not have any conclusion saying that a particular gender is inclined to have higher motivation on all subjects since university students always involves studying English, Chinese culture and their major altogether. The result of this research study showing that there is no difference between males and females on the level of intrinsic motivation support the hypothesis 1 (H1).

Difference on Level of Curiosity between Males and Females

Supported by several researchers with this result, Engelhard and Monsaas (1988) concluded that there is no significant gender difference on the level of curiosity among urban elementary school students. Moreover, same study outcome was resulted in a study by Ben-Zur and Zeidner (1988) focusing on American college students.

Therefore, there should be no significant gender difference on the level of curiosity among university students in Hong Kong. The result of this research study showing that there is no difference between males and females on the level of curiosity support the hypothesis 2 (H2).

Difference on Level of External Regulation between Males and Females

Supported by several researchers with this result, Agina, Kommers, Steehouder (2011) found that gender has no effect on the level of external regulation one possesses. Although Balaguer, Castillo and Duda (2007) focusing on sport motivation found that female athletes have lower

level of external regulation, this study concentrated on students' sport motivation and the study of 2011 as mentioned pertains to students' learning.

As a consequence, there should be no significant gender difference on the level of external regulation among university students in Hong Kong. The result of this research study showing that there is no difference between males and females on the level of external regulation support the hypothesis 3 (H3).

Implication for Practice

The implication for practice in this study is to let universities identify if one of the genders possess higher level of curiosity, external regulation and intrinsic motivation so as to bring the awareness of universities and students about their ways of teaching and it offers more information for lecturers and professors to implement different practical methods to improve students' learning performance.

Furthermore, this study can let universities know if they need to focus on one particular gender when teaching due to the different level of learning characteristics or intrinsic motivation. It can help schools develop deeper understanding among students.

Limitations and future opportunities

There are mainly two limitations in this project. Firstly, the sample size of some subgroups is not even. The sample size of males is 90 while that of females is 47. The significant level may be influenced owing to unbalanced distribution of sample size. Also, the investigated school is only one local university in Hong Kong, the survey result may not be representative to the general situations of university students in Hong Kong.

The second limitation of this study is that the sample size is not large. Less than 200 samples were collected. It may make the survey result not representative enough to show the general learning environment for university students in Hong Kong.

Apart from the limitations, there are several future research opportunities from this study. The first is to extend this current study to a larger sample size among Hong Kong university students to get a more representative result.

Secondly, since there is limited literature review investigating the gender difference in curiosity, external regulation and also intrinsic motivation, which is what this project focuses

on, it is suggested to apply this type of research to similar research study in primary schools, secondary schools, overseas schools, or among students studying associate degree in Hong Kong. The result may be different.

This research study also lacks deep investigation. This study is empirical that involves only quantitative research. The survey was conducted in form of questionnaires and without face-to-face interview. The focus of the investigations in this study is on the existence of the relationships. Further research can be done concentrating on deeply investigating why there is no significant gender difference on the level of intrinsic motivation, external regulation and curiosity. Thereby, all these can be a further research for future development of education.

Conclusion

Throughout the study, there is investigation of the existence of gender difference on the level of curiosity, external regulation and intrinsic motivation among the targeted group of university students in Hong Kong. This study was conducted in a local university in Hong Kong.

The survey result supports all three hypotheses defined in this research study. It shows that there is no significant gender difference on the level of intrinsic motivation, curiosity and external regulation (H1, H2 and H3 respectively).

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