

LEVEL 7 ASSESSMENT SPECIFICATION

Student name:	Choi Wai Shan (Tina)	Student number:	ID 2031100
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Lecturer:	Dr Andrew Chan	Internal Verifier:	Prof. Luk Chung Leung
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Academic honesty / referencing:	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.		

Title

Students' motivation and satisfaction in postgraduate blended learning programmes in business disciplines

Introduction

The blended learning approach has been one of the most popular pedagogies adopted at various levels of education throughout the world among the various applications of technology in education (e.g., Picciano, Seaman, Shea, & Swan, 2012; Staker et al., 2011; Parsad & Lewis, 2008; Eklund, Kay, & Lynch, 2003; Sharpe, Benfield, Roberts, & Francis, 2006; Bernard, Borokhovski, Schmid, Tamim, & Abrami, 2014; Norberg et al., 2011, Shivetts, C., 2011).

The term "blended" referred to a mix of face-to-face and online learning activities (Chan & Yao, 2016; Osorio Gómez & Duart, 2012; Rooney, 2003; Sands, 2002; Ward & LaBranche, 2003; Young, 2002). "blended learning was deemed likely to emerge as the predominant model of the future – and to become far more common than either online or face-to-face instruction alone", Watson (2008) wrote.

More studies in higher education blended learning research concentrated on undergraduate studies, while postgraduate studies received less attention. Nonetheless, postgraduate courses, including Master of Science programmes (MSc) and particularly, Master of Business Administration (MBA) and Executive Master of Business Administration (EMBA), are self-funded programmes and are highly valued in business schools all around the world (Yuen, A and Au Yueng, Anson, 2018), universities in the United States enrolled over a quarter of a million students in MBA programs each year and awarded over 100,000 MBA degrees, accounting for at least 66 percent of all graduate business degrees issued in the United States in 2008 (Murray, 2011).

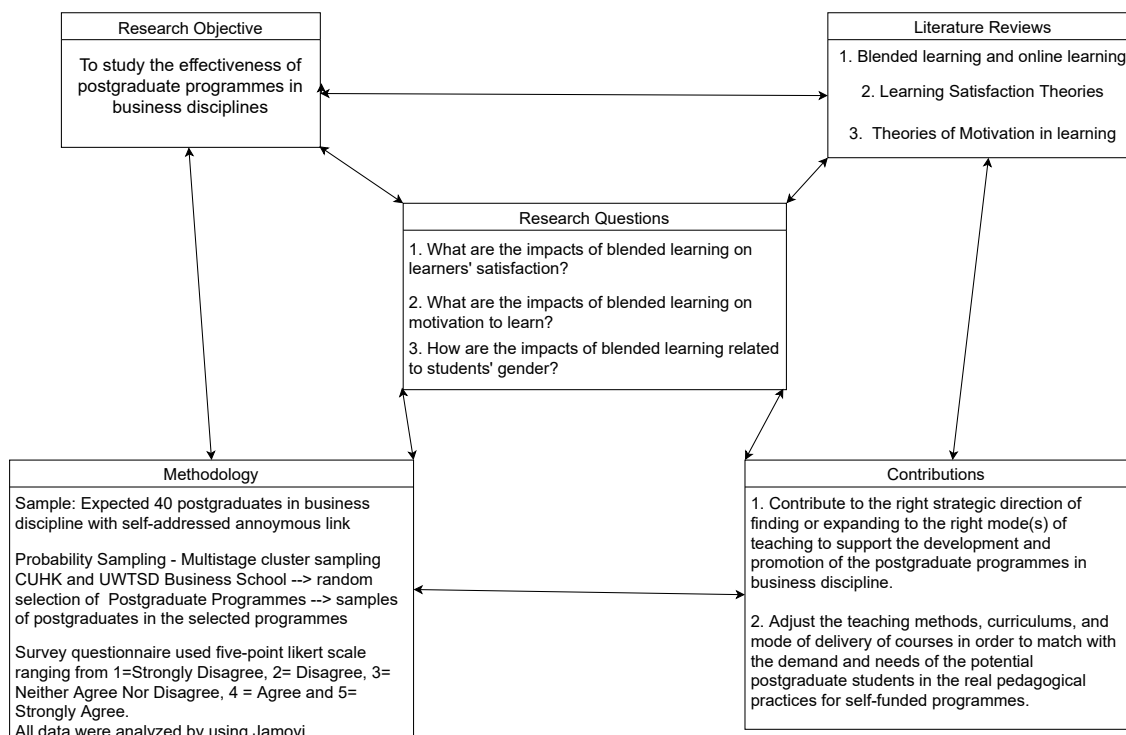
Research aim:

The research objective in this paper is to study the effectiveness of blended learnings postgraduate blended learning programmes in business disciplines.

Based on the set research aim, below three key-focused research questions are developed:

1. What are the impacts of blended learning on learners' satisfaction?
2. What are the impacts of blended learning on motivation to learn?
3. How are the impacts of blended learning related to students' gender?

The conceptual outline is summarizing the research objectives, literature review, research questions, methodology and contributions.



Contributions:

In most of the universities in Hong Kong, the self-sufficient postgraduate programmes are also the key sources of incomes to Business Faculty. The study can contribute to the right strategic direction of finding or expanding to the right mode(s) of teaching to support the development and promotion of the postgraduate programmes. Moreover, since the outbreak of Covid-19 pandemic in year 2019, social distancing measures has become a catalyst to the demand of blended mode of learning to cater the needs of students. The study results can contribute and help to adjust the teaching methods, curriculums, and mode of delivery of courses in order to match with the demand and needs of the potential postgraduate students in the real pedagogical practices.

Literature Review

Given the widespread adoption of blended learning on university campuses around the world (Bernard, Borokhovski, Schmid, Tamim, & Abrami, 2014; Norberg et al., 2011; Henrie et al., 2015), there is a large body of research on the benefits and drawbacks of blended learning in the teaching and learning process, as well as its effectiveness.

Blended Learning benefits

Three significant benefits of blended learning have been highlighted in the literature: (i) Student Performance; (ii) Motivation, Engagement, and Student Satisfaction; and (iii) Flexibility. Students, teachers, and institutions may benefit from additional flexibility with blended learning (Nurfina Aznam et al, 2021) Moskal et al., 2013; Wallace & Young, 2010). Several researches (for example, Bold, 2005; Dziuban et al., 2004; Caruso and Kravik, 2005; Rivera and Rice, 2002; Dziuban et al., 2007) have been conducted. One of the key reasons students prefer online learning, according to Graham, 2004; Macedo-Rouet, Ney, Charles, & Lallich-Boidin, 2009), is "flexibility." Blended learning allows students more flexibility in terms of time and place for online learning.

It's also been suggested that combining learning can boost students' motivation Garrison & Kanuka, 2004; Spring et al, 2016) and engagement. (Owston, York, & Murtha, 2013). According to Graham and Robison (2007), blended learning may result in a more dynamic learning environment. Students are obliged to use many modalities of learning in blended learning, which increases their self-motivation and involvement in the entire learning process (Meyer, 2014; Norberg, Dziuban, & Moskal, 2011).

Blended courses had a greater retention rate than their entirely face-to-face equivalents, according to Dziuban and Moskal (2001) and Vaughan (2007). According to Stockwell et al. (2015), blended learning enhanced attendance and satisfaction.

Blended learning may also increase student performance (Alonso et al, 2011; Al-Qahtani & Higgins, 2013, Lim & Morris, 2009; O'Toole & Absalom, 2003). Asarta and Schmidt (2017) conducted a thorough analysis of studies comparing blended learning student performance. Students' academic achievement is frequently assessed using course grades and exam results. Students in hybrid classes obtained greater grades than students in entirely face-to-face or online classes, according to various studies (Dziuban & Moskal, 2001; Martyn, 2003; Twigg, 2003; Vaughan, 2007). Lopez-Perez, M.V., Perez-Lopez, M.C., and Rodriguez-Ariza, L. (2011) discovered that using blended learning improves exam scores in a study of 1431 students. Grade motivation is one of the highly correlated constructs under students' motivation in learning (Chumbley, S et al, 2015). It's also been discovered that blended learning can help with knowledge construction and issue solving (Bridges, Green, Botelho, & Tsang, 2015). However, other research have found that blended learning has a negative impact on student achievement (Xu and Jaggars, 2011).

Self-determinate theory

One of the hypotheses (H_0) in the research is also based on Self-Determination Theory (SDT), a leading theory on human motivation that identifies different types of motivation, with intrinsic motivation being a powerful type of drive that leads to a variety of desirable outcomes. Being intrinsically motivated involves doing something because it gives you pleasure, and it's often measured by self-reports of interest and enjoyment in the task. In order to sustain intrinsic motivation, people must believe that their environment satisfies their core psychological needs. According to Self-Determination Theory, everyone has three psychological needs: the need for competence, the need for autonomy, and the need for relatedness. (Klaeijssen A. et al, 2017) The need to feel competent and effective is reflected in the need for competence. To apply in the students' learning part, obtaining a good grade is good proof to the individual to let them feel competent and effective in their study, and thus, turned out to be students' satisfaction in learning which it will also be tested in this research.

Despite the fact that available literature generally supports the benefits of blended learning, others contend that blended learning has negatives that must be considered. Furthermore, it is currently unknown whether blended learning is equally effective for all students.

Given the importance of Postgraduate Programmes in major tertiary business education, as well as the rise of blended learning in the Programmes, this research could make a substantial contribution to the literature and provide insight into the Programmes' development. Arbaugh et al. (2009) looked at the state of online and blended learning research in business disciplines and found a few papers that looked at the effectiveness of blended learning in MBA programs.

Overall, the effectiveness findings are unambiguous. According to Chen and Jones (2007), students in the blended learning mode reported higher levels of learning in an MBA-level managerial accounting course. Wilson (2003) discovered that student use of a supplemental course management system was favourably associated with course achievement in a study of two sections of a classroom-based undergraduate principles of finance program. However, Anstine and Skidmore (2005) discovered that online MBA-level statistics students fared worse than those in classroom-based courses, while Grandzol (2004) observed no differences in student performance in his online and classroom-based MBA statistics courses. Although regional and cultural influences on blended learning may exist (Wresch, Arbaugh, and Rebstock, 2005), no research has been done on Asian students. This research can start to contribute partially since it had been conducted in Hong Kong.

Methodology and Research Design

Sampling and Data Collection:

A self-administered questionnaire was used to solicit the data with multi-stage cluster sampling methods under probability sampling was used. The questionnaire of the survey was holding by Qualtrics platform from the Chinese University of Hong Kong with anonymous link which published from 28 November 2021 to 6 December 2021.

The survey has employed two inclusive criteria to determine the specific population to draw the two-stage clusters samples: (1) All the students are from postgraduate programmes and (2) their postgraduate programmes are from business discipline, in order to

- (i) minimize the cofounding effects of the diversification due to, for instance, differences in various university's teaching cultures and varied learning expectations in different faculties of disciplines (Mihanović, Z., Batinić, A. B., & Pavičić, J., 2016), and
- (ii) ensure a least minimal degree of homogeneity among the respondents since they are from Master of Science (MSc) programs in any business field, Master of Business Administration (MBA), Executive Master of Business Administration (EMBA), Doctor of Business Administration (DBA), or Doctor of Philosophy (PhD) in any business field which the diversified programmes can increase the rigour and generalizability of the research.

This report collected the data from two sources of random selections of clusters from the population of business disciplines : (1) WhatsApp delivery and (2) WeChat deliveries of the link of the survey on the in various study groups of masters' degree in any business discipline, including Master of Management (MiM) under MSc program, MBA and EMBA from the Chinese University of Hong Kong, and doctoral level degrees of studying, including DBA of the University of Wales Trinity Saint David-Hong Kong Management Association (HKMA) and PhD from the Chinese University of Hong Kong.

According the collected and usable samples, most of them (96.5%) are from the Chinese University of Hong Kong and the remaining (3.5%) are from the Doctor of Business Administration (DBA) of the University of Wales Trinity Saint David-Hong Kong Management Association.

Samples:

The original expected number of samples was 80 due to the short period of 1-month turnover time of the task in this coursework according to the rubles of thumbs of having minimum 20 samples for each independent variables if the fundamental statistical analysis is to be multiple

regression (Hoskins, C.N. & Marano, C., 2004) (Chan, A, 2021). In the main study, totally surveys were administered to 197 students and 143 students returned usable responses (72.6% rate). Data were collected from graduated or current students from different aforesaid programmes and answers from those who take the business disciplines are regarded as valid.

Measure

The survey questionnaire addressed and examined two constructs of “Motivation” and “Satisfaction” independently and then the relationships between two constructs are further studies.

The measurement of motivation and satisfaction were evaluated on five-point Likert scales (ranging from 1 = strongly disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree and 5 = strongly agree). Please refer to the Appendix 1 for the details of the presentation of the five-point Likert scales.

Questionnaires Adoption:

The items of the two constructs – Students’ motivation and satisfaction to be studied have adopted from two different research papers respectively:

Students’ motivation questionnaire adoption:

Regarding the students’ motivation in blended learning study, the questionnaire is adopted from “A Measure of Students' Motivation to Learn Science through Agricultural STEM Emphasis” by Chumbley, Steven Boot; Haynes, J. Chris; Stofer, Kathryn A. from Journal of Agricultural Education (Chumbley, S et al, 2015). The original questionnaire items measuring factors and outcomes are consisted of five factors in the table 1 as below.

The highest motivational factor of “grade motivation” (GMOT) and also the “Intrinsic Motivation” (INMOT) which was the third most important factor have been adopted in this study. “Self-efficacy” has not been adopted in this study to simplify the questionnaire due to avoid repetitiveness because there is direct correlation between “Grade-motivation” which is about “the importance of getting A” and “self-efficacy” which is “the students believes that they could get an A” in the same course. Therefore, intrinsic motivation was adopted to study if the “learning makes their lives more meaningful” to broaden the measures of the motivation construct.

In the adopted questionnaire, “Agriculture science” from the statements have been modified to “Business in Blended mode / Face-to-face learning / E-learning” to measure the students’ motivation.

Table 1: Conceptual factors motivating students to learn agriscience, A Measure of Students' Motivation to Learn Science through Agricultural STEM Emphasis” by Chumbley, Steven Boot; Haynes, J. Chris; Stofer, Kathryn A.. Journal of Agricultural Education (Chumbley, S et al, 2015).

Conceptual Factors Motivating Students to Learn Agriscience (n = 539)

Components/Statements	<i>M</i>	<i>SD</i>
<i>Intrinsic Motivation</i>		
Learning agriculture science is interesting	3.96	0.95
I enjoy learning agriculture science	3.92	1.00
The agriculture science I learn is relevant to my life	3.80	0.93
I am curious about discoveries in agriculture science	3.63	1.07
Learning agriculture science makes my life more meaningful	3.39	1.10
<i>Self-Efficacy</i>		
I believe I can earn a grade of “A” in agriculture science courses	4.15	1.02
I am sure I can understand agriculture science	4.07	0.95
I am confident I will do well on agriculture science labs	3.81	1.01
I believe I can master agriculture science knowledge and skills	3.80	1.06
I am confident I will do well on agriculture science tests	3.74	1.01
<i>Self-Determination</i>		
I put enough effort into learning agriculture science	3.93	0.96
I use strategies to learn agriculture science well	3.64	1.04
I spend a lot of time learning agriculture science	3.46	1.10
I study hard to learn agriculture science	3.41	1.14
I prepare well for agriculture science tests and labs	3.38	1.10
<i>Grade Motivation</i>		
It is important that I get an “A” in agriculture science courses	4.16	1.06
Getting a good agriculture science grade is important to me	4.07	1.08
Scoring high on agriculture science tests and labs matters to me	3.99	1.07
I like to do better than other students on agriculture science tests	3.87	1.13
I think about the grade I will get in agriculture science courses	3.82	1.13
<i>Career Motivation</i>		
Learning agriculture science will help me get a good job	3.93	1.11
Knowing agriculture science will give me a career advantage	3.94	1.16
Understanding agriculture science will benefit me in my career	3.76	1.26
My career will involve agriculture science	3.33	1.39
Summated Scores	90.96	25.83

Students’ satisfaction questionnaire adoption:

Regarding the students’ satisfaction in blended learning study, the questionnaire is adopted from “Factors Affecting Perceived Learning, Satisfaction, and Quality in the Online MBA: A Structural Equation Modeling Approach” (R Sebastianell et al, 2015). The original questionnaire items measuring factors and outcomes are comprised of six items and two items respective in the table 2 as below. Based on the research results by R Sebastianell et al., “Course content” (CCSAT) and “Professor- student interactions” (PSSAT) two factors have a statistically significant positive impact on students’ satisfaction. Therefore, items on the questions with Factor 1 Course content and Factor 4 Professor – student interaction, together with the three items to assess “Learning satisfaction” (LSSAT) are adopted with the modification to replace “Online MBA” to “Blended Learning / Face-to-face learning / E-learning in Postgraduate program”.

Table 2: Questionnaire items measuring factors and outcomes, “Factors Affecting Perceived Learning, Satisfaction, and Quality in the Online MBA: A Structural Equation Modeling Approach” (R Sebastianell et al, 2015).

Questionnaire Items Measuring Factors and Outcomes	
Factor	Item on questionnaire
1. Course content	1. The content in my online courses adds value to my MBA educational experience. 2. The content in my online courses is applicable and useful to professional work.
2. Course structure	3. My online professors design course content to stress important concepts. 4. The weekly overview and objectives clearly identify learning goals to be achieved. 5. The consistent format for each course makes it easy for me to access materials I need.
3. Rigor	6. “Tasks for the week” helps to meet course requirement deadlines. 7. The content in my online courses is challenging. 8. The content in my online courses is less rigorous than I expected.
4. Professor–student interaction	9. I don’t spend much time studying for online exams. 10. My online professors actively facilitate discussion in forums. 11. Most of my online professors respond to questions in a timely manner.
5. Student–student interaction	12. My online professors are very responsive to students’ concerns. 13. Most students participate more than required in Discussion Forums. 14. Other students’ posts to the Discussion Forum are helpful in understanding different viewpoints.
6. Mentoring–support	15. Other students’ posts are not useful in learning course content. 16. More often than not I felt intimidated asking my online professor questions. 17. I don’t feel comfortable asking my online professors for advice. 18. Technology problems interfere with my online learning.
Outcome	
Learning	I am learning a lot in my online MBA program.
Satisfaction	I am very satisfied with the online courses in my MBA program. Overall, I am disappointed with my online MBA program.
Quality	My online courses are of high quality.

A copy of the questionnaire is included in the **Appendix 1**.

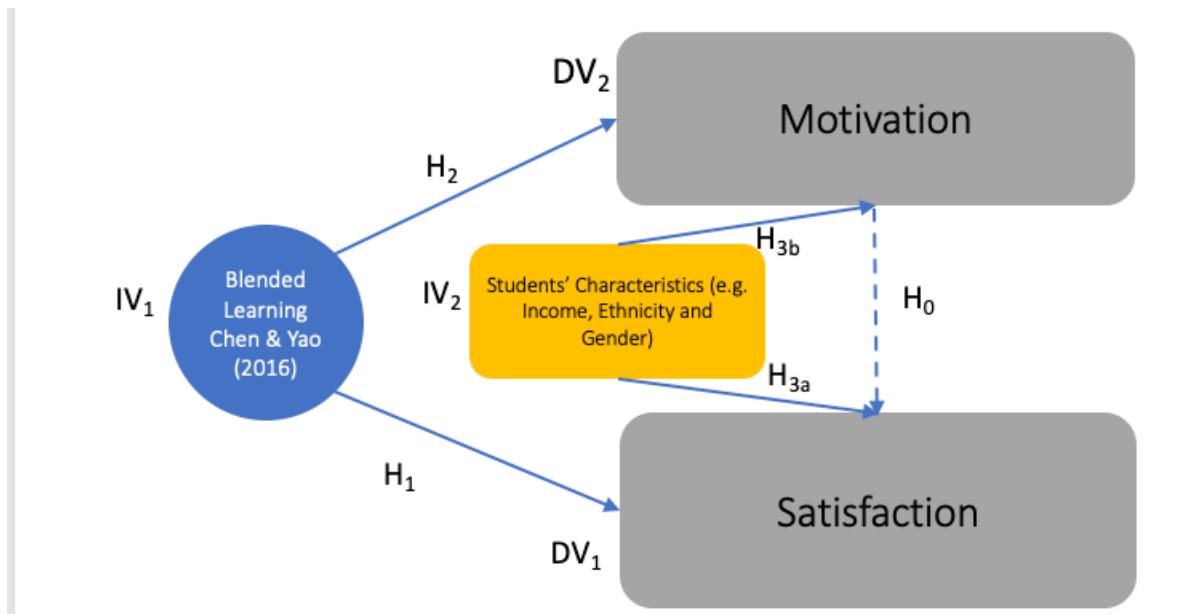
Challenges/ Limitation of the research design:

Although the multi-stage cluster sampling methodology has been utilised, since the samples are from various universities or programmes, the different blended learning technical platforms, their respective learning interface design and technical support might vary which could be affected the satisfaction of students learning which involved the virtual learning parts in blended mode or e-learning mode of study (Granić, A., & Ćukušić, M, 2011). As one of the further study direction, sampling from different universities could be included to examine the impacts and correlations. In addition, due to the limited amount of the study task in this survey (which is less than one month), most of the samples of respondents were / are the students or friends of the researcher, this might lead to a potential challenge which the respondents would have a tendency to please the researcher since I had / have taught them in the blended mode or online mode of study. In the further study, the sampling base could be widened.

Research design:

Below is the diagram 1 which shows the conceptual framework of the research study, “blended learning” and “students’ characteristics” which mainly focused on gender will be the independent variables, which “Motivation” and “Satisfaction” are the dependent variables.

Diagram 1: Conceptual Framework:



In this study, regressions will be run:

$$DV_x = \alpha_x + \beta_{1x} IV_1 (\text{Blended Learning}) + \beta_{2x} IV_2 (\text{Characteristics}) + \epsilon_x$$

Hypothesis:

H₀ According to the self-determinate theory (Klaeijssen A. et al, 2017), students' motivation positively relates to their satisfaction in business discipline

H₁ Students' satisfaction positively relates to the mode of blended mode of learning in business discipline

H₂ Students' motivation positively relates to the mode of blended mode of learning in business discipline

H_{3a} Compared with other learning method, students' characteristics significantly affect their satisfaction in the blended learning mode. To be specific, for instance, the higher they earn, the higher possibility that they will get satisfied with their learning.

H_{3b} Compared with other learning method, students' characteristics significantly affect their motivation in the blended learning mode

Results:

Descriptive statistics analysis of the respondent profile is analysed by Jamovi Version 2.0 in Mac interface among the 197 administered survey, 72.6% are usable returned responses from 143 students based on the data which was collected from students in a variety of aforementioned programmes and responses from those studying business were deemed valid.

Most of the respondents are from the age groups of 18 – 24 (29.4%) and 25 – 34 (29.4%), while the third largest group of age range is from 35 – 44 (28.7%). The results matched with the selected clusters which Master in Management (MiM) programme targeted students with 3 years

or less years of working experience (i.e. 18 – 24 years old) , full time MBA is around 5 - 7 years of working experience (i.e. 25 – 34 years old) and part time MBA and EMBA is around 10 years or above of years of working experiences (i.e. 35 – 44 or above). (Please refer to table 3.1a and table 3.1b). The cumulative % in the frequencies tables of 3.1a and 3.2b are comparable.

Table 3.1a Frequencies of AGE

	Levels	Counts	% of Total	Cumulative %
1.	Under 18	3	2.1 %	2.1 %
2.	18 - 24	42	29.4 %	31.5 %
3.	25 - 34	42	29.4 %	60.8 %
4.	35 - 44	41	28.7 %	89.5 %
5.	45 - 54	14	9.8 %	99.3 %
6.	55 - 64	1	0.7 %	100.0 %

Table 3.1 b Frequencies of years of working experience

	Levels	Counts	% of Total	Cumulative %
	Not Provided	3	2.1 %	2.1 %
1.	< 1 year	39	27.3 %	29.4 %
2.	1-5 years	16	11.2 %	40.6 %
3.	5-10 years	24	16.8 %	57.3 %
4.	11-15 years	25	17.5 %	74.8 %
5.	15 – 20 years	19	13.3 %	88.1 %
6.	20 years +	17	11.9 %	100.0 %

Other profiles 52.4% percent of the respondents were male (table 3.2), and 96.5% were Asian.

Table 3.2 a Frequencies of Gender

	Levels	Counts	% of Total	Cumulative %
1.	Male	75	52.4%	52.4%
2.	Female	63	44.1%	96.5 %
3.	Non-binary / third gender	5	3.5 %	100.0 %

Table 3.2 b Frequencies of Ethnicity

	Levels	Counts	% of Total	Cumulative %
	Not Provided	3	2.1 %	2.1 %
1.	White or Caucasian	1	0.7 %	2.8 %
4.	Asian	138	96.5 %	99.3 %
5.	Other race	1	0.7 %	100.0 %

Altogether 49.7% of the respondents are from MBA program (FT MBA is 16.8% and PT MBA is 31.9%), while 31.5% of these students had MSc (Master of Science) in any business field. (Please refer to table 3.3)

Table 3.3. Frequencies of postgraduate program

	Levels	Counts	% of Total	Cumulative %
1.	MSc (Master of Science) in any business field	45	31.5 %	31.5 %
2.	Full Time MBA	24	16.8 %	48.3%
3.	Part Time MBA	47	32.9 %	81.2 %
4.	EMBA	13	9.1 %	90.3 %
5.	DBA	6	4.2 %	94.5 %
6.	MPhil in any business field	3	2.1 %	96.6%
7.	PhD in any business field	1	0.7 %	97.3%
8.	Other	4	2.8 %	100.0 %

68.6% of the respondents' monthly income are below HKD\$74,888 and their income is evenly distributed among the first four level of incomes, details are in table 3.4.

Table 3.4 Frequencies of INCOME

	Levels	Counts	% of Total	Cumulative %
1.	Under \$15,000	21	14.7 %	14.7 %
2.	Between \$15,000 and \$29,999	26	18.2 %	32.9 %
3.	Between \$30,000 and \$49,999	24	16.8 %	49.7 %
4.	Between \$50,000 and \$74,999	27	18.9%	68.6 %
5.	Between \$75,000 and \$99,999	14	9.8%	78.4 %
6.	Between \$100,000 and \$150,000	12	8.4 %	86.8 %
7.	Over \$150,000	13	9.1 %	95.9 %
8.	Not Provided	6	4.2 %	100.0 %

Inferential statistics to test and to demonstrate the reliability are carried out and the results are as below:

Table 4 presents the means, standard deviations, and correlations of all study variables. As shown in the table, dimensions of motivation and satisfaction was significantly related to each other ($p < 0.001$).

Table 4 Means, Standard Deviations, and Correlation Matrix

	Mean	s.d.	AGE	GDR	PGP	INC	ETH	YRS	INMOT	GMOT	CCSAT	PSSAT	LSSAT	MOD_1
AGE	3.21	0.998	—											
GDR	1.46	0.491	-0.355***	—										
PGP	2.54	1.52	0.59***	-0.182*	—									
INC	3.55	1.82	0.824***	-0.34***	0.488***	—								
ETH	3.99	0.265	0.118	0.049	0.071	0.036	—							
YRS	3.14	1.73	0.943***	-0.367***	0.59***	0.822***	0.112	—						
INMOT	4.07	0.816	-0.229**	0.02	-0.291***	-0.196*	-0.028	-0.262**	—					
GMOT	3.66	0.95	-0.458***	0.204*	-0.401***	-0.353***	0.009	-0.48***	0.325***	—				
CCSAT	4.23	0.706	-0.177*	0.053	-0.213*	-0.176*	-0.02	-0.21*	0.765***	0.351***	—			
PSSAT	4.18	0.761	-0.307***	0.12	-0.269**	-0.337***	-0.011	-0.301***	0.614***	0.361***	0.661***	—		
LSSAT	5.18	0.627	-0.296***	0.119	-0.272***	-0.26**	0.044	-0.305***	0.555***	0.313***	0.532***	0.589***	—	
MOD_1	2.48	0.542	0.125	0.049	0.112	0.142	0.096	0.176*	-0.24**	-0.074	-0.116	-0.161	-0.23**	—

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5 Scale Reliability Statistics

	Cronbach's α
Motivation	0.891
Satisfaction	0.873

Unless otherwise specified, all constructs were measured using a 5-point Likert-type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree).

Cronbach's alpha coefficient is higher than 0.7 in the reliability test in both of the dependent variables, which the Cronbach's α of Motivation and Satisfaction are 0.891 and 0.873 respectively. From the data in the table 5, it indicates that both Motivation and Satisfaction are highly correlated; while table 4 also indicates that all the items under Motivation and all the items under Satisfaction are having high correlations too.

Motivation

This was measured as the mean of 7 items capturing intrinsic motivation and grade motivation. (One question with reverse coded). Both these two kinds of motivation were measured using the existing scale (R Sebastianell et al, 2015). A sample item is "Getting a good grade in Business in blended mode / face-to-face learning / e-learning is important to me." The Cronbach's alpha for this scale is 0.891.

Satisfaction:

The three-item Satisfaction Scale (R Sebastianell et al, 2015) was used. A sample question is, "My online professors actively facilitate discussion in forums" Respondents used a 5-point Likert-type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). The Cornbach's alpha for this scale is 0.873.

Demographic variables:

It is tested with several demographic variables that have been shown to influence students' motivation and satisfaction, such as the respondents' age, gender, income, education, ethnicity (Brush, Moch, & Pooyan, 1987). Given our focus on the effect of demographic variables exert on the dependent variable, I controlled for the type of learning mode.

Table 5 shows the results of Scale Reliability Statistics for both main variables. Both these two Cronbach's α is bigger than recognized criteria 0.7. Table 6 shows the factor loading for these two scales. I use the confirmation factor analysis (CFA) to prove that factor effectiveness. Confirmatory factor analysis indicated discriminant validity of the following: centrality in motivation and satisfaction (as a higher order factor representing motivation and satisfaction).

All these data illustrate that these two measurements I used is reliable.

Table 6 Factor Loadings (CFA)

Factor	Indicator	Estimate	SE	Z	p
Motivation	INMOT1_1	0.281	0.0694	4.06	< .001
	INMOT2_1	0.283	0.0729	3.89	< .001
	GMOT3_1	1.007	0.0797	12.64	< .001
	GMOT4_1	1.043	0.0681	15.31	< .001
	GMOT5_1	1.014	0.0643	15.77	< .001
	GMOT6_1	0.673	0.0667	10.09	< .001
	GMOT7_1	0.822	0.0735	11.18	< .001
Satisfaction	CCSAT1_1	0.649	0.0634	10.24	< .001
	CCSAT2_1	0.605	0.0573	10.56	< .001
	CCSAT3_1	0.562	0.0543	10.34	< .001
	PSSAT4_1	0.66	0.0723	9.12	< .001
	PSSAT5_1	0.625	0.0601	10.4	< .001
	PSSAT6_1	0.599	0.0685	8.74	< .001
	LSSAT7_1	0.765	0.0622	12.3	< .001
	LSSAT8_1	0.75	0.0648	11.57	< .001
	LSSAT9_1	0.301	0.1144	2.63	0.008

Table 7 Linear regression Results

7.1 Dependent Variable: Overall Satisfaction

	Blended Mode			Non-Blended Mode		
	M1	M2	M3	M1	M2	M3
Age	0.1943	1.568	1.5386	0.228	0.1402	0.1382
Gender	0.1202	0.1465	0.1471	0.1948	0.1195	0.1169
PG Programme	0.0506	0.0909	0.0898	0.0593*	0.0379	0.0381
Income	0.0606	0.0383	0.0373*	0.0807	0.0497	0.0487
Ethic	0.104	0.3774	0.3789	0.2312	0.1426	0.1394
Years	0.1943	0.0784	0.0764	0.1488	0.0928	0.0924
INMOT		0.0538***	0.0547***		0.0692***	0.0689***
GMOT			0.0522*			0.0631
R ²	0.0978	0.4952	0.5284	0.193	0.704***	0.721***
d.f.	665	164	163	664	163	162
ΔR^2	0.0978	0.3974***	0.0332**	0.193	0.5110***	0.0173
ΔF	1.17	50.38***	4.44**	2.55	108.65***	3.85

7.2 Dependent Variable: Course Content Satisfaction

	Blended Mode			Non-Blended Mode		
	M1	M2	M3	M1	M2	M3
Age	0.2801	0.2102	0.2137	0.2443	0.1253	0.1257
Gender	0.1732	0.1304	0.1303	0.2087	0.1067	0.1063
PG Programme	0.073	0.055	0.0542	0.0635	0.0339	0.0347
Income	0.0874	0.0656	0.0669	0.0865	0.0444	0.0443
Ethic	0.7158	0.5416	0.5502	0.2477	0.1274	0.1268
Years	0.1499	0.1125	0.1109	0.1594	0.0829	0.084
INMOT		0.0772***	0.0794***		0.0618***	0.0627***
GMOT			0.0758			0.0574
R ²	0.0151	0.4537***	0.4774***	0.159	0.785***	0.791***
d.f.	665	164	163	664	163	162
ΔR^2	0.0151	0.4387***	0.0236	0.159	0.6263***	0.0052
ΔF	0.165	51.40***	2.85	2.02	183.83***	1.55

7.3 Dependent Variable: Professor-students Interaction Satisfaction

	Blended Mode			Non-Blended Mode		
	M1	M2	M3	M1	M2	M3
Age	0.2576	0.2281	0.229	0.2751	0.2041	0.2043
Gender	0.1593	0.1415	0.1397	0.235	0.1739	0.1728
PG Programme	0.0671	0.0596	0.0581	0.0715	0.0552	0.0564
Income	0.0803*	0.0711	0.0717**	0.0974	0.0723	0.072
Ethic	0.6583	0.5876	0.5897*	0.2789	0.2075	0.2061
Years	0.1378	0.1221	0.1189	0.1795	0.135	0.1366
INMOT		0.0838***	0.0851***		0.1007***	0.1019***
GMOT			0.0812*			0.0933
R ²	0.217	0.395***	0.436***	0.169	0.556***	0.569***
d.f.	665	164	163	664	163	162
ΔR^2	0.217	0.1787***	0.0402*	0.169	0.3866***	0.0129
ΔF	3.00	18.91***	4.49*	2.18	54.87***	1.85

7.4 Dependent Variable: Learning Satisfaction

	Blended Mode			Non-Blended Mode		
	M1	M2	M3	M1	M2	M3
Age	0.1919	0.1772	0.1839	0.2532	0.2121	0.2121
Gender	0.1187	0.11	0.1122	0.2162	0.1807	0.1794
PG Programme	0.05	0.0463	0.0466	0.0658**	0.0574	0.0586
Income	0.0599	0.0553	0.0576	0.0896	0.0751	0.0748
Ethic	0.4905	0.4566	0.4734	0.2567	0.2157	0.2141
Years	0.1027	0.0949	0.0954	0.1652	0.1403	0.1419
INMOT		0.0651***	0.0683**		0.1047***	0.1058***
GMOT			0.0652			0.0969
R ²	0.0611	0.2120*	0.2146*	0.172	0.436***	0.453***
d.f.	665	164	163	664	163	162
ΔR^2	0.0611	0.1508***	0.0026	0.172	0.2637***	0.0172
ΔF	0.706	12.250***	0.208	2.22	29.45***	1.95

Both of the composite score of Motivation and Satisfaction are in the rightmost columns in tables 9.1 and 9.2 as below:

Table 9.1 Composite Score of Motivation

	INMOT	GMOT	MOT
N	143	143	143
Missing	0	0	0
Mean	4.07	3.66	3.86
Median	4.00	3.80	3.95
Standard deviation	0.816	0.950	0.720
Minimum	1.50	1.00	1.50
Maximum	5.00	5.00	5.00

Table 9.2 Composite Score of Satisfaction

	CCSAT	PSSAT	LSSAT	SAT
N	143	143	143	143
Missing	0	0	0	0
Mean	4.23	4.18	5.18	4.53
Median	4.33	4.33	5.33	4.56
Standard deviation	0.706	0.761	0.627	0.597
Minimum	2.00	1.33	3.33	2.22
Maximum	5.00	5.00	6.67	5.56

It is considered that the model fit to be reasonable if the comparative fit index (CFI) and incremental fit index (IFI) were above 0.90 and the root mean square error of approximation (RMSEA) was below 0.08 (Byrne, 1998). The 3-factor model was satisfactory, with CFI and IFI at .977 and RMSEA at .0838. These results indicated that our respondents were able to distinguish among the constructs I measured.

Table 7 provides the results of our linear regression analyses. Eight total multiple regressions were conducted, with four for blended mode and four for non-blended mode. Two regressions examined intrinsic motivation (INMOT) and grade motivation (GMOT) as predictors of overall study satisfaction (SAT), two regressions examined intrinsic motivation (INMOT) and grade motivation (GMOT) as predictors of course content satisfaction (CCSAT), two regressions examined intrinsic motivation (INMOT) and grade motivation (GMOT) as predictors of professor-student satisfaction (PSSAT) and the other two regressions examined intrinsic motivation (INMOT) and grade motivation (GMOT) as predictors of learning satisfaction (LSSAT) for both blended mode and non-blended mode. Next in each table, I report the overall variance explained (R^2) and the change in variance explained (ΔR^2) with the addition of each set of predictors.

Last in each table, I examined whether demographic variables and two types of motivation significantly predicted study satisfaction and what exactly kind of satisfaction they predict. It is found that a significant positive relationship between the overall motivation (MOT) and overall study satisfaction (SAT), as well as the positive relationship between intrinsic motivation (INMOT) and different types of satisfaction, which fully support our theory, that students with high study motivation can perform better at study and easily satisfy with their study. Hypothesis H_0 is proved.

Specific to the comparison of the two modes in all Tables 7, I find that intrinsic motivation (INMOT) has a significant role in explaining the three different types of satisfaction, which could be seen from the significance of Model 2 comparing with the other two models. This variable provides the biggest ΔR^2 for the dependent variable explanation. H_1 and H_2 is proved.

Hypothesis 3a proposed that compared with other learning method, students' characteristics (income and ethnic) significantly affect their satisfaction in the blended learning mode. To be specific, the higher they earn, the higher possibility that they will get satisfied with their learning, was also supported (in Table 7.1). Hypothesis 3a is proved.

It is clearly that in the non-blended learning mode, grade motivation (GMOT) did not significantly contribute to professor-student satisfaction (PSSAT), with ($p=0.178>0.05$, $b=0.0933$). However,

in the blended learning mode, students' grade motivation (GMOT) strongly correlates to students' professor-student satisfaction, with ($p=0.038<0.05$, $b=0.0812$). Hypothesis 3b is proved.

Discussions

This study investigated the effects of blended learning mode and students' characteristics on students' learning motivation and satisfaction. In line with our expectations, I found that in the blended learning mode, students' motivation can better predict their learning satisfaction, and some of students' characteristics did matter in this situation. I also found that both the learning motivation and learning satisfaction were stronger for students high in income in blended mode. Our study has several important theoretical and practical implications.

First, it is students' motivation that determines their learning engagement and satisfaction. When we design the course setting and teaching mode, the first priority is to consider how the course can satisfy students' basic needs, not only providing them with sufficient knowledge, but also enough autonomy for them to study on their own and explore more knowledge that they are interested in.

However, when talking about the specific motivation, it worth noticing that not every student who majors in Business has the grade motivation. From our statistics, students with higher income seems have stronger initiatives in pursuing higher grades, which aligns with our basic assumption that higher income students may have higher level of self-efficacy and care more about their study performance. Blended mode of teaching provides them more chance to pursue higher grades from multi-interaction with professors, they may more easily to get satisfied with their study in this mode.

Furthermore, in terms of what may affect professor-students interaction satisfaction, I notice that ethnicity plays a role in this effect. According to the collected data, Asian students under the blended study mode prefer the multi-interaction with professors as well. It has to commit that this conclusion of limitation which it may be subject to the error caused by the racial singleness of the participants, but it still has some explanatory importance. Why is ethnicity does not associate with other types of satisfaction, but only with professor-student interaction satisfaction? It is speculated that this is due to cultural differences. Ethnical differences are highlighted in terms of interpersonal interaction, as Asian students have significantly higher demands for interaction diversity than other ethnicities: they need both close interactions to ensure certain learning exchanges and online learning to ensure study independence without overcommunicating with others.

Limitations and Future Research

Our study is not without limitations. First, our participants mostly base in Hong Kong, which limits the influence from other types of students on this study. It is encouraged that the future research

adopt more diverse sample to confirm the significant relationship in our study on a larger scale. Second, as an education-related topic, our study does lack of causal evidence in practical scenarios, field experiment approach could be adopted in the future to explore other possibility of causal evidence. It is effective to use questionnaire survey to explore students' motivation and satisfaction, but it also has some limitations. Although the reliability and validity of the scale adopted by us are highly acceptable, the question itself may limit students' expression on relevant issues. For example, they may have other highlighted satisfaction except for course content, professor-student relationship and learning satisfaction. This requires qualitative research based on quantitative research in the future, so as to improve the framework and content of the whole research.

There is still a certain space for us to improve the conceptual model in the future. So far it only focused on how blended learning mode affect both motivation and satisfaction, and how motivation affect satisfaction, it still worth noticing that how motivation come from, and will other students' characteristic may play important roles when control for other demographic variables and learning modes? As it is mentioned the self-efficacy of students in our discussions, future research could explore the role of psychological factors in students' studying pattern. Intrinsic motivation is statistically proved to significantly affect satisfaction, but specific types of intrinsic motivation could be the future research highlights.

Finally, future study might record students' memories of how their attitudes and motivations changed across time, as well as the improvements they expect to take place in the future. It's possible that how students perceive their previous educational achievement predicts future study motivation and satisfaction more than real attitude assessed in the past.

Conclusion

This study not only establish the influence of blended learning on students' motivation and satisfaction, but also to shed light on the role of blended learning by comparing different modes. We could further explore the interaction between motivation and satisfaction, as well as how subdimensions of these two constructs interact basing on the self-determination theory. Blended learning mode could satisfy students' three basic needs, and students with basic needs satisfied could enjoy higher level of motivation, and further experience higher level of satisfaction. When Business faculty design programmes to attract self-sufficient programmes' students, they need to accurately consider of and design the curriculum and modes of teaching to students' needs. In the future, we believe programmes optimized towards this direction can not only attract students from Hong Kong, but also can attract more international students to prosper the advanced studying climate.

Align with the assumptions at the very beginning, blended mode is an extremely effective method for students with Business background to adopt, especially after the outbreak of covid-19 pandemic. Study of business emphasizes both theory study and practical study, which cannot be perfectly launched in non-blended mode. Moving forward, I estimated that it is important to change study focus from how much blended learning affects motivation and pleasure to how students gain psychologically and physiologically from this type of learning mode.

Appendix 1 : Questionnaire

Students' motivation and satisfaction in postgraduate blended learning programmes in business

Instruction Students' motivation and satisfaction in postgraduate blended learning programmes in business disciplines Pilot Research Survey - Postgraduate blended learning programmes in business disciplines

Thanks for your voluntary participation to my pilot research survey for my Quantitative research methods course work of DBA programme of University of Wales Trinity Saint David.

The objective is to study the effectiveness of postgraduate blended learning programmes in business disciplines. The survey will be around 10 minutes. You are free to quit at any point of the survey. All the data will be kept strictly confidential and for academic research purpose only.

Please indicate the response which is the most closely matches with you. Should you have any enquiry, please feel free to contact Prof Tina Choi at +852 6186 9852, thanks for your participation

Q1 Are you a business discipline student in your postgraduate study?

- ☐ Yes (1)
- ☐ No (2)

Skip To: End of Survey If Are you a business discipline student in your postgraduate study? = No

Q2 What is the mode of your study in your postgraduate programme?

- ☐ Online Mode (e-learning) (1)
- ☐ Face-to-Face Mode (Physical class) (2)
- ☐ Blended Mode (Online and Physical class) (3)

Q3 The content in my blended learning / face-to-face learning / e-learning courses adds value to my postgraduate educational experience.

- ☐ Strongly disagree (1)
 - ☐ Somewhat disagree (2)
 - ☐ Neither agree nor disagree (3)
 - ☐ Somewhat agree (4)
 - ☐ Strongly agree (5)
-

Q4 The content in my blended learning / face-to-face learning / e-learning courses is applicable and useful to professional.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q5 My blended learning / face-to-face learning / e-learning professors design course content to stress important concepts.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q6 My blended learning / face-to-face learning / e-learning professors actively facilitate discussion in forums.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q7 Most of my blended learning / face-to-face learning / e-learning professors respond to questions in a timely manner.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q8 My blended learning / face-to-face learning / e-learning professors are very responsive to students' concern.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q9 I am learning a lot in my blended learning / face-to-face learning / e-learning postgraduate program.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q10 I am very satisfied with the blended Learning / face-to-face learning / e-learning courses in my postgraduate program.

- ☐ Strongly disagree (6)
- ☐ Somewhat disagree (7)
- ☐ Neither agree nor disagree (8)
- ☐ Somewhat agree (9)
- ☐ Strongly agree (10)

Q11 Overall, I am disappointed with my blended Learning / face-to-face learning / e-learning postgraduate program.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q12 Learning business in blended mode / face-to-face learning / e-learning is interesting.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q13 I enjoy learning business in blended mode / face-to-face learning / e-learning.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q14 It is important that I get an “A” in business in blended mode / face-to-face learning / e-learning courses

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q15 Getting a good business grade in blended mode / face-to-face learning / e-learning grade is important to me.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q16 Scoring high on business tests in blended mode / face-to-face learning / e-learning matters to me.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q17 I like to do better than other students on business in blended mode / face-to-face learning / e-learning tests.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q18 I think about the grade I will get in business courses in blended mode / face-to-face learning / e-learning courses.

- ☐ Strongly disagree (1)
- ☐ Somewhat disagree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat agree (4)
- ☐ Strongly agree (5)

Q19 What is your age group?

- ☐ Under 18 (1)
- ☐ 18 - 24 (2)
- ☐ 25 - 34 (3)
- ☐ 35 - 44 (4)
- ☐ 45 - 54 (5)
- ☐ 55 - 64 (6)
- ☐ 65 - 74 (7)
- ☐ 75 - 84 (8)
- ☐ 85 or older (9)

Q20 What is your gender?

- ☐ Male (1)
- ☐ Female (2)
- ☐ Non-binary / third gender (3)
- ☐ Prefer not to say (4)

Q21 What is your postgraduate program?

- ☐ MSc (Master of Science) in any business field (1)
- ☐ Full Time MBA (Master of Business Administration) (2)
- ☐ Part Time MBA (Master of Business Administration) (3)
- ☐ EMBA (Executive Master of Business Administration) (4)
- ☐ DBA (Doctor of Business Administration) (5)
- ☐ MPhil in any business field (6)
- ☐ PhD in any business field (7)
- ☐ Other (8)

Q22 Your estimated monthly income (HKD)

- ☐ Under \$15,000 (1)
- ☐ Between \$15,000 and \$29,999 (2)
- ☐ Between \$30,000 and \$49,999 (3)
- ☐ Between \$50,000 and \$74,999 (4)
- ☐ Between \$75,000 and \$99,999 (5)
- ☐ Between \$100,000 and \$150,000 (6)
- ☐ Over \$150,000 (7)

Q23 Your ethnicity

- ☐ White or Caucasian (1)
- ☐ Black or African American (2)
- ☐ Hispanic or Latino (3)
- ☐ Asian (4)
- ☐ Other race (5)

Q24 Your years of working experience

- ☐ < 1 year (1)
- ☐ 1 - 5 years (2)
- ☐ 5 - 10 years (3)
- ☐ 11 - 15 years (4)
- ☐ 15 - 20 years (5)
- ☐ 20 years + (6)

End of Survey

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