

The COVID-19's impacts on study abroad intentions

---- an empirical study based on the Chinese student's sample

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Abstract: Under the COVID-19 global pandemic, the international education industry is facing an unprecedented challenge. To identify the COVID-19's effects on students' study abroad intentions and the underlying mechanisms, a conceptual model is built by integrating the international students' decision model with the theory of planned behavior (TPB). The conceptual model is tested empirically, using cross-tabulation analysis, the multinomial logit model (MNL) and the structural equation model (SEM) with a data set including 428 Chinese students. The results show that although COVID-19 mainly lead to the negative effects on the students' intentions to study abroad, it also becomes a "push factor" for increasing the study abroad intentions for some local students. The deeper analysis indicates that the mechanism for intention change is mainly through the subjective norms while there is no evidence for the importance of attitudes or the perceived behavioral controls within this process.

Key Words: Study abroad intentions; COVID-19's impacts; Theory of planned behavior; MNL modeling; SEM modeling

Contents

Abstract	1
Key Words	1
1. Introduction	3
2. Theoretical Framework	5
2.1 <i>The Theory of Planned Behavior</i>	6
2.2 <i>The International Students' Decision Model</i>	7
2.3 <i>COVID-19's Impacts on the Influential Factors</i>	10
2.4 <i>Conceptual Model</i>	16
3. Methodology	18
3.1 <i>Descriptive Analysis</i>	19
3.2 <i>Multinomial Logit Model (MNL)</i>	19
3.3 <i>Structural Equation Model (SEM)</i>	21
3.3.1 <i>Introduction of SEM</i>	21
3.3.2 <i>Modeling Strategy of SEM</i>	22
3.4 <i>Introduction of the Data Sample</i>	27
4. Results	28
4.1 <i>Basic Descriptive Analysis</i>	28
4.2 <i>Cross-tabulation Results</i>	31
4.3 <i>MNL Analysis</i>	39
4.4 <i>SEM Analysis</i>	44
4.4.1 <i>Model Fitness and Modifications</i>	44
4.4.2 <i>Path Analysis Results</i>	48
5. Conclusions and Suggestions	57
5.1 <i>Conclusions</i>	57
5.2 <i>Policy Suggestions</i>	58
6. Discussions	59
References	61
Appendix 1 Tables	64
Appendix 2 Questionnaire	75

1. Introduction

From the appearance of an unexplained pneumonia at the end of Dec. 2019 [1] to today, COVID-19 has made the world struggle. Under the pandemic, students are suffering from the travel restrictions [2], the risk of being infected [3] and the questionable quality of online education as a result of a lack of self-discipline, suitable learning materials, and/or good learning environments when they are self-isolated at home [4] [5].

The main factors for international students to choose their study locations are the educational quality, the safety of the academic climate and the proximity of the city to the students' home countries [6], have been impaired by the pandemic. However, the tuition fees and living costs for most of the education institutions are not reduced [7]. This creates concerns about the risks and cost-effectiveness of the study abroad, which could change the intentions of students to do so.

A downturn in the number of international students comes at a loss, as they play a crucial role both economically and diplomatically. The benefits of increasing the GDP, promoting knowledge output as well as fostering global engagement and cross-cultural understanding [8][9] makes it worthy to analyze the impacts from the COVID-19 towards the students' intentions to study abroad.

Chinese students in particular, are an important group for testing this impact. Not only because China is the world's leading provider of international students ^[10], but also due to the unfavorable comparison between China and other countries in terms of the epidemic treatment, which may change their students' valuations of studying abroad.

The existing model of international students' decision making does not capture these effects of COVID-19 on the outcome of these decisions and the relevant literature on COVID-19 impacts mostly focus on the life and study of student that are currently abroad. Building on and extending these insights, this study will take a prospective perspective by integrating the model of decision making into the theory of planned behavior.

Thus, this thesis aims at understanding the impacts from COVID-19 on the intentions to study abroad among prospective Chinese students, which can contribute to this research field and fill the knowledge gap.

2. Theoretical Framework

The theoretical framework for this study is developed in three steps. First, “The theory of planned behavior” (TPB) will be discussed to identify the basic rules of change in intentions;

Second, “the international students’ decision model” is used to derive the influential factors in the students’ study abroad decision process, which will be connected to the basic rules from TPB, making the TPB measurable.

Third, literature review and related inferences are employed to deduce the paths of the COVID-19’s impacts towards the factors from the “international students’ decision model”.

In these three steps, the COVID-19’s impacts are linked with students’ study abroad intentions by identifying various paths in which these impacts are mediated by the theoretical combination of the TPB and the international students’ decision model. A conceptual model based on this will be demonstrated at the end of the section.

2.1 The Theory of Planned Behavior

The theory of planned behavior (TPB) ^[11] is frequently used to predict human behaviors based on three aspects that determine a person's intention: attitudes, subjective norms and perceived behavioral control. TPB has been used before to study the international students' intentions. For example, some scholars investigated the motivators for Chinese students to enlist in higher education in Australia using TPB ^{[12][13]}. Others explained the international students' intention to participate in leisure travel activities while staying in Taiwan ^[14]. It has also been applied in the international students' migration intention studies ^{[15][16]}. These studies showed that TPB is a suitable and feasible theory to be used as a basic framework for researching international students' intention.

According to the TPB model (Fig. 1), the human action is guided by three kinds of considerations: beliefs about the perceived outcomes of conducting the behavior (behavioral beliefs), beliefs about the normative expectations of relevant individuals/groups (normative beliefs) and beliefs about the resources for/impediments to behavioral performance (control beliefs). Behavioral beliefs produce attitudes towards the behavior; normative beliefs result in perceived social pressure or subjective norms; control beliefs give rise to perceived behavioral control. These three elements lead to the formation of a behavioral

intention^[17]. Generally, the more favorable the attitudes, the more supportive the subjective norms, and the greater the perceived control, the stronger the person's intentions will be.

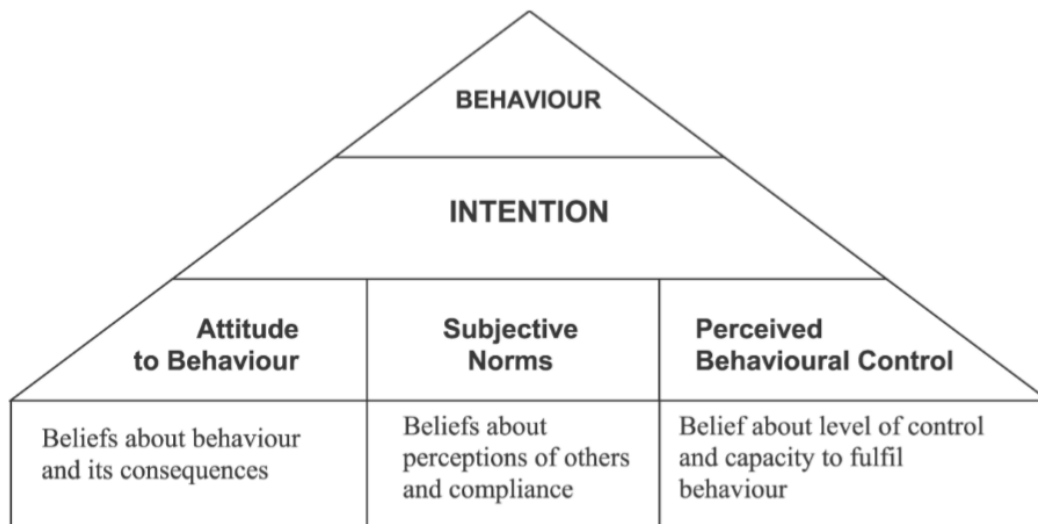


Fig. 1. The theory of planned behavior^[17]

Although the three elements of the TPB give a valuable framework to explore the links between COVID-19 and students' study abroad intention, they are too abstract to measure and test. Thus, some specific factors (in this paper, from the international students' decision model) which can influence the students' study abroad intentions will be integrated into the TPB.

2.2 *The International Students' Decision Model*

The international students' decision model originates from the "push-pull" model. Inside the model, "push" factors operate within the source country and initiate a student's decision to undertake international study while "pull"

factors operate within a host country to make that country relatively attractive to international students [18].

Subsequent research has added consumer behavior theory into the “push-pull” model, making it more relevant to students’ needs (see Figure 2) [19].

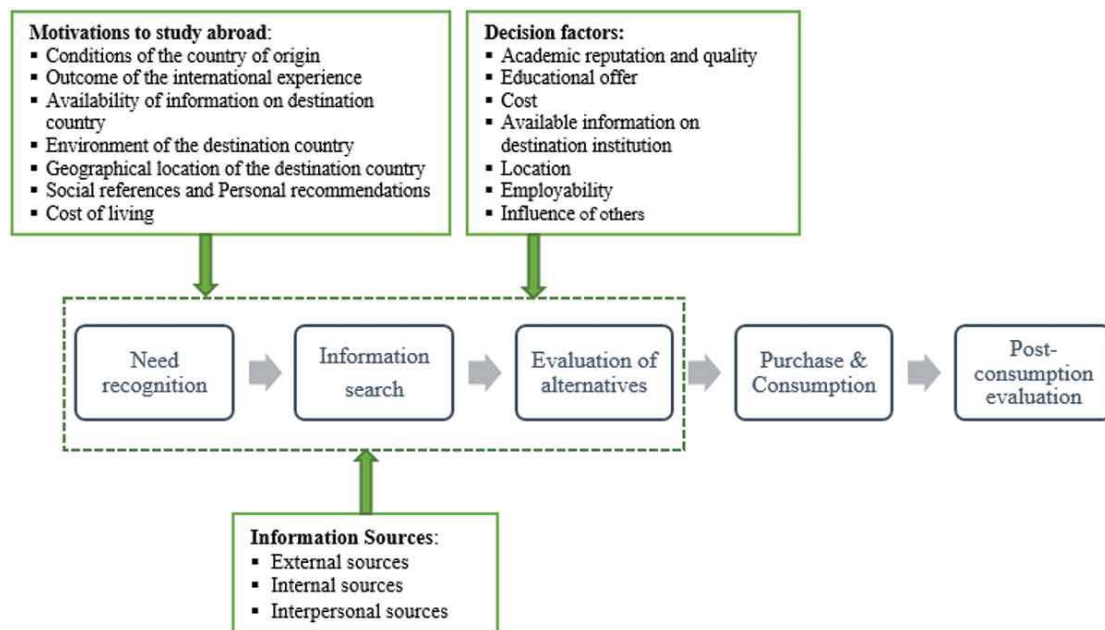


Figure 2 Model for the decision process of international students [19]

In this model, both “push” and “pull” factors are divided into three parts: the pre-purchase process which correspond with “motivations to study abroad”, “information sources” and “decision factors” respectively [20]. 17 factors in total are considered in this model according to various existing studies. Their specific meanings are displayed in the table 9 (see Appendix 1). Out of these, ten factors have been selected to combine TPB and international students’ decision model. These factors from the international students’ decision model are categorized into three terms of TPB (table 1).

Table 1 Categorization List of the factors

TPB Dimension	Influential Factors Inside
Attitude	<ol style="list-style-type: none"> 1. Conditions of the country of origin 2. The international experiences 3. Environment 4. Cost of living 5. Academic reputation and quality 6. Employability 7. Educational offer 8. Application Difficulty
Subjective Norms	<ol style="list-style-type: none"> 1. Interpersonal sources 2. External sources
Perceived Behavior Control	<ol style="list-style-type: none"> 1. Environment 2. Cost of living 3. Academic reputation and quality 4. Employability 5. Educational offer 6. Application Difficulty

Particularly, “the available of information on destination country”, “the geographic location” and “the internal sources” are the three objective factors which couldn’t be changed by COVID-19. On top of that, there are four pairs of factors which overlap between motives, information sources and decision factors in terms of the definitions (cost – cost of living; available information – availability of information on destination country; location – geographical location; influence of others – interpersonal sources and external sources). Thus, seven factors are not taken into account which means there are ten factors left in total.

By inferring which term of the TPB might be influenced by which factor, a categorization was made and shown in table 1. With these influential factors nested, the TPB is more concrete and measurable. The detailed inference process is summarized in table 10 (see Appendix 1).

2.3 COVID-19’s Impacts on the Influential Factors

As mentioned in the “introduction” section, a theory for understanding the COVID-19’s impacts on the influential factors for students’ study abroad intention hasn’t been created yet. Thus, in this part, several relevant studies will be summarized and deductions will be created to build the paths between the COVID-19’s impacts and the influential factors in the table 1.

According to the existing literature, COVID-19 will mainly affect

educational institutions and their students in seven aspects underneath. In order to integrate these impacts into the theoretical framework, the related factors will be listed after the explanation of each aspect.

(1) **Education quality.** Although the online teaching is not a new mode of education delivery for most of the teaching institutions ^[21], the transition to online mode still raises questions for the faculty about their capability to deal with the huge demand ^[22] ---- many universities actually do not have enough infrastructure or resources to facilitate online teaching with immediate effect ^[23]. Furthermore, there are always students who do not have access to laptops and internet facilities ^[24] and problems such as lack of self-discipline, suitable learning materials, or good learning environments always happen when they are self-isolated at home ^[5].

Related factors:

- Conditions of the country of origin (local education quality)
- The international experience (education quality expectations)
- Environment (online study environment)
- Cost of living (cost-effectiveness)
- Academic reputation and quality

- Educational offer (some programs can't be taught online)

(2) **Assessments.** Both internal assessments (semester/final exams) and public qualifications (GCSEs/A levels/IELTS/GRE/GMAT) are influenced by COVID-19. Many of them have simply been canceled which makes the students ineligible for application. Additionally, although technology has been used earlier to support teaching and learning, the online assessment is often under-developed ^[25]. Problems appear with uncertain procedures, inadequate supervising and substantive limitations; some qualifications cannot be assessed online ^[26]. Thus, COVID-19 will increase the difficulty and unfairness of the educational assessments.

Related factors:

- Environment (online assessment environment)
- Academic reputation and quality (potential unfairness)
- Application difficulty (access of the qualification test)
- Educational offer (some programs can't be assessed online)

(3) **Travel restrictions.** Because of the COVID-19, nations across the globe are closing international borders to mitigate the outbreak. This is harmful to the education and research quality since university administrations are advising their staff members to postpone the

participation in any event that would require them to travel overseas. Meanwhile, not all programs can be offered online such as lab experience, fieldwork and internship ^[27]. This has brought many troubles to the international students in particular. First of all, while universities are closing campuses, it is important to consider that many students do not have alternative accommodation outside those campuses ^[28]. The travel restrictions are forcing part of them to stay, which could also cause financial and visa problems. Even if some of them can go back to their home country, their studies will be interrupted (jet lag, uncertainty of coming back), the risk of being infected increases and travel cost are much higher ^{[24][29]}.

Related factors:

- The international experience (safety risk; education quality; visa)
- Environment (social distance; curfew; travel regulations)
- Cost of living (travel cost; cost-effectiveness)
- Academic reputation and quality
- Application difficulty (visa applying/documents preparing which may need long-distance travel)
- Educational offer (some programs can't be taught online)

(4) **Graduation.** The careers of this year's university graduates may be severely affected by the COVID-19 pandemic. They have experienced major teaching interruptions in the final part of their studies, they are experiencing major interruptions in their assessments, and finally they are likely to graduate at the beginning of a major global recession ^[30]. This will challenge the cost-effectiveness of a study abroad decision and may lead to a worse reputation of study abroad via this year's graduates and influence the subsequent students' choices.

Related factors:

- The international experience (graduation difficulty)
- Environment (for graduation)
- Cost of living (extra cost if postpone graduation; cost-effectiveness)
- Employability (in destination country)
- Academic reputation and quality (graduates' evaluation)

(5) **Culture shock and Racism.** With the spread of the virus, many international students, especially Asian students, have experienced microaggression and even blatant discrimination ^[30]. Evidence shows that following the spread of COVID-19, discrimination towards Chinese people has increased ^[31]. Meanwhile, new culture shocks are occurring for

international students during the crisis. For example, the off-handed attitudes towards the use of face masks and the difference in containment policies will likely add to the culture shock for international students.

Related factors:

- The international experience (safety risk; discrimination)
- Environment (culture attractive)
- Cost of living (extra cost from discrimination; cost-effectiveness)

(6) **Mental health.** Considering all the concerns above, it's no wonder that students, especially international students are facing serious mental health problems. There is evidence that economic effects, effects on daily life, as well as delays in academic activities, are associated with anxiety symptoms [32]. On top of these, they also have concerns for the wellbeing of their families [33].

Related factors:

- The international experience
- Environment (perceptions under the mental disorder is usually worse)

(7) **Financial status.** Many studies reported the COVID-19's negative impacts on the unemployment rate [34][35] which affects the financial

resources of many households. Meanwhile, the financial status of educational institutions is also under threat. Evidence from China ^[36] and the U.S. ^[37] suggests funding problems for the public universities which will further influence the educational offer, the quality of the education and employability of future students.

Related factors:

- Cost of living (unaffordable cost; cost-effectiveness)
- Employability
- Educational offer (university bankrupt; programs canceled)

2.4 Conceptual Model

Combining the 3 sections above, the conceptual model of this study can be depicted as in figure 3 (see next page).

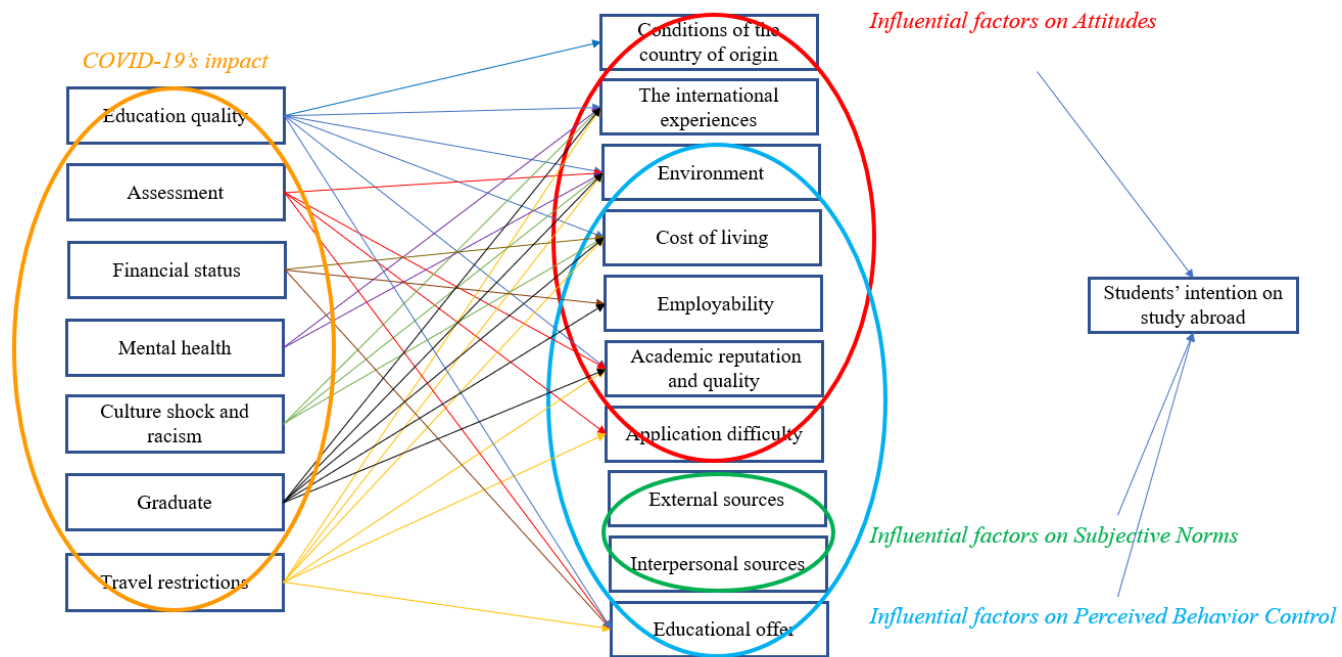


Figure 3 The Conceptual Model

The left part summarizes the COVID-19's impacts on the students and educational institutions. The middle part is showing the TPB framework with the international students' decision model nested. The right part is the ultimate dependent variable ---- "students' study abroad intentions".

Within the model, the COVID-19 will affect the 7 aspects of students and educational institutions. These 7 aspects will further influence the 10 factors from the international students' decision model which can be assigned into three terms of TPB and finally, through TPB, they affect the students' study abroad intentions.

This paper mainly focuses on testing two stages of this theoretical model:

(1) The COVID-19's direct impacts on students' study abroad intentions,

revealed by the relationships between the left and the right part. (2) The underlying mechanism of these relationships, including all the links and parts of the model, to test whether the deductions about TPB, the international students' decision model and all the links inside are consistent with the reality.

Therefore, the major hypotheses are listed below:

H1: COVID-19 has negative impacts on students' study abroad intentions in terms of the 7 aspects from section 2.3.

H2: The theoretical model is sound which means that the impacts from COVID-19 on students' study abroad intentions are mediated by the 3 terms of TPB and their related factors.

3. Methodology

To verify the hypotheses, both descriptive analysis and statistical models are applied. More specifically, this test includes 3 steps: (1) Using descriptive analysis to test the basic relationships between each independent variable and the study abroad intention; (2) Using a multinomial logit model (MNL) to examine the COVID-19's direct impacts on the study abroad intentions (H1); (3) Using a structural equation model (SEM) to test the deeper mechanisms (H2).

3.1 Descriptive Analysis

The cross-tabulation analysis with the Pearson's chi-square test is used as the main descriptive method. A cross-tabulation is a two-dimensional table that shows the relationship between the variables. On top of that, the Pearson's chi-square test used to verify the significance of the relationship. The main purpose of this step is to get an initial look at the factor-to-factor relationships and assisting the MNL to test the first hypothesis.

3.2 Multinomial Logit Model (MNL)

The multinomial logit model is the most popular type of random utility model and is widely used to decision making between three or more discrete alternatives. In this study, there are three alternatives for the student's intention changes: "intention-decrease", "intention-increase" and "no intention change". Based on the utility maximization behavior, an individual n tends to select the alternative with the highest utility. The probability of a student n chooses intention change i can be written as:

$$P_n(i) = P(U_{in} \geq U_{jn}) \quad (1)$$

In equation (1), P denotes the probability while U_{in} and U_{jn} represent the utility of the student n from choosing the intention change i and j (for all alternatives except i) respectively. The linear function of U_{in} and U_{jn} are expressed as:

$$U_{in} = \beta_i V_n + \varepsilon_{in} \quad (2)$$

$$U_{jn} = \beta_j V_n + \varepsilon_{jn} \quad (3)$$

V_n and V_n denote the observed explanatory variables which determine the intention change while β_i and β_j are the estimable coefficients. ε_{in} and ε_{jn} are the error terms for the unobserved influential factors.

Combining equation (1), (2) and (3), the $P_n(i)$ can be presented as:

$$P_n(i) = P(\beta_i V_n - \beta_j V_n \geq \varepsilon_{jn} - \varepsilon_{in}) \quad (4)$$

Finally, by assuming a generalized extreme value distributional form for the error term, the equation (4) can be transferred into the MNL model by showing the equation below:

$$P_n(i) = \exp(\beta_i V_n) / \sum_j \exp(\beta_j V_n) \quad (5)$$

By using the MNL model, the direct relationships between the independent variables, which are the 7 aspects from COVID-19's impacts (see section 2.3), and the dependent variable, which are the 3 types of intention change (increase, decrease or no change), can be tested.

Considering the potential influence from the other individual characteristics, four control variables (gender, age, international students, family/friends as international students) are introduced into the MNL. Since MNL tests part of the conceptual model while SEM

examines the whole conceptual model, the variables for SEM include all the variables for MNL. Thus, the complete variables' explanations and list are shown in section 3.4.

3.3 Structural Equation Model (SEM)

3.3.1 Introduction of SEM

Since the conceptual model is a combination of several different theories and has a large number of paths with some abstract (latent) variables inside, the SEM (Structural Equation Model) is adopted as the empirical model.

Structural equation modeling (SEM) is a comprehensive statistical approach to testing hypotheses about relations among observed and latent variables ^[38]. It can analyze relationships between latent and observed variables while examining a series of dependent relationships simultaneously, especially where there are direct and indirect effects among the constructs within the model ^[39].

In SEM one can employ both a “strictly confirmatory strategy” and a “model generating strategy” which means it can be used not only for the test of the existing theory, but also for exploring something new ^[40] for a pioneering study.

AMOS 23 was applied to execute the SEM analysis. A complete SEM

model includes two parts: the measured model and the structural model.

The measured model tests the relationship between the observed variables and the latent variables while the structural model tests the relationship between the latent variables.

3.3.2 Modeling Strategy of SEM

Inside the conceptual model, there are five latent variables: COVID-19's impacts, the three terms of TPB and the students' intention change. Since these latent variables cannot be observed directly, they are five variables which build up the structural model. Since the conceptual model indicates that the COVID-19's impacts on the intention change are mediated by the 3 terms of TPB, the structural model can be depicted as figure 4. The ovals are the latent variables, the arrows are the links and the circles are the error terms. See table 2 for the detailed variable names and their meanings.

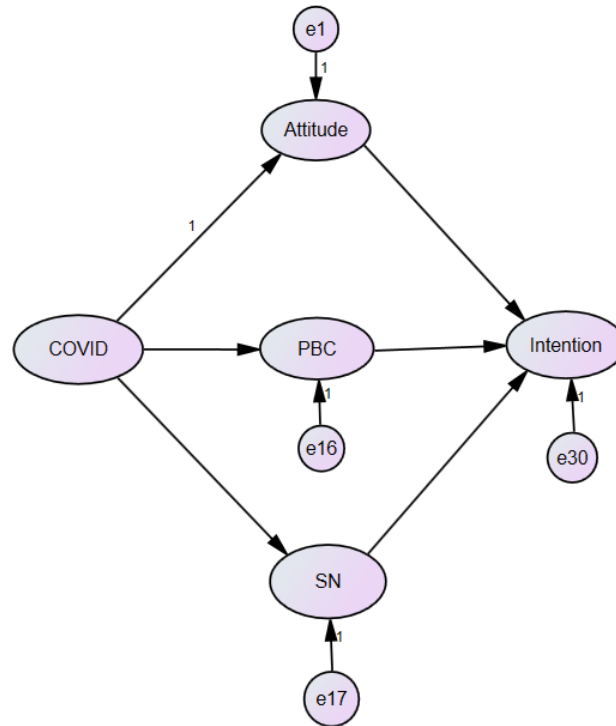


Figure 4. Structural Model

Each of five latent variables needs a measured model to represent it. For the COVID-19's impacts, its measured model can be formed from the 7 aspects of COVID-19's impacts (see figure 5 left). To build the model, the questions about the change of the objective conditions are asked. For example, to measure the COVID-19's impact on "assessment", participants were asked by the questions as "Do you have any offline educational assessments are forced to move online because of the pandemic?". If the answer is "yes", then it will count for "1" score and "No" will count "0", then the total value of the objective condition change is the sum of each question's score. To measure the objective conditions as comprehensive as possible, the respondents are also asked about "whether the COVID-19 has

any positive effects on assessments?” (Yes 1 No 0) and “Overall, you think the COVID-19 caused positive or negative or no effect on assessments?” (see table 2 for the detailed variable information) to realize their overall perceptions clearer. For all 7 aspects, the first type of questions is asked.

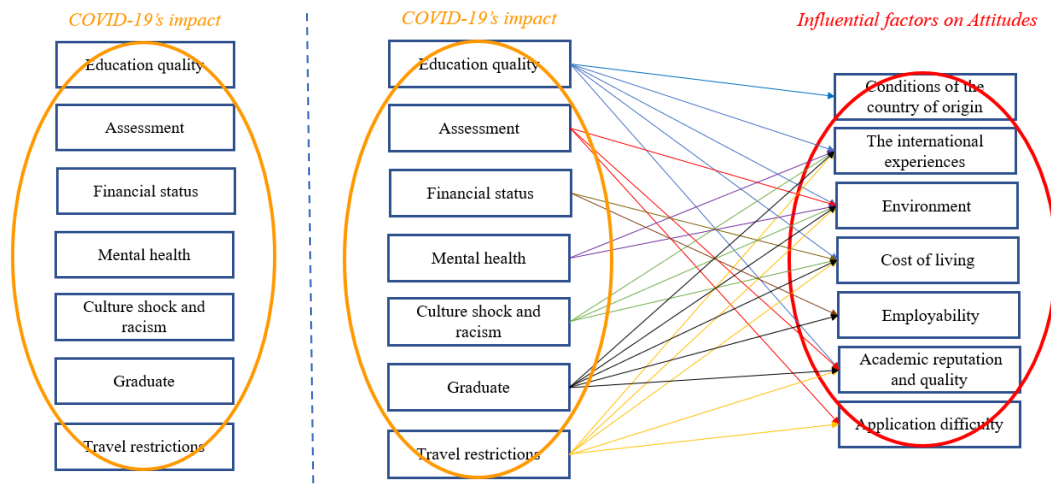


Figure 5. Partial Conceptual Model

For the three terms of TPB, their measured models can be formed from the 7 aspects of COVID-19’s impacts as well. However, while the concrete meanings of these terms were presented by the factors from the international students’ decision model, the COVID-19’s impacts are mediated by these factors before they are conveyed to the TPB. This is a “two-steps” process. In the first step, the COVID-19’s impacts on 7 aspects can be disassembled as the impacts on the related factors. Then in the second step, these related factors are assigned into 3 terms of TPB.

Taking “attitude” as an example (see figure 5 right), its measured model is

built through the same “two-steps” strategy. In order to decrease the information density, this process includes two questions:

Firstly, the model measures the students’ perceptions about the COVID-19’s impacts on each of the 7 aspects through its related factors. For instance, “assessment”, as one of the 7 aspects, has 3 possible links with the “attitude” and each link is matched with a related factor. Thus, to be correspond with the logic of the first step, the corresponding questions are about the links between “assessment” and its related factors: “environment”, “academic reputation and quality” and “application difficulty”. For example, to test the link about the “environment”, the respondents are asked about “In your opinion, will the change of the assessment from COVID-19 have a positive, negative or no effect on the study abroad environment?”. This type of questions aims at helping the respondents build up the logic following the two-steps as well to reduce the misunderstandings.

Secondly, the model tests the links between the related factors and the “attitude”. For example, “environment” is one of the related factors for “attitude”. Then the students are asked about “The change of the study abroad environment makes your attitude towards the study abroad more positive or more negative or no effect?”. If the student selected “positive”, then it will count for 1, “negative” for -1 and “no effect” for 0. For all the

links between the related factors and the 3 terms of TPB, this kind of questions is all asked. Then the value of each aspect, which is the observed variable in the measured model, is the sum of the questions' scores about the related factors. At last, the measured model is formed by the 7 aspects of the COVID-19's impacts. Through the two steps above, the COVID-19's impacts are linked with the 3 terms of TPB.

The measured model for the change of study abroad intention can be expressed by two types of intention change (including all three types will lead to the multicollinearity problem). In this case, "intention no change" and "intention decrease" are selected as the observed variables.

Combining the structural model and the measured models, the original SEM for this study is shown in figure 6. The ovals are the latent variables, the squares are the observed variables, the arrows are the links and the circles are the error terms.

Since the measured model of "attitude" and the measured model of "PBC" reflect the different sides of the same thing, the covariance between their error terms is generated to make the model more reasonable. Due to the discrepancies of the variables' measuring scales, all of the data are standardized by using the extreme value method before running the model. The continuous variables which appear in the MNL are made into dummy (high level/low level) based on the means. The original questionnaire is

attached in the Appendix 2.

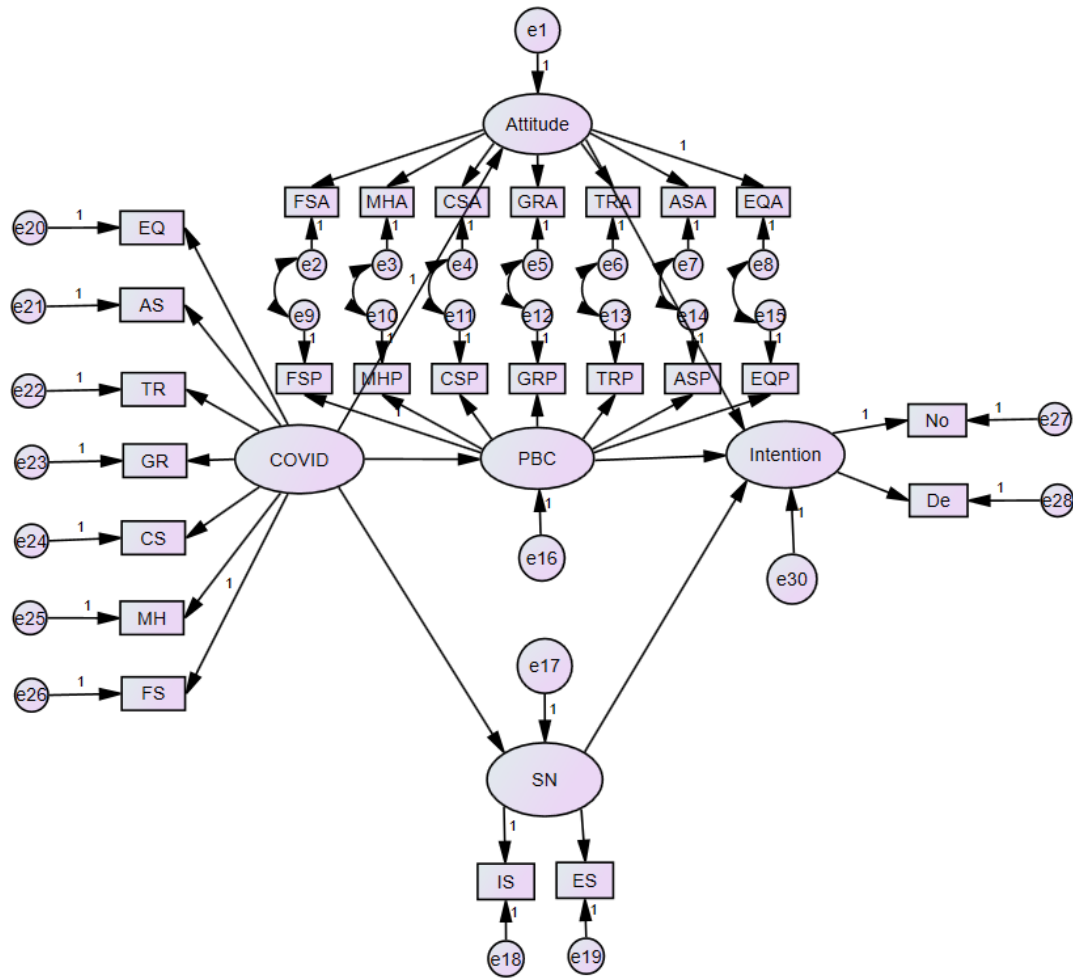


Figure 6. SEM for the COVID-19's impacts on the study abroad intentions

Table 2 summarizes all the variables' information, which includes their names, being used for which model and explanations of values and meanings, for both MNL and SEM. Since the table is too long, it is attached as Appendix 1.

3.4 Introduction of the Data Sample

This study uses the primary data collected by an online questionnaire (during Oct. 2020 – Dec. 2020) via a Chinese online interview platform “wjx.cn”. The whole data sample includes 428 Chinese participants.

Within the data set, 93% of the respondents are Chinese local students while 7% are those Chinese students who are studying abroad. Shanxi, Beijing and Chongqing are the main regions for the data collection which occupied 91% of the samples. In terms of the educational level, 77% of the respondents are the bachelor students, 16% of them are master students and 3% are PhD. students.

4. Results

4.1 Basic Descriptive Analysis

Before doing the cross-tabulation analysis, the basic features of the dependent variable “Intention”, which represents the respondents’ study abroad intention change after the COVID-19 occurrence with 3 categories (intention decrease; intention increase; intention no change), are demonstrated in figures 7.

As shown in the figure, more than half (65%) of the respondents didn’t change their study abroad intention while the decrease (24%) is more than the increase (11%).

Intention Change

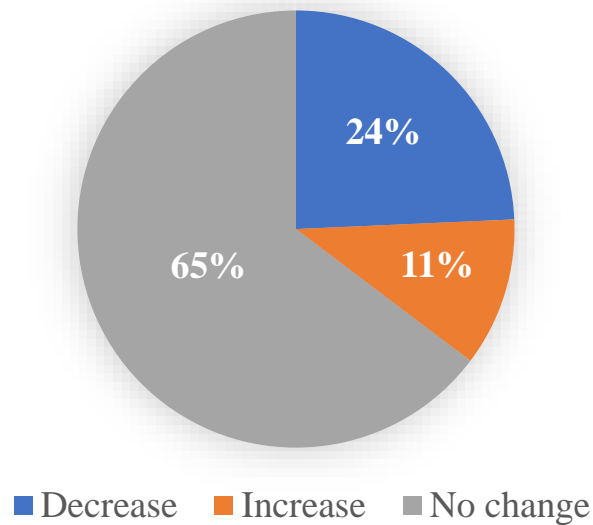


Figure 7 The Study Abroad Intention change of the Respondents

The COVID-19's impacts on the objective conditions of 7 aspects are the independent variables which reflect the direct influence of the COVID-19. Therefore, the basic descriptive results for these variables are helpful for realizing the overall situation before doing the deeper analysis. Table 3 summarizes the basic proportion of the degree of impacts ("high-level", "low-level" problems or "no effect") from COVID-19 of all the 7 aspects. The judgement of the degree of impacts depends on the comparison of the total score and the average score of each objective condition. The total score is the sum of a series questions asking about whether the respondents have experienced the corresponded situation ("yes" counts 1 and "no" counts 0). The student whose total score is larger than the average will be divided into the "high-level" group while the one has a smaller total score (but still > 0) than the average belongs to the "low-

level” group. The student who didn’t experience any situation in the questionnaire is considered as the “no effect” group.

Table 3 The Degree of Impacts from COVID-19 on Objective Conditions

Variable Name	High-level	Low-level	No Effect
Education Quality	45.3%	48.6%	6.1%
Assessment	48.8%	19.2%	32.0%
Travel Restriction	50.5%	0%	49.5%
Graduation	44.9%	7.2%	47.9%
Culture Shock and Racism	48.6%	44.6%	6.8%
Mental Health	45.6%	14.2%	40.2%
Financial Status	39.7%	25.3%	35.0%

As shown in table 3, over half of the respondents have experienced the troubles from the COVID-19 for all the 7 aspects. In general, the percentage of “High-level” problems is more than the percentage of “low-level” problems. Particularly, the problems on “education quality” and “culture shock and racism” are most commonly reported. For the “travel restriction”, there is only one question to test the problem for the local students while all of the international students reported high-level problems. Thus, the groups for “travel restriction” are either “high-level” or “no effect”. The “graduation” problem has the same polarized trend. This is because that the ratio of the freshman or sophomore students is

48.1% which is corresponded with the ratio of “no effect” group (47.9%). These students are not facing with the graduation affairs yet so that they are not affected by COVID-19 in terms of graduation. Overall, COVID-19 has caused significant effects on all the 7 aspects.

4.2 Cross-tabulation Results

As mentioned in section 3.1, the cross-tabulation is used for checking the relationships for the first hypothesis and assisting the MNL to select and verify the variables. Thus, this part mainly focuses on examining the relationship between “the seven aspects of COVID-19’s impacts” and “the study abroad intention change”.

Since the variables in the three dimensions of TPB are both dependent variables (affected by the COVID-19’s impact) and independent variables (they influence the TPB and the study abroad intention further) simultaneously which means they are two-way paths, their tests are majorly conducted by the SEM so none of them is examined by the cross-tabulation.

The results indicate the following significant interrelations (on 95% significant level).

Table 4 Cross-tabulation of “FFSA” and “Intention”

FFSA	Intention			Total
	Decrease	Increase	No Change	
0	31	17	241	289
	10.73	5.88	83.39	100.0
1	49	8	82	139
	35.25	5.76	58.99	100.00
Total	80	25	323	428
	18.69	5.84	75.47	100.0

First row has *frequencies* and second row has *row percentages*

Pearson chi2(2) = 37.6086 Pr. = 0.000

Table 4 demonstrates the cross-tabulation results for the study abroad intention change (Intention) and “whether there are family or friends are current international students” (FFSA; 0 = No, 1 = yes). The “Pr.” shows the significant probability of the Pearson test. Under the 95% significant level, Pr. < 0.05 means the relationship is significant. The tabulation shows that students with family or friends as a current international student has higher percentage to more often decrease their study abroad intentions. This result indicates that the current international students are suffering from the COVID-19 and become the sources of the negative information on study abroad. It also shows the importance of the peer group and the significance of the subjective norms.

Table 5 Cross-Tabulation of “EQ2” and “intention”

EQ2	Intention			
	Decrease	Increase	No Change	Total
0	47	18	236	301
	15.61	5.98	78.41	100.00
1	33	7	87	127
	25.98	5.51	68.50	100.00
Total	80	25	323	428
	18.69	5.84	75.47	100.00

First row has *frequencies* and second row has *row percentages*

Pearson chi2(2) = 6.3320 Pr. = 0.042

Table 5 demonstrates the cross-tabulation results for the study abroad intention change (Intention) and “the COVID-19 has positive effects on the Chinese education quality” (EQ2; 0 = disagree, 1 = agree). Over 70% of respondents do not agree that COVID-19 has positive effect on the Chinese education quality which means the Chinese education system works better without the pandemic in most of cases. The results also shows that the group of students who think the COVID-19 has positive effect on Chinese education quality are more inclined to decrease their study abroad intentions. This is in correspondence with the “push-pull” theory since it verifies that the increase of the Chinese education quality reduces this “push” factor.

Table 6 Cross-Tabulation of “EQ5N” and “intention”

EQ5N	Intention			
	Decrease	Increase	No Change	Total
0	14	15	123	152
	9.21	9.87	80.92	100.00
1	66	10	200	276
	23.91	3.62	72.46	100.00
Total	80	25	323	428
	18.69	5.84	75.47	100.00

First row has *frequencies* and second row has *row percentages*

Pearson chi2(2) = 18.8096 Pr.= 0.000

Table 6 demonstrates the cross-tabulation results for the study abroad intention change (Intention) and “the overall impacts from COVID-19 on the overseas education quality is negative” (EQ5N;0 = disagree, 1 = agree). About 64.5% of the respondents think that the COVID-19’s overall impacts on overseas education quality is negative. Moreover, the group of students who have this concern tend to decrease their study abroad intentions more than others. This is a reasonable result because as a pull factor, the decline of the overseas education quality dropped the attractiveness of study abroad which leads to the loss of the intentions.

Table 7 Cross-tabulation of “AS3N” and “intention”

AS3N	Intention			
	Decrease	Increase	No Change	Total
0	27	16	172	215
	12.56	7.44	80.00	100.00
1	53	9	151	213
	24.88	4.23	70.89	100.00
Total	80	25	323	428
	18.69	5.84	75.47	100.00

First row has *frequencies* and second row has *row percentages*

Pearson chi2(2) = 11.7662 Pr. = 0.003

Table 7 demonstrates the cross-tabulation results for the study abroad intention change (Intention) and “the overall impacts from COVID-19 on assessment are negative” (AS3N;0 = disagree, 1 = agree). The ratio of two groups is almost the same. The results suggest that the group of students who think the overall impacts on assessment are negative has more often decrease their study abroad intentions. This supports that the assessment is one of the influential factors for students’ study abroad intentions. More specifically, in this case, the tradeoff between the overseas university’s educational assessment and the Chinese university’s educational assessment favors the Chinese university since more respondents prefer to stay in China under the circumstance that the assessment quality for both overseas and Chinese universities are impaired.

Table 8 Cross-tabulation of “CS3N” and “intention”

CS3N	Intention			Total
	Decrease	Increase	No Change	
0	29	17	188	234
	12.39	7.26	80.34	100.00
1	51	8	135	194
	26.29	4.12	69.59	100.00
Total	80	25	323	428
	18.69	5.84	75.47	100.00

First row has *frequencies* and second row has *row percentages*

Pearson chi2(2) = 14.3738 Pr. = 0.001

Table 8 demonstrates the cross-tabulation results for the study abroad intention change (Intention) and “the overall impacts from COVID-19 on culture shock and racism are negative” (AS3N;0 = disagree, 1 = agree).

Although the group of “agree” is smaller than the group of “disagree”, the “agree” group show more intention decrease which shows that the culture shock and racism is also one of the influential factors for students to change their study abroad intentions. However, an interesting phenomenon is that compared to table 3 (93.2% students reported that they have experienced or heard about the culture shock and racism problem from COVID-19), over half of them disagree that the COVID-19 intensified this problem. This might because the local students, who are under the travel restrictions, never went abroad during the pandemic. As a result, their perceptions of this problem are not as profound as the overseas Chinese/Asian group. Meanwhile, the racism is not a very common topic in present-day China, hence part of them might only regard the problem as a daily news or a fresh story. This is also the reason why students prefer to stay in China instead of study abroad when they recognized that the COVID-19 caused culture shock and racism problems.

Table 9 Cross-tabulation of “MH3N” and “intention”

MH3N	Intention			Total
	Decrease	Increase	No Change	
0	19	9	139	167
	11.38	5.39	83.23	100.00
1	61	16	184	261
	23.37	6.13	70.50	100.00
Total	80	25	323	428
	18.69	5.84	75.47	100.00

First row has *frequencies* and second row has *row percentages*

Pearson chi2(2) = 10.1228 Pr. = 0.006

Table 9 demonstrates the cross-tabulation results for the study abroad intention change (Intention) and “the overall impacts from COVID-19 on mental health are negative” (MH3N;0 = disagree, 1 = agree). The ratio of “agree” is almost consistent with the ratio of the students who reported the mental health problem from COVID-19 in table 3. On top of that, the “agree” group has a larger percentage of intention decrease which verifies that the mental health problem is part of the mechanisms for students to change their study abroad intention during the corona time. However, it is worth noting that the “agree” group also has the trend to increase their intention more than the other group. Although the change in percentage is relatively small, the net increasing value of the number of students who increased their intention is 7 (from 9 to 16), which is not a small number compared to the total number of intentions increased students (47). This suggests that there are two types of perceptions when dealing with the mental health problems from COVID-19. The first one, which is more common in this case, treats the mental health problem as the other problems in the 7 aspects and regards the problem more like a hamper for study abroad instead of a trouble for study in China. Therefore, when there are negative effects on mental health, this type of students will decrease their intention. The second one treats the mental health differently. They consider this problem more like a “push factor” or a motivation for them to study abroad. Thus, when there are negative

effects on this aspect, it will encourage these students to seek for a new environment, such as study abroad. Overall, this is still a result from the tradeoff for students to consider which utility (stay in China or study abroad) is better when facing the same change of the same aspect. The first group regards “stay in China” as a high-utility decision than study abroad under the mental health problems from the pandemic and the second group considers it oppositely.

Table 10 Cross-tabulation of “FS4N” and “intention”

FS4N	Intention			Total
	Decrease	Increase	No Change	
0	17	12	138	167
	10.18	7.19	82.63	100.00
1	63	13	185	261
	24.14	4.98	70.88	100.00
Total	80	25	323	428
	18.69	5.84	75.47	100.00

First row has *frequencies* and second row has *row percentages*

Pearson chi2(2) = 13.3270 Pr. = 0.001

Table 10 demonstrates the cross-tabulation results for the study abroad intention change (Intention) and “the overall impacts from COVID-19 on your family and overseas university’s financial status are negative” (MH3N;0 = disagree, 1 = agree). More than half of the respondents agree that the COVID-19 caused negative effects on the households’ and overseas university’s financial status. Meanwhile, the “agree” group has more proportion of intention decrease which is consistent with the theoretical deduction.

Overall, except for the two aspects with the polarized trend (travel restriction and graduation), 5 out of 7 aspects of COVID-19's impacts passed the Pearson test and thus have the possibility to become the significant variables in the MNL and the SEM. The reason for the rejections of "travel restrictions" and "graduation" is due to their features of polarization which leads to the large size (nearly 50%) of the "no effect" group. Thus, when testing the relationship between the individual variable and the dependent variable, the relationship is weakened by the data structure. This will be detailed in the next two sections.

Additionally, when students under the same change of the same aspect, there is always a tradeoff between the Chinese universities and the overseas universities. In this study, except for mental health, all the other aspects favor the Chinese universities.

4.3 MNL Analysis

Before conducting the MNL test, the covariance list of each variable is checked. The covariance is always smaller than 0.25 which means the independences of the variables inside MNL are acceptable. The full variable list of MNL is contained in table 2 (see Appendix 1).

The 3 categories of the change of study abroad intention, which are "intention decrease" (mode 1), "intention no change" (mode 2) and

“intention increase” (mode 3), are the dependent variables. All the 3 categories are made into dummy variables (1 means the student belongs to the group; 0 means the student doesn’t belong to the group). In this study, “intention no change” (mode 2) is taken as the reference group.

The independent variables are confirmed by the stepwise modeling strategy. Within this process, different combinations of the variables from

Table 11 Regression Results for MNL

Variable Name	Parameter 1	S.E.1	Parameter 3	S.E.3
Intercept	-2.771***	(0.716)	-4.371***	(1.348)
FFSA	1.474***	(0.295)	0.668	(0.498)
EQ2	0.708**	(0.291)	0.115	(0.496)
AS3P	-0.857*	(0.505)	-0.785	(0.736)
GR3P	0.480	(0.468)	1.448**	(0.620)
CS3No	-0.454	(0.373)	0.987**	(0.497)
MH3N	0.066	(0.392)	1.061*	(0.552)
FS4N	0.357	(0.389)	-0.119	(0.546)
Male	-0.197	(0.276)	-0.008	(0.439)
Age16.26	-0.002	(0.490)	1.090	(1.120)
International	-0.444	(0.488)	-0.718	(1.114)
TR1	0.022	(0.288)	-0.028	(0.481)
EQ5N	0.699*	(0.368)	-1.016**	(0.483)
<i>Observations</i>				428
<i>R²</i>				0.134
<i>Log Likelihood</i>				-256.275
<i>LR Test</i>				79.629*** (df=26)
<i>Note:</i>				*p<0.1 **p<0.05 ***p<0.01

the variable pool are tested. At last, the variable combination with the most significant variables and the least AIC index is selected as the final format of the MNL. The final results are shown in table 11.

All variables are included in the model. Parameter (1 and 3) and standard error (1 and 3) match the corresponded modes (1 for intention decrease; 3 for intention increase). According to the results above, 7 variables, which include 5 aspects of the COVID-19's impacts, are significant under the 90% significance level. 3 out of 4 control variables (gender, age and identity as international student), travel restrictions (TR1) and financial status (FS4N) are not significant.

To be specific, inside the significant variables, FFSA (whether there are family or friends are current international students) has positive coefficient with intention decrease which means the student who has current international students as their family or friends tends to decrease his/her study abroad intention more than others. This result is consistent with the cross-tab and suggests the importance of the subjective norms again.

EQ2 (whether COVID-19 has a positive effect on Chinese education quality) has positive coefficient with intention decrease which indicates that the student who thinks the pandemic can improve Chinese education quality reduced study abroad intention more. This is the same result with

the cross-tab which shows that the Chinese education quality is a push factor and it can keep more students to stay in China when it is improved.

AS3P (the overall impacts from COVID-19 on assessment is positive) has negative coefficient with intention decrease which means the overall positive effects on “assessment” will reduce the intention decrease. This result is still equal to the results of the cross-tab which is “overall negative effects on “assessment” lead to more intention decrease”.

GR3P (the overall impacts from COVID-19 on graduation is positive) has positive coefficient with intention increase which means the positive effect on graduation will lead to more study abroad intention. This result provides some new insights on “graduation” which is not significant in the cross-tab analysis. When integrated in the MNL, the students who are facing the graduation problems from COVID-19 showed the importance of “graduation” as an influential factor of students’ study abroad intentions. Furthermore, in this tradeoff between Chinese universities and overseas universities, students prefer to study abroad when the graduation are improved for both types of universities. This indicates that the overseas environment is still considered attractive if students have the expectations of the normal graduation difficulty.

CS3No (the overall impacts from COVID-19 on culture shock and racism is zero) has positive coefficient with intention increase which means

students will increase their study abroad intentions if COVID-19 has no effect on culture shock and racism. This result is also consistent with the cross-tab result which shows that the overall negative impacts on “CS” lead to intention decrease. Combined with the cross-tab analysis, this also explained partially that why there are study abroad intention increase under the pandemic. This is because that many local students didn’t recognize the COVID-19 has negative effects on culture shock and racism problems. When they consider this aspect as “no change”, their study abroad intentions tend to increase while keep other conditions as the same.

MH3N (the overall impacts from COVID-19 on mental health is negative) has a positive coefficient with intention increase which means the negative effects on mental health lead to more study abroad intentions. This result supports the deduction in the cross-tab analysis that part of the students regards mental health problem more like a “push factor” to push them outside and study abroad. Compared to their current environment, they believe study abroad can improve their mental health during the pandemic time.

EQ5N (the overall impacts from COVID-19 on overseas education quality is negative) has positive coefficient with intention decrease which means the overall negative effects on overseas education quality lead to

more intention decrease. This result indicates that the overseas education quality is one of the “pull factors” so that the attractiveness of study abroad declined when this factor is impaired.

Overall, most of the results from MNL are consistent with the cross-tab analysis results and offered more pieces of evidence on the deductions. These results verified the first hypothesis. The reason for the variables related to financial status are not significant will be addressed in the SEM part.

4.4 SEM Analysis

4.4.1 Model Fitness and Modifications

The variables for the measured model of “COVID” in SEM are selected from the variable pool mainly based on the testing results from cross-tab and MNL. Each of the 7 aspects in terms of the COVID-19’s impacts is selected at least one related variable to measure its effect.

Before analyzing the results of the SEM, the model itself should be accepted and thus an overall fitness test for the model needs to be conducted. By applying and testing the model in Figure 6, several modifications of the model have been made based on the fitness indicators and the modification indices.

Since there is not a standard rule for testing the goodness of fit for SEM,

this study selected 10 common indicators from the book *Structural Equation Model: Operation and Application of AMOS*^[40] as the robustness test rules. Their meanings and threshold values are listed in the table 12.

Using the ten indicators in table 12 to reflect the goodness of fit and modifying the original model in figure 6 based on the modification indices until its fitness is generally acceptable. This is the reflection of the “model generating strategy” for SEM which is suitable for this study since there are not enough mature theories to support the whole conceptual model.

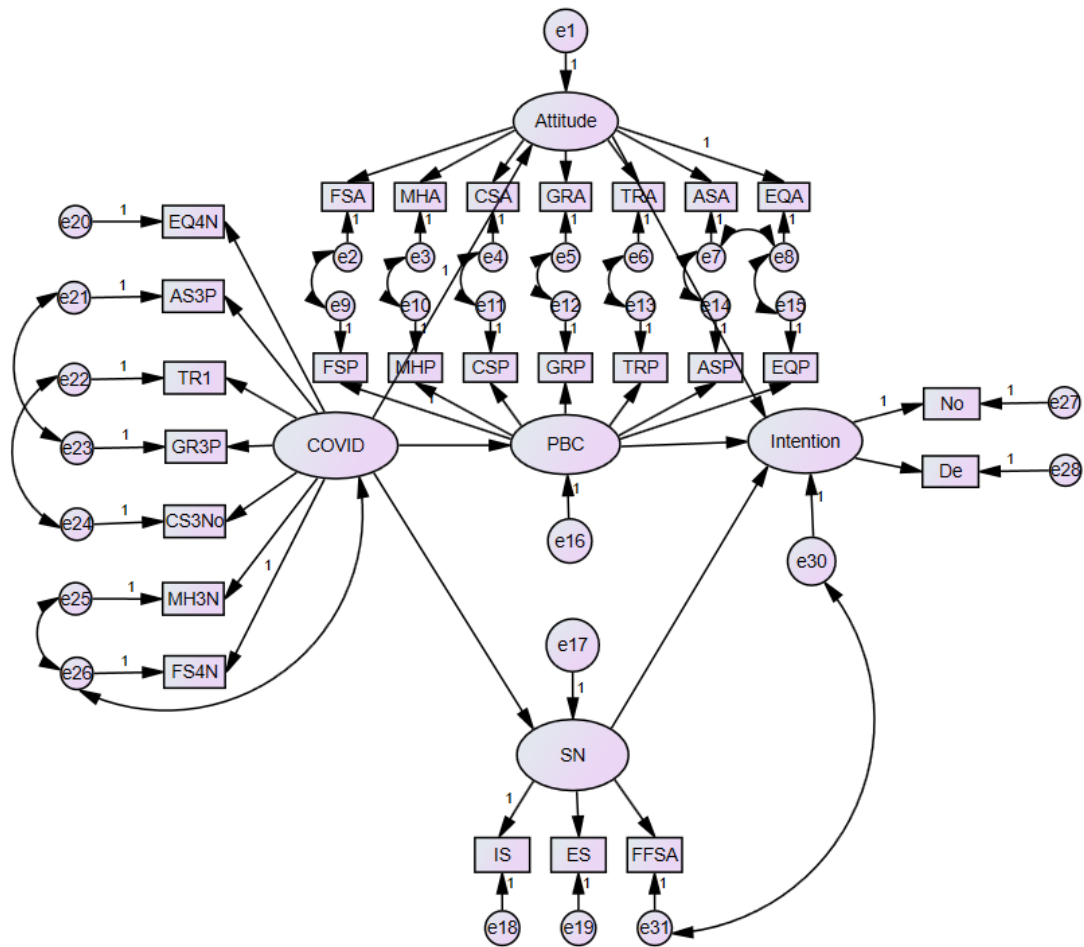


Figure 8. Modified SEM Model

By modifying the SEM model, new paths are built and tested to supplement the original deductions. To avoid the abuse of the modification indices, all of the paths added are explainable by common sense and not conflicting with other paths in the model. The modified SEM is shown in the figure 8.

Compared to the original model, “FFSA” and its error term are added into the measured model for “subjective norms” as the observed variable since it is significant in both cross-tab and MNL. Besides, 6 covariances are generated between different error terms. They are covariances between “e7 and e8”, “e21 and e23”, “e22 and e24”, “e25 and e26”, “e30 and e31” and

“e26 and COVID” respectively.

Table 12 Model fit indicators and results

Indicator Name	Meaning	Threshold of the acceptable fitness	Modified SEM
Pr. of CMIN	The significant probability of the chi-square value	Not significant	significant
CMIN/DF	Chi-square value/degree of freedom	< 3	2.924
RMR	Root mean square residual	< 0.05	0.008
RMSEA	Root mean square error of approximation	< 0.08	0.067
NFI	Normed fit index	> 0.9	0.916
RFI	Relative fit index	> 0.9	0.903
IFI	Incremental fit index	> 0.9	0.943
TLI	Tacker-Lewis index	> 0.9	0.934
CFI	Comparative fit index	> 0.9	0.943
AGFI	Adjusted goodness-of-fit index	> 0.9	0.821

Table 12 demonstrates the indicators for the model’s fitness. Their meanings, thresholds and test results for the modified SEM are included in the table. By checking and matching the results and the thresholds, 8 out of 10 indicators have fulfilled the acceptable thresholds which means the modified model can be accepted by most of the standards and thus its results have the qualification to be analyzed deeply. Particularly, within

all the indicators, Chi-square is very sensitive about the sample size. The ideal size for using Chi-square as the indicator is about 100-200 ^[41]. Since the sample size of this study is 428, the reliability of the chi-square value is relatively lower. The modified model has a good overall fit.

4.4.2 Path Analysis Results

Table 9 and figure 10 demonstrates the path analysis results for the SEM in different format. Within table 9, the left column represents the path with the names of two related variables and the arrow. These paths are the main relationships which are tested in SEM. The “estimate” column shows the coefficient of each path. The paths which have 1.000 as its value are the reference paths. The “S.E.” is the abbreviation of the “standard error”, the “C.R.” expresses the “t-value” and the “P” shows the insignificant probability of the path.

Table 9 Modified SEM Path Analysis results

			Estimate	S.E.	C.R.	P
Attitude	<---	COVID	1.000			
SN	<---	COVID	1.223	.069	17.748	***
PBC	<---	COVID	1.139	.062	18.450	***
Intention	<---	PBC	.060	.331	.180	.857
Intention	<---	SN	.316	.146	2.162	.031
Intention	<---	Attitude	-.015	.424	-.034	.973
EQA	<---	Attitude	1.000			
ASA	<---	Attitude	1.101	.051	21.730	***
TRA	<---	Attitude	1.059	.054	19.660	***
GRA	<---	Attitude	.788	.054	14.504	***
CSA	<---	Attitude	1.123	.059	19.072	***
MHA	<---	Attitude	1.260	.063	19.852	***
FSA	<---	Attitude	1.108	.059	18.890	***
FS4N	<---	COVID	1.000			
MH3N	<---	COVID	-1.551	.110	-14.128	***
CS3No	<---	COVID	.550	.112	4.898	***
GR3P	<---	COVID	.577	.078	7.386	***
TR1	<---	COVID	-.225	.120	-1.880	.060
AS3P	<---	COVID	.767	.085	9.073	***
EQ4N	<---	COVID	-.886	.116	-7.636	***
FSP	<---	PBC	1.000			
MHP	<---	PBC	1.092	.052	21.095	***
CSP	<---	PBC	.969	.046	21.048	***
GRP	<---	PBC	.680	.043	15.839	***
TRP	<---	PBC	.944	.045	20.848	***
ASP	<---	PBC	.958	.047	20.581	***
EQP	<---	PBC	.951	.045	20.950	***
IS	<---	SN	1.000			
ES	<---	SN	.981	.039	24.925	***
No	<---	Intention	1.000			
De	<---	Intention	-1.111	.095	-11.643	***
FFSA	<---	SN	-.172	.081	-2.114	.034

Note: C.R. is the *t* value; P = *** means the relationship is significant under the 99% confidence level

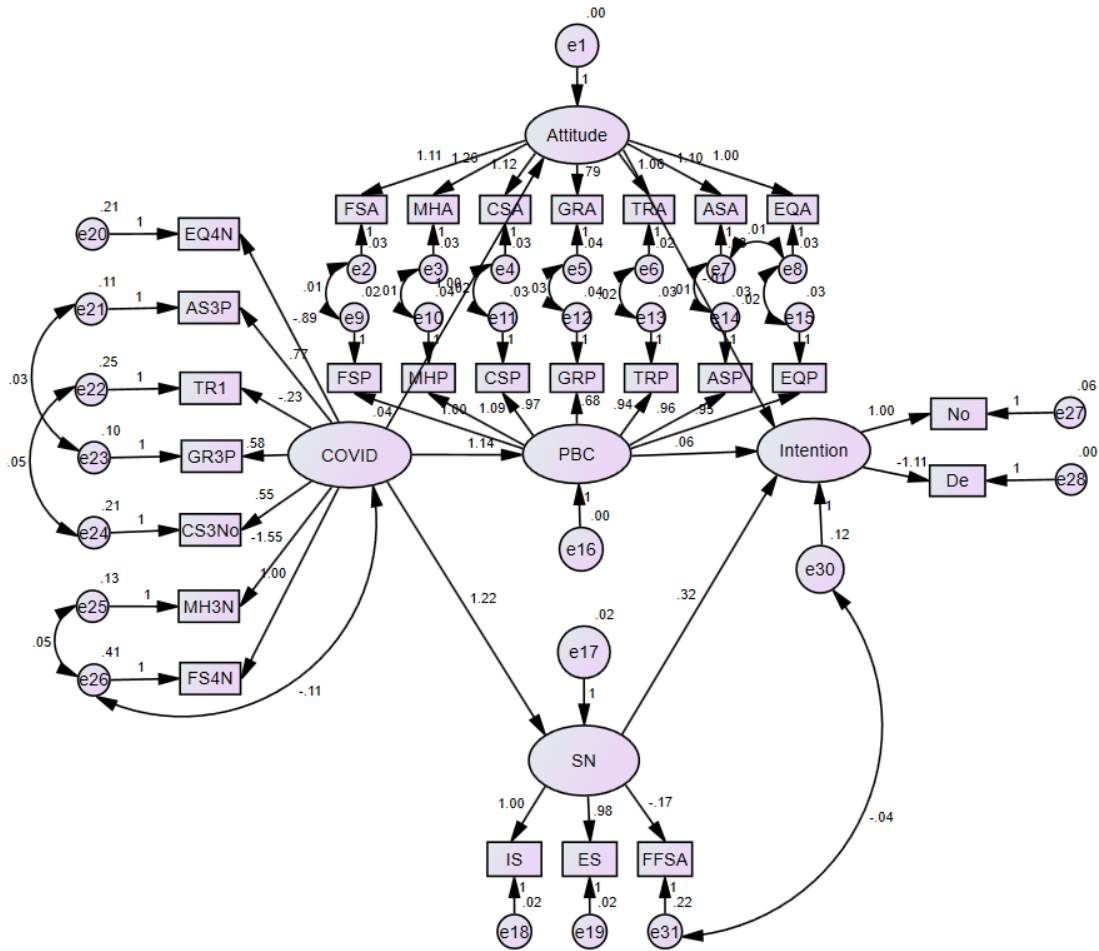


Figure 10. Modified SEM Model Results

Overall, 32 paths in total are considered in the modified SEM. Except for 6 reference paths, 23 out of 26 paths are significant under the 95% confidence level and 1 path is significant under the 90%.

More specifically, within the measured models for three terms of TPB and “Intention”, all of the paths inside are significant. This result shows that the international students’ decision model matched with the TPB perfectly. The logics behind these two theories are consistent so that all of the observed variables can reflect the matched latent variables in a significant

way. Thus, the measured models for three terms of TPB are successfully built and the allocation in table 1 is reliable. Moreover, except for “FFSA” and “De”, all of the paths in these measured models have positive coefficients which means they are positively correlated with the corresponded latent variables. The only exceptions are also reasonable. To explain these two exceptions and show how the model works simultaneously, the conduction mechanisms are introduced in the next paragraph using “FFSA” as an example.

According to the results, the observed variable, “FFSA”, is negatively correlated with the “subjective norms” which means if there are family or friends who are current international students ($FFSA = 1$), the respondent’s subjective norms will be more negative. Meanwhile, the path between “SN and Intention” has positive coefficient which shows that “subjective norms” and the latent variable “intention” are positively correlated. Thus, the decrease of the “subjective norms” will lead to the decrease of the latent variable “intention”. Finally, the path between “intention and intention decrease (De)” has a negative coefficient which means the decrease of the latent variable “intention” will cause “intention decrease (De)” increase. After this inside process, the facial outcome is that “FFSA” is positively correlated with the intention decrease. This is consistent with the results from both cross-tab and MNL. All the other relationships between the independent variables (7 aspects from COVID-19) and the ultimate

dependent variable (study abroad intention decrease) can be deduced follow the same process. The increase of the observed variables with a positive (negative) coefficient with “COVID” will lead to less (more) intention decrease. Although this is a complicated process, it will not influence the efficiency of SEM since the main purpose of SEM is to test the overall goodness of fit for the whole conceptual model (hypothesis 2). The direct relationships are mainly tested by the MNL.

Within the measured model of the COVID-19’s impacts, most of the paths related to the observed variables are significant under 99% confidence level, except for travel restrictions which is significant under 90%. Most of the coefficients indicate the same relationships as the results from the cross-tab analysis and the MNL. The special cases are “mental health” and “travel restriction”. As mentioned in the cross-tab analysis, there are two types of perceptions in terms of the mental health problems from COVID-19. The SEM result majorly supports the more common group who regards the mental health problem is more like a hamper for study abroad since the coefficient of “MH3N” is negative and thus it is positively correlated with “De” (the intention decrease). The “travel restriction” is finally significant here while it is not in both cross-tab and MNL. The coefficient is negative which means more travel restrictions will lead to more study abroad intention decrease. Additionally, this group of results also explained why the “financial status” is significant in cross-tab but not in the MNL. As

shown in the model, the error term of financial status (FS4N) is the only one which has the covariance with “COVID”. This suggests that the financial status is connected with many aspects from COVID-19 in terms of the unobserved factors outside this model. Thus, in the MNL, the effects from the financial status can probably be explained by many other variables. In the reality, this is also true since the financial status is a complex factor which relate to every aspect in the society. The households’ financial status can be influenced by the travel restrictions, the mental health of the family members and the graduation of the “new labor”. The universities financial status is also related to its academic reputations and education quality which are the main factors to attract fresh investments and new students.

Within the structural model, the paths between the COVID-19’s impacts and the three terms of TPB are significant which means the COVID-19 can influence the students’ attitude, subjective norms and perceived behavioral controls on study abroad intentions via the 7 aspects in its measured model.

Nevertheless, the only significant path between “the three terms of TPB” and the ultimate dependent variable, “students’ study abroad intentions”, is subjective norms. This indicates that the subjective norms is the main way for conveying the COVID-19’s impacts while the change of attitude and perceived behavior control didn’t lead to the significant change of the students’ study abroad intentions. In other words, the change in students’

study abroad intentions is driven by the perceptions of their reference group but not by their own perceptions.

There are three possible explanations for this interesting phenomenon.

(1) The features of the respondents in this study. As mentioned in section 3.4, 93% of the respondents are local Chinese students who have not participated in the study abroad programs. Meanwhile, most of them were not going abroad or staying abroad during the pandemic due to the strict travel restrictions and quarantine policies in China. Thus, the information sources which formed their perceptions of study abroad under pandemic are mainly from outside: the public information on the Internet and their reference groups. Compared to the Internet, the reference groups are more reliable for a student under 26 years old (92.5% of the respondents are in the age group 16-26). Moreover, except for the scarce scholarships, the parents or other family members are usually the only financial supporters for the young Chinese students. Thus, as the only reliable information source and the only financial source, the students' reference group play an important role in affecting their study abroad intentions. This explained why the subjective norms are significant.

To explain why “attitude” and “perceived behavioral control” are not significant, the intrinsic reasons need to be explored.

(2) The sunk costs. The sunk cost refers to the cost that has been paid out for some purposes and cannot be withdrawn once giving it up. In this case, the study abroad decision has the features of a long-term plan and thus it needs a huge amount of the sunk cost.

For a Chinese student, a study abroad plan normally means at least one year of effort to select the proper university, program and prepare all of the documents and qualifications such as the English eligibility, a decent transcript, research samples/projects in English and other regular materials for an application.

On top of that, since the tuition fee for Chinese students to study abroad is generally way more expensive than study locally, most of them only pursuing the top universities in the world which is quite competitive. This makes it a heavy pressure on both the student and their family. As the result, many of them actually paid too much for the admission of their dream school, for example, taking the exam again and again for an ideal score or going for the expensive overseas exchange programs or even paying for the study abroad consultants. These sunk costs are so high that many of them can't give it up.

Additionally, even if they changed their minds due to the COVID-19, there is no easy way for them to continue their study. They need to rather prepare for a highly competitive Chinese postgraduate entrance exam from the

beginning or enter the labor market directly. Apparently, both of the options are not ideal for a student who aims at the top universities in the world. Thus, although the COVID-19 changed their attitude about study abroad and impaired their perceived behavioral control, they still have the same intentions to study abroad just because they have no other feasible options to select.

(3) Anticipated utility. All of the respondents were asked about their future study abroad intentions but the COVID-19's impacts are actually happened at present and in the past. While no one can forecast how long will COVID-19's impacts last for but every country is trying their best to mitigate the effects, it is reasonable for a student to speculate the future situation could be better than the past. Since the study abroad decision is a long-term plan, many respondents are actually not making the decision yet. These students' intentions are built based on their perceptions of the future study abroad utility and thus, the present and past impacts can only be a short-term reference and will be meaningless once the COVID-19 is controlled. Therefore, although the COVID-19 changed their present attitudes, and perceived behavior controls about study abroad, their study abroad intentions are not based on these and not changed at all.

Overall, the results of SEM are mostly consistent with the results of cross-tab and MNL. More importantly, the results of SEM show the rationality

of the conceptual model which verified the second hypothesis by showing the main way for conveying the COVID-19's impact is subjective norms.

5. Conclusions and Suggestions

5.1 Conclusions

Based on all the results from the section 4, the major conclusions of this paper can be summarized as the following two points:

(1) The first hypothesis (COVID-19 has negative impacts on students' study abroad intentions in terms of the 7 aspects from section 2.3) is valid. The 7 aspects, including the COVID-19's impacts on education quality, assessment, travel restriction, graduation, culture shock and racism, mental health and financial status, have significant effects on students' study abroad intentions to different extents.

Inside these aspects, the negative impacts of "mental health" lead to both decrease and increase of study abroad intention for 2 different types of groups respectively. The perception of no effect from COVID-19 on "culture shock and racism" could lead to intention increase. Other aspects are consistent with the theoretical deduction which means negative effects from COVID-19 on these aspects lead to more intention decrease while no effect or positive effects from COVID-19 could only reduce intention decrease but cannot lead to intention increase.

(2) The second hypothesis (the conceptual model is sound) is partially valid. All of the 5 measured models are successfully built while the structural model is not completely significant. Within the 3 aspects of TPB, the “subjective norms” is the main way for conveying the COVID-19’s impacts from its 7 aspects to students’ study abroad intentions. There is not enough evidence to prove the importance of “attitude” nor the “perceived behavioral control” within this process.

5.2 Policy Suggestions

Based on the conclusions, in order to help overseas universities to attract more international students during and after the pandemic, the following policies are suggested:

(1) Keep improving the current international students’ experiences. As shown in the results, the subjective norms are the key path for students to change their study abroad intentions and the current international students are part of the important reference group. Thus, to attract more international students, universities should pay more attention on the experiences of the current international students to improve the university’s reputations through the subjective norms of the potential international students. For example, by organizing more offline activities to maintain the education quality.

(2) Propagating and utilizing the advantage of the liberal academic environment. The COVID-19's negative impacts on mental health has been shown to have the potential for increasing Chinese students' study abroad intentions. While Chinese undergraduates are suffering from more and more competitions^[42], their mental health problems could only be worse. Thus, it is worthwhile for the overseas universities to attract more international students by propagating and utilizing their relaxed and liberal academic environments as a solution for the students who are suffering from the mental health problem.

6. Discussions

(1) **Theory:** the possibility of updating the theory of planned behavior. Through the study results, TPB gave an interesting answer on explaining the students' study abroad intentions' change under the COVID-19. Yet the validity is not self-evident. The short-term shock of COVID did change the attitudes and perception of control, but these changes were not reflected in the shift in intentions. TPB might be less applicable when sunk costs are high or when the longer-term utility remains high. Starting from this point, the future researches might be able to update the TPB or using other methods to find a more specific answer of this research question;

(2) **Methods:** the possibility of conducting case studies. The COVID-19's impacts are very complicated especially under different personal situations.

To explore the deeper links, case studies can provide much more details about personal information to understand the ideas and situations. For instance, the difference between the local students and the ones that had international experience is a future topic which could be revealed through the individual-level case study.

(3) **Perspectives:** This study only took Chinese students as the example while different countries of origin have different features and environments for their students which could make things different. Meanwhile, the students' perceptions towards study abroad are also different between every country. Thus, it is worthwhile to research another original country's sample of students. On the other hand, the destination countries are also important for distinguishing the students. For example, a student aims at Tokyo University in Japan needs to fulfill different requirements from a student who wants to enter the MIT. Thus, it is also feasible to divide the students into several groups based on their destination countries to get a deeper understanding.

References

- [1] World Health Organization data base. <https://covid19.who.int/>
- [2] Flightradar24: May air traffic statistics. <https://www.flightradar24.com/blog/aviations-slow-recovery-may-air-traffic-statistics/>
- [3] Wu, J. T., Leung, K., & Leung, G. M. (2020). Nowcasting and forecasting the potential domestic and international spread of the 2019-nCoV outbreak originating in Wuhan, China: a modelling study. *The Lancet*.
- [4] Viner, R. M., Russell, S. J., Croker, H., Packer, J., Ward, J., Stansfield, C., ... & Booy, R. (2020). School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review. *The Lancet Child & Adolescent Health*.
- [5] Bao, W. (2020). COVID - 19 and online teaching in higher education: A case study of Peking University. *Human Behavior and Emerging Technologies*, 2(2), 113-115.
- [6] Shanka, T., Quintal, V., & Taylor, R. (2006). Factors influencing international students' choice of an education destination—A correspondence analysis. *Journal of Marketing for Higher Education*, 15(2), 31-46.
- [7] Jessica D. (2020). As college classes move online, don't expect a tuition discount due to coronavirus. <https://www.cnbc.com/2020/04/14/colleges-move-online-amid-coronavirus-but-forget-a-tuition-discount.html>
- [8] Vickers, P., & Bekhradnia, B. (2007). *The economic costs and benefits of international students*. Oxford: Higher Education Policy Institute.
- [9] Ruby, A. (2009). GLOBAL: International students: A \$100 billion business. *University World News*, 94, 27.
- [10] Chen, J. M. (2016). Three levels of push-pull dynamics among Chinese international students' decision to study abroad in the Canadian context. *Journal of International Students*, 7(1), 113-135.
- [11] Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control* (pp. 11-39). Springer, Berlin, Heidelberg.
- [12] Chen, C. H., & Zimitat, C. (2006). Understanding Taiwanese students' decision - making factors regarding Australian international higher education. *International Journal of Educational Management*.
- [13] Yang, M. (2007). What attracts mainland Chinese students to Australian higher education. *Studies in Learning, Evaluation, Innovation and Development*, 4(2), 1-12.
- [14] Lu, C. Y., Yeh, W. J., & Chen, B. T. (2016). The study of international students' behavior intention for leisure participation: Using perceived risk as a moderator. *Journal of Quality Assurance in Hospitality & Tourism*, 17(2), 224-236.
- [15] Wu, J. (2018). *Geographical Imaginations and Migration Intentions: a case study of Chinese graduate students in the Netherlands* (Master's thesis).
- [16] Zhang, J., Xiong, Y., Jiang, Y., Tanaka, N., Ohmori, N., & Taniguchi, A. (2017). Behavioral changes in migration associated with jobs, residences, and family life. In *Life-oriented behavioral research for urban policy* (pp. 479-505). Springer, Tokyo.
- [17] Kalafatis, S. P., Pollard, M., East, R., & Tsogas, M. H. (1999). Green marketing and Ajzen's theory of planned behaviour: a cross-market examination. *Journal of consumer marketing*, 16(5), 441-460.

- [18] Mazzarol, T., & Soutar, G. N. (2002). "Push - pull" factors influencing international student destination choice. *International Journal of Educational Management*.
- [19] Branco Oliveira, D., & Soares, A. M. (2016). Studying abroad: Developing a model for the decision process of international students. *Journal of Higher Education Policy and Management*, 38(2), 126-139.
- [20] Wirtz, J., & Lovelock, C. (2016). *Services marketing: People, technology*. World Scientific Publishing Company.
- [21] Lim, M. (2020). Educating despite the Covid-19 outbreak: Lessons from Singapore. *Times Higher Education*, 20.
- [22] Lee, K. (2020). Coronavirus: universities are shifting classes online—but it's not as easy as it sounds. *The Conversation*.
- [23] As coronavirus spreads, the decision to move classes online is the first step. What comes next? [Mar;2020];Dill E, Fischer K, McMurtrie B, et al. <https://www.chronicle.com/article/As-Coronavirus-Spreads-the/248200> The Chronical of Higher Education. 2020
- [24] Sahu, P. (2020). Closure of universities due to Coronavirus Disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cureus*, 12(4).
- [25] Timmis, S., Broadfoot, P., Sutherland, R., & Oldfield, A. (2016). Rethinking assessment in a digital age: Opportunities, challenges and risks. *British Educational Research Journal*, 42(3), 454-476.
- [26] Alruwais, N., Wills, G., & Wald, M. (2018). Advantages and challenges of using e-assessment. *International Journal of Information and Education Technology*, 8(1), 34-37.
- [27] Salcedo, A., & Cherelus, G. (2020). Coronavirus travel restrictions, across the globe. *The New York Times*, 1.
- [28] THE. The COVID-19 crisis and international students. [Mar;2020]; Cheng R. <https://www.insidehighered.com/views/2020/03/19/higher-ed-institutions-arent-supporting-international-students-enough-during-covid> Times Higher Education. 2020
- [29] THE. Flexible admissions could mitigate COVID-19 impact. [Mar;2020]; Bothwell E. <https://www.timeshighereducation.com/news/flexible-admissions-could-mitigate-covid-19-impact>
- [30] Burgess, S., & Sievertsen, H. H. (2020). Schools, skills, and learning: The impact of COVID-19 on education. *VoxEu.org*, 1.
- [31] Devakumar, D., Shannon, G., Bhopal, S. S., & Abubakar, I. (2020). Racism and discrimination in COVID-19 responses. *The Lancet*, 395(10231), 1194.
- [32] Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry research*, 112934.
- [33] Zhai, Y., & Du, X. (2020). Mental health care for international Chinese students affected by the COVID-19 outbreak. *The Lancet Psychiatry*, 7(4), e22.
- [34] Kawohl, W., & Nordt, C. (2020). COVID-19, unemployment, and suicide. *The Lancet Psychiatry*, 7(5), 389-390.
- [35] Coibion, O., Gorodnichenko, Y., & Weber, M. (2020). *Labor markets during the covid-19 crisis: A preliminary view* (No. w27017). National Bureau of Economic Research.
- [36] Wang, C., Cheng, Z., Yue, X. G., & McAleer, M. (2020). Risk management of COVID-19 by universities in China.

- [37] Ritzen, J. (2020). *Public universities, in search of enhanced funding* (No. 020). United Nations University-Maastricht Economic and Social Research Institute on Innovation and Technology (MERIT).
- [38] Hoyle, R. H. (1995). *The structural equation modeling approach: Basic concepts and fundamental issues*.
- [39] Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. *Multivariate Data Analysis Seventh Edition* Prentice Hall, 2010. *Upper Saddle River, New Jersey*.
- [40] Minglong, W. (2010). *Structural Equation Model: Operation and Application of AMOS*.
- [41] Rigdon, E. E. (1995). A necessary and sufficient identification rule for structural models estimated in practice. *Multivariate behavioral research*, 30(3), 359-383.
- [42] Lin, M. E. N. G., & Hui, Y. A. N. G. (2012). Effects of Undergraduates' Academic Stress on Psychological Depression, Anxiety and Subjective Well-being: The Moderating Role of Psychological Capital [J]. *Journal of Henan University (Social Science)*, 3.

Appendix 1 Tables

Table 2 Variable list

Variable Name	Models	Values	Meaning
COVID	SEM	Depends on its measured model	Latent variable for the COVID-19's impacts
Attitude	SEM	Depends on its measured model	Latent variable for the change of "attitude" in TPB
PBC	SEM	Depends on its measured model	Latent variable for the change of "Perceived behavior control" in TPB
SN	SEM	Depends on its measured model	Latent variable for the change of "Subjective norms" in TPB
Intention (in the modified SEM)	SEM	Depends on its measured model	Latent variable for the intention change
No	SEM	Dummy; 1=yes, 0=no	Whether the change of the student's study abroad intention are no change
De	SEM	Dummy; 1=yes, 0=no	Whether the change of the student's study abroad intention are intention decrease
EQ1	MNL+SEM	Dummy; 1=high, 0=low	Education quality problems from COVID (objective condition)
EQ2	MNL+SEM	Dummy; 1=agree, 0=disagree	COVID-19 has positive effects on Chinese education quality

EQ3	MNL+SEM	Dummy; 1=agree, 0=disagree	COVID-19 has positive effects on overseas education quality
EQ4P	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on Chinese education quality are positive
EQ4No	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on Chinese education quality are zero
EQ4N	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on Chinese education quality are negative
EQ5P	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on overseas education quality are positive
EQ5No	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on overseas education quality are zero
EQ5N	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on overseas education quality are negative
AS1	MNL+SEM	Dummy; 1=high, 0=low	Assessment problems from COVID (objective condition)
AS2	MNL+SEM	Dummy; 1=agree, 0=disagree	COVID-19 has positive effects on assessment
AS3P	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on assessment are positive
AS3No	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts

			from COVID-19 on assessment are zero
AS3N	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on assessment are negative
GR1	MNL+SEM	Dummy; 1=high, 0=low	Graduation problems from COVID (objective condition)
GR2	MNL+SEM	Dummy; 1=agree, 0=disagree	COVID-19 has positive effects on graduation
GR3P	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on graduation are positive
GR3No	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on graduation are zero
GR3N	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on graduation are negative
TR1	MNL+SEM	Dummy; 1=high, 0=low	Travel Restriction problems from COVID (objective condition)
CS1	MNL+SEM	Dummy; 1=high, 0=low	Culture shock and racism problems from COVID (objective condition)
CS2	MNL+SEM	Dummy; 1=agree, 0=disagree	COVID-19 has positive effects on culture shock and racism
CS3P	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on cultural shock and racism are positive

CS3No	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on cultural shock and racism are zero
CS3N	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on cultural shock and racism are negative
MH1	MNL+SEM	Dummy; 1=high, 0=low	Mental health problems from COVID (objective condition)
MH2	MNL+SEM	Dummy; 1=agree, 0=disagree	COVID-19 has positive effects on mental health
MH3P	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on mental health are positive
MH3No	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on mental health is zero
MH3N	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on mental health are negative
FS1	MNL+SEM	Dummy; 1=high, 0=low	Financial status problems from COVID (objective condition)
FS2	MNL+SEM	Dummy; 1=agree, 0=disagree	COVID-19 has positive effects on financial status of households
FS3	MNL+SEM	Dummy; 1=agree, 0=disagree	COVID-19 has positive effects on overseas educational institutions' financial status

FS4P	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on financial status are positive
FS4No	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on financial status are zero
FS4N	MNL+SEM	Dummy; 1=agree, 0=disagree	The overall impacts from COVID-19 on financial status are negative
FFSA	MNL+SEM	Dummy; 1=yes, 0=no	Whether there are family or friends who are current international students
Male	MNL	Dummy; 1=male, 0=female	The gender of the respondent
Age16-26	MNL	Dummy; 1=16-26, 0=>26	The age of the respondent
International	MNL	Dummy; 1=yes, 0=no	Whether the respondent is a current international student
Alt_1	MNL	Dummy; 1=yes, 0=no	Whether the respondent's intention change is intention decrease
Alt_2	MNL	Dummy; 1=yes, 0=no	Whether the respondent's intention change is no change
Alt_3	MNL	Dummy; 1=yes, 0=no	Whether the respondent's intention change is intention increase
FSA	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' attitude on study abroad in terms of financial status

			change
MHA	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' attitude on study abroad in terms of mental health change
CSA	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' attitude on study abroad in terms of culture shock and racism change
GRA	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' attitude on study abroad in terms of graduation change
TRA	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' attitude on study abroad in terms of travel restriction change
ASA	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' attitude on study abroad in terms of assessment change
EQA	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' attitude on study abroad in terms of education quality change
FSP	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' perceived behavior control on study abroad in terms of financial status change
MHP	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' perceived behavior control on study abroad in terms of mental health

			change
CSP	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' perceived behavior control on study abroad in terms of culture shock and racism change
GRP	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' perceived behavior control on study abroad in terms of graduation change
TRP	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' perceived behavior control on study abroad in terms of travel restriction change
ASP	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' perceived behavior control on study abroad in terms of assessment change
EQP	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' perceived behavior control on study abroad in terms of education quality change
IS	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' subjective norms on study abroad in terms of interpersonal sources change
ES	SEM	Sum of the scores of all the related factors (see section 3.3.2)	The change of students' subjective norms on study abroad in terms of external sources

change

e1-e31	SEM	N/A	Error terms of different variables
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Table 10 The influential factors from the international students' decision model

No.	Name of the factor	Meanings
1	Conditions of the country of origin	economic decline or stagnation, political instability and lack of capacity of local universities
2	The international experience	the international experience as personal development for a future professional career (independent, will to travel and living in a different country, foreign language)
3	Availability of information on decision country	the amount of information available but also on how easily the student is able to find that information
4	environment	the students' perception of the education environment, the physical conditions of the destination country and university, the overall lifestyle, the touristic and cultural attractions of the destination country
5	geographic location	the geographic proximity between the origin and the destination country
6	Social references and personal recommendations	the existing social reference group, i.e., family or friends living in the destination country (Belongs to 9)
7	Cost of living	tuition fees, living costs, travel and accommodation costs, scholarship, but also social costs such as insecurity, crime and racial discrimination,
8	Internal sources	the Internet (university's institutional website), leaflets, educational program guides etc.
9	Interpersonal sources	the student's reference group (family, friends, professors, former students and teachers)
10	External sources	third party information (external entities' assessment reports, for example)
11	Academic reputation and quality	the reputation of the institution, the quality of the university, the reputation of the faculty, the reputation of research, infrastructures or safety, support activities (accommodation, social services) and the flexibility of

		educational programs
12	Educational offer	the number and variety of available programs, scientific areas, graduate programs and program organization in general
13	cost	same as 7
14	Available information	same as 3
15	location	same as 5
16	Employability	the number of employed students, the institution's reputation on employability and existing recruitment offices
17	Influence of others	namely parents, family, friends and other significant individuals, such as tutors/supervisors, former students (same as 9+10)

Table 11 Categorization Process of the factors

Factors Included	Attitudes	Subjective Norms	Perceived Behavior Control
1. Conditions of the country of origin	Yes. The comparison between the home country and the destination country in terms of education quality etc. formulates the students' expectations about the study abroad action.	No	No
2. The international experiences	Yes. The expected personal development from study abroad can influence the students' expectations.	No	No
3. Availability of information	Yes. Available information is the major	No	Yes. The information availability decides

	source for potential international students to gain their knowledge about the target country and institution which will help to generate their attitudes.		the students' insights of the destination. If the students know more about the destination, the more sense of control they will get.
4. Environment	Yes. The environment is the major perception that students got for the destination. It provides useful reference for students' attitude on study abroad.	No	Yes. The better the environment is, the more sense of control will appear.
5. Geographic location	Yes. It will reflect whether the culture, race, language and other agglomerated factors are the students' needs	No	Yes. If the location fits the students' needs (closer, same culture or etc.) the more sense of control will appear.
6. Cost of living	Yes. It's about the cost-efficiency and the perception of the difficulty to achieve the study goal.	No	Yes. If the student is able to afford the cost, the more sense of control will appear.
7. Internal sources	Yes. Internal sources are one of the information sources which can formulate the student's perception of the destination	No	Yes. Same as 3
8. Interpersonal sources	No	Yes. It's the information from others which has the possibility to influence the students' subjective	Yes. Same as 3

		norms if they regard it as important.	
9. External sources	No	Yes. Same as 8	Yes. Same as 3
10. Academic reputation and quality	Yes. It will influence the students' expectations of the education quality and also their future career.	No	Yes. It will influence the expected graduate difficulty and the expected environment. The better the reputation is, the more sense of control will appear
11. Employability	Yes. It's related to the students' future career	No	Yes. It's related to the students' financial status. If the employability is high, the student will probably have a higher control in terms of the affordability for the cost.
12. Educational offer	No	No	Yes. If the amount of the suitable educational offers is large, the more sense of control will appear.
13. Application difficulty	Yes. The comparison between the application difficulty and the expectations of the study quality can also lead to the consideration of cost-efficiency	No	Yes. If some necessary exams are unavailable or too difficult to be took part in, the sense of control will decrease.

Appendix 2 Questionnaire

新冠疫情对中国学生留学意向的影响 (The COVID-19's influence on the study abroad intention of Chinese students)

非常感谢您参加本次问卷填写，此问卷旨在为乌德勒支大学（荷兰）硕士生论文“新冠疫情将如何影响学生留学意向——以中国学生为例”收集研究数据。问卷分为两部分：1. 您基本个人信息的收集 2. 调查疫情对留学意向的影响。问卷共设 117 道题目，绝大多数为单选或多选形式，简单易答，预计将花费您 15-20 分钟的时间。本问卷采取匿名填写模式，所有数据只作研究使用且严格保密，您的每一个选择对本研究结果都至关重要，请您务必根据您的真实情况或想法认真填写，谢谢！（中文答题者无需查看本问卷中的任何英文翻译）

Thanks for taking this questionnaire! This questionnaire is collecting data for the master thesis "How will COVID-19 influence students' intention to study abroad ---- a case study based on Chinese student" at Utrecht University (NL). There are three parts inside ---- 1. The collection of your basic information; 2. The survey about how will COVID-19 influence the study abroad intention. The questionnaire has 117 questions (single choice or multiple choices) which are easy to be answered. It will take you 10-15 minutes to answer all the questions. Meanwhile, this questionnaire is totally anonymous and all the data collected will only be used for the research while being kept secretly. Since every choice of you will make a huge difference in our study, please filling it carefully according to your real situation or ideas. Thanks!

第一部分：个人基本信息 (The first part: basic personal information)

1. 您的性别是 (What's your gender?) [单选题] *

男 (male)

女 (female)

2. 您的年龄是 (Your age is) [填空题] *

请填写实岁年龄

3. 您目前是留学生吗？ (Are you currently an international student?) [单选题] *

是 (Yes)

否 (No)

4. 您目前的教育机构所在地区是 (Which region does your present education institution belong to?) [填空题] *

精确到市/县

5. 您目前的留学地区是 [单选题] *

北美 (North America)

欧洲 (Europe)

澳洲 (Oceania)

东亚/东南亚 (East Asia/South East Asia)

南美 (South America)

中东 (Middle East)

非洲 (Africa)

其他 (请填写注明) (Others. Please fill in the blank) _____

6. 您当前所处的学习阶段是 (What's your present study stage)

[单选题] *

小学 (Primary school)

初中 (Junior high school)

高中/中专 (Senior high school/Technical secondary school)

本科/大专 (Bachelor program/junior college)

硕士 (Master program)

博士 (Doctoral program)

若为其他请填写注明 (If you're in other stage, Please fill in the blank) _____

7. 您在新冠疫情开始前对未来的留学意向从 0-10 为 (What's Your study abroad intention before COVID-19 from 0-10) [单选题] *

此处的留学意向指到海外教育机构学习的意向, 既包括自费留学, 又包括各种公费留学 (例如留学基金委资助, 聘用制博士, 其他科研项目基金资助, 博士后工作站接收等), 同时

包含长期交流项目，双学位项目，联合培养项目等

从未考虑过
(Never)

1 2 3 4 5 6 7 8 9

已决定留学
(Would go)

8. 您目前对未来的留学意向从 0-10 为 (What's your current study abroad intention from 0-10) [单选题] *

完全不考虑
(Never)

1 2 3 4 5 6 7 8 9

已决定留学
(Will go)

9. 疫情期间您的常驻地区是 (Which region is your resident area during the COVID-19 pandemic?) [填空题] *

若为中国，精确到市/县；若为国外，精确到国家 (country level)

10. 您身边有疫情期间正在留学的家人/朋友吗? (Do you have any family members/friends who are studying abroad during the COVID-19 pandemic?) [单选题] *

是 (Yes)

否 (No)

第二部分：新冠疫情对留学相关的客观因素的影响 (The second part: The influence from the COVID-19 pandemic towards the objective factors related to study abroad)

2.1 新冠疫情对教育质量的影响 (The influence from COVID-19 towards education quality)

11. 您是否在接受线上教育(包括过去的经历)的过程中遇到过硬件设施(如网络, 计算机, 延迟, 缺少教学资料等)问题? (Have you ever met the hardware problem such as internet, computer, internet latency or lack of learning material during your online education?) [单选题] *

是(Yes)

否(No)

12. 您是否有本应属于线下形式（亲临课堂）的教育因疫情影响而转变为线上形式（网络教学）？（Do you have any education which should have been presented by offline mode was transferred into the online mode due to the pandemic?） [单选题] *

是 (Yes)

否 (No)

13. 您认为您的教育机构在应对这种线下-线上转变中提供了足够多的资源吗？(Do you think your educational institution provided enough resources for dealing with the transition?)

[单选题] *

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14. 您在接受线上教育的过程中是否感到缺少自律，缺乏良好的学习环境并受其影响导致受教育质量降低？（Did you feel the lack of self-discipline and good study environment during the online education and your education quality was decreased by it?） [单选题] *

是 (Yes)

否 (No)

15. 您是否有本应举行的教学活动因疫情影响被取消？（DO you have the education activities that should have existed were canceled due to the COVID-19 pandemic?） [单选题]

*

是 (Yes)

否 (No)

16. 您认为新冠疫情对国内高校的教育质量有积极影响吗？(Do you think there is any positive effect from the COVID-19 towards the domestic education quality?) [单选题] *

是 (请在空白处注明) (Yes) _____

否 (No)

17. 您认为新冠疫情对海外高校的教育质量有积极影响吗? (Do you think the COVID-19 has any positive effect towards the overseas universities' education quality?) [单选题] *

是 (Yes) _____

否 (No)

18. 总体来说, 您认为新冠疫情对国内教学质量产生了 () 影响 (In general, you think that the COVID-19 caused () effects on the Chinese education quality) [单选题] *

积极 (Positive)

消极 (Negative)

无 (None)

19. 国内教学质量的这种变化使您对留学的态度产生了 () 影响 (The change of the education quality of Chinese universities caused () on your attitude towards study abroad) [单选题] *

态度: 您对留学这个决定的主观看法, 期望与评价

积极 (Positive effect)

消极 (Negative effect)

无 (No effect)

20. 总体来说, 您认为新冠疫情对海外高校的教育质量产生了 () 影响 (In general, you think that the COVID-19 caused () effects on the overseas universities' education quality) [单选题]

*

积极 (Positive)

消极 (Negative)

无 (None)

21. 海外高校教育质量的变动对您对留学生活的预期收获产生了 () 影响 (The change of the overseas universities' education quality caused () effects on your expectation of the anticipated take-away of study abroad) [单选题] *

预期收获包括专业教育收获，独立性培养，外语训练，国际化视野与眼界，对当地文化的深入了解等

(The anticipated take-away includes the professional education, self-dependence, foreign language, international perspectives and the local culture value)

- 积极 (Positive)
- 消极 (Negative)
- 无 (None)

22. 海外高校教育质量带来的您对留学生的预期收获的变化，使您对留学的态度变得 ()

(The change of your expectation of the anticipated take-away makes your attitude towards study abroad ()) [单选题] *

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

23. 海外高校教育质量的变动，() 了您对海外环境的预期 (The change of the overseas universities' education quality makes your expectation towards overseas environment ()) [单选题] *

海外环境包括目标国家的教育环境，社会和高校的硬件设施，整体的生活方式以及旅游和文化吸引力等

(The overseas environment includes the educational environment of the destination country, social and university's physical environment, overall lifestyle and the touristic and cultural attractions)

- 提升 (Increase)
- 降低 (Decrease)
- 无影响 (No effect)

24. 由海外教育质量变化引起的您对海外环境预期的变化，使您对留学的态度变得 () (The change of your expectation about the overseas educational environment makes your attitude towards study abroad ()) [单选题] *

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

25. 由海外教育质量变化引起的您对海外环境预期的变化, 使您感到若选择留学的话, 您将 () 掌控您的海外学习生活 (The change of your expectation about the overseas environment makes you feel that if you choose to study abroad, it will be () for you to control your overseas study and life) [单选题] *

此类题目衡量您自认为对留学过程中某方面的掌控能力的变化, 即对某事的把握有多大, 认为自己能否达到所要求的条件
(This type of question measures your recognition of your control ability for the process within study abroad)

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

26. 海外教育质量的变化, 使您感到留学的性价比 () 了 (The change of the overseas educational environment makes you feel that the cost-effective of study abroad ()) [单选题]

*

- 提升 (Increased)
- 降低 (Decreased)
- 无影响 (No effect)

27. 由海外教育质量带来的留学性价比变化, 使您对留学的态度变得 () 了 (The change of the cost effective makes your attitude toward study abroad ()) [单选题] *

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

28. 海外教育质量的变化, 使您感到海外高校的学术声誉 () 了 (The change of the overseas educational quality makes you feel that the overseas universities' academic reputation ()) [单选题] *

学术声誉包含高校及其学院的学术研究声誉, 基础设施声誉 (例如住宿条件, 安全性以及社会服务声誉), 教学项目声誉等
(The academic reputation includes the universities and their faculties' research reputation, infrastructure reputation (accommodation, safety and social service), educational programs' reputation)

- 提升 (Increased)

降低 (Decreased)

无影响 (No effect)

29. 由海外教育质量引起的海外高校学术声誉的变化, 使您对留学的态度变得 () 了 (The change of the overseas universities' academic reputation makes your attitude towards study abroad ()) [单选题] *

更积极 (More positive)

更消极 (More negative)

无影响 (No effect)

30. 由海外教育质量引起的海外高校学术声誉的变化, 使您感到若选择留学, 您将 () 掌控您的海外学习生活 (The change of overseas universities' academic reputation makes you feel that if you choose to study abroad, it will be () to control your study life) [单选题] *

更能 (Easier)

更难 (Harder)

无影响 (No effect)

31. 您是否了解到有本能够开展的留学项目因疫情原因而被取消 (例如无法仅通过远程教育完成的项目)? (Have you ever heard that there is any degree program which should have been held but was canceled due to the COVID-19?) [单选题] *

是 (Yes)

否 (No)

32. 您认为新冠疫情使得可供选择的留学项目数量及其项目质量 () 了 (You think that the COVID-19 made the number and the quality of the available programs for study abroad ()) [单选题] *

升高 (Increase)

减少 (Decrease)

无影响 (No effect)

33. 留学项目数量及项目质量的变化, 使您感到若选择留学, 您将 () 获得理想的录取 (The change of the study abroad programs' number/quality makes you feel that if you choose to study abroad, it will be () to obtain the ideal admission) [单选题] *

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

2.2 新冠疫情对教育考评的影响 (教育考评包括校内外各类考试、测评、级别认定等, 与留学相关的包括雅思托福、GRE、GMAT 等) (The influence from COVID-19 towards the educational assessments; The educational assessments include all kinds of tests, assessments and grade identification. For example, IELTS, GRE and GMAT)

34. 您是否有本应进行的教育考评因疫情而被取消或推迟? (Do you have any educational assessment which should has been held but was canceled due to the pandemic?) [单选题] *

- 是 (Yes)
- 否 (No)

35. 您是否有本应于线下举行的教育考评因疫情而被转移到线上? (Do you have any offline educational assessment is transferred to online due to the pandemic?) [单选题] *

- 是 (Yes)
- 否 (No)

36. 您是否认为线上教育考评存在不公平、易舞弊以及成绩虚高等特点? (Do you think the online assessments have the features like unfair, easier to cheat and higher grades?) [单选题] *

- 是 (Yes)
- 否 (No)

37. 您是否在参与线上教育考评时遇到过设施 (如计算机故障, 网络延迟, 系统崩溃等) 问题? (have you ever met the facility problems like computer breakdown, internet latency and system collapse when you attend the online assessments?) [单选题] *

是 (Yes)

否 (No)

38. 您认为新冠疫情对教学考评有积极影响吗? (Do you think there is any positive effect from the COVID-19 towards the educational assessments?) [单选题] *

是 (Yes) _____

否 (No)

39. 总体来看, 您认为新冠疫情对教育考评产生了 () 影响 (In general, you think the COVID-19 made () effect on the educational assessments) [单选题] *

积极 (Positive)

消极 (Negative)

无 (No effect)

40. 疫情对教育考评的影响, () 了您对留学环境的预期 (The influence from the epidemic to the educational assessments () your expectation on the study abroad environment) [单选题] *

海外环境包括目标国家的教育环境, 社会和高校的硬件设施, 整体的生活方式以及旅游和文化吸引力等

提升 (Increase)

降低 (Decrease)

无影响 (No effect)

41. 由教育考评变化带来的留学环境变化, 让您对留学的态度变得 () (The change of the study abroad environment makes your attitude towards the study abroad ()) [单选题] *

更积极 (More positive)

更消极 (More negative)

无影响 (No effect)

42. 由教育考评带来的留学环境的变化, 使您感到若选择留学, 您将 () 掌控您的海外学习生活 (The change of the study abroad environment makes you feel that if you choose to study abroad, it will be () to control your study life) [单选题] *

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

43. 疫情对教育考评的影响, () 了您对海外高校学术声誉的预期 (The influence from the COVID-19 on the educational assessments () your expectations of the overseas universities' academic reputation) [单选题] *

学术声誉包含高校及其学院的学术研究声誉, 基础设施声誉 (例如住宿条件, 安全性以及社会服务声誉), 教学项目声誉等

- 提升了 (Increased)
- 降低了 (Decreased)
- 无影响 (No effect)

44. 由教育考评变化带来的海外高校学术声誉预期的变化, 使您对留学的态度变得 () 了 (The change of the oversea universities' academic reputation makes your attitude towards the study abroad ()) [单选题] *

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

45. 由教育考评变化带来的海外高校学术声誉预期的变化, 使您感到若选择留学, 您将 () 掌控您的海外学习生活 (The change of the overseas universities' academic reputation makes you feel that if you choose to study abroad, it will be () to control your study life) [单选题] *

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

46. 疫情对教育考评的影响给您的留学计划带来了 () 影响 (The COVID-19's influence on educational assessment made () effect on your study abroad plan) [单选题] *

留学计划不仅包括留学申请, 还包含留学后对未来的规划, 例如留洋工作计划, 移民计划等。这些计划需要通过相关考评如移民融入考试, 工作签证审核, 职称晋升等, 因而可能受教学考评变动的影响

(The study abroad plan not only includes the application plan, but also the plan after the

study abroad such as working abroad plan, migration plan etc.. These plans need you to attend several tests thus might be influenced by the change of the educational assessment)

- 积极 (Positive)
- 消极 (Negative)
- 无 (No)

47. 由教育考评变化带来的对留学计划的影响, 使您感到您将 () 达到留学申请条件或留学规划目标 (The influence from the educational assessment towards your study abroad plan makes you feel that it will be () for you to meet the requirements of the application or achieve the final goals of the study abroad) [单选题] *

若无相关计划则选“无影响” (If you never have this kind of plan, please choose "No effect")

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

2.3 新冠疫情对交通限制的影响 (The influence from COVID-19 towards the travel restriction)

48. 您是否曾由于疫情导致的交通限制而无法按计划参加教学活动 (如无法返校, 无法前往教学活动地点等) 或在路途中经历波折? (Have you ever couldn't attend the educational activities as planned or experienced trouble due to the travel restrictions that caused by the COVID-19?) [单选题] *

- 是 (Yes)
- 否 (No)

49. 您是否曾由于疫情引起的交通限制无法按计划回国或在回国过程中经历波折? (Have you ever couldn't go back to your home country as planned or experienced trouble during the travel due to the travel restrictions that caused by the COVID-19?) [单选题] *

- 是 (Yes)
- 否 (No)

50. 您是否曾由于新冠疫情导致的交通限制而支付下列额外的成本? (Did you pay any extra

cost in the following list which can be caused by the travel restrictions?) [多选题] *

- 高于平日的机票价格 (higher price of the flight ticket)
- 隔离或暂留所需的住宿费及时间 (The living and time cost during the quarantine or the temporary stay)
- 办理健康证明等相关手续的开销及时间 (The cost of applying for the health certificate and other documents)
- 因公共交通减运导致的成本 (The cost from the decrease of the public transportation)
- 签证到期但无法回国导致的麻烦(The trouble from the invalid visa)
- 其他 (请填空注明) (Others; Please fill in the blank) _____

51. 新冠疫情导致的交通限制使您对留学生活的预期收获产生了 () 影响 (The travel restriction from the COVID-19 makes () effect on your expectation of the value from the study abroad) [单选题] *

预期收获包括专业教育收获, 独立性培养, 外语训练, 国际化视野与眼界, 对当地文化的深入了解等

- 积极 (Positive)
- 消极 (Negative)
- 无 (No effect)

52. 由交通限制带来的预期收获的变化, 使您对留学的态度变得 () 了 (The travel restriction changes your expectation of the value which makes your attitude of study abroad ()) [单选题]

*

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

53. 疫情导致的交通限制使您对海外高校学习环境的预期变得 () 了 (The travel restriction makes your expectation on the overseas universities' study environment ()) [单选题] *

海外环境包括目标国家的教育环境, 社会和高校的硬件设施, 整体的生活方式以及旅游和文化吸引力等

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

54. 由交通限制带来的海外学习环境预期的变化, 使您对留学的态度变得 () 了 (The travel restriction changes your expectations of overseas environment which makes your attitude of study abroad ()) [单选题] *

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

55. 由交通限制带来的海外学习环境预期的变化, 使您感到若选择留学, 您将 () 掌控您的海外学习生活 (The travel restriction changes your expectation on the overseas environment which makes you feel that if choose to study abroad, it will be () to control your study life) [单选题] *

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

56. 新冠疫情导致的交通限制使您感到留学的综合成本 () (The travel restriction from the COVID-19 makes you feel that the complex cost of the study abroad ()) [单选题] *

综合成本既包括金钱成本, 又包括时间成本, 精力消耗成本以及额外的机会成本等
(The complex cost includes the financial cost, time cost and opportunity cost)

- 更高 (Higher)
- 更低 (Lower)
- 无影响 (No effect)

57. 交通限制带来的留学成本的变化, 使您感到若选择留学, 您将 () 掌控您的留学生活 (The travel restriction changed the cost of study abroad which makes you feel that if you choose to study abroad, it will be () to control your study life) [单选题] *

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

58. 交通限制带来的留学成本的变化, 使您对留学的态度变得 () 了 (The travel restriction changed the cost of study abroad which makes your attitude towards study abroad ()) [单选题] *

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

59. 疫情导致的交通限制使您感到海外高校的学术声誉 () 了 (The travel restriction from the COVID-19 makes you feel that the overseas universities' academic reputation ()) [单选题] *

学术声誉包含高校及其学院的学术研究声誉, 基础设施声誉 (例如住宿条件, 安全性以及社会服务声誉), 教学项目声誉等

- 提升 (Increased)
- 下降 (Decreased)
- 无影响 (No effect)

60. 由交通限制导致的海外高校学术声誉的变化, 使您对留学的态度变得 () 了 (The travel restriction changed the overseas universities' academic reputation which makes your attitude towards the study abroad ()) [单选题] *

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

61. 由交通限制导致的海外高校学术声誉的变化, 使您感到若选择留学, 您将 () 掌控您的海外学习生活 (The travel restriction from the COVID-19 makes the overseas universities' academic reputation which makes you feel that if you choose to study abroad, it will be () for you to control your study life) [单选题] *

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

62. 新冠疫情导致的交通限制使您感到海外高校合适的录取名额 () 了 (The travel restriction

from the COVID-19 makes you feel that the number of the ideal positions for the study abroad programs ()) [单选题] *

- 增加 (Increased)
- 减少 (Decreased)
- 无影响 (No effect)

63. 由交通限制带来的录取名额的变化, 使您感到 () 掌控留学这个决定 (The travel restriction changed the number of the ideal positions which makes you feel that it will be () to control the study abroad decision) [单选题] *

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

2.4 新冠疫情对毕业及毕业生的影响 (The influence from COVID-19 towards graduation and the graduates)

64. 您是本届 (2020 毕业) 毕业生或准毕业生吗 (2021 毕业)? (Are you a graduate (at 2020) or a prospective graduate (at 2021)?) [单选题] *

- 是 (Yes)
- 否 (No)

65. 新冠疫情是否对您的毕业造成了消极影响, 例如难以开展毕业论文工作, 答辩受阻, 延迟毕业, 毕业证领取困难等? (Did the COVID-19 cause any negative effect on your graduation, such as hard to conduct thesis work and thesis defense, procrastination of graduation and hard to get the certificate etc.?) [单选题] *

- 是 (Yes)
- 否 (No)

66. 新冠疫情是否对您毕业后的就业选择或就业期望产生了消极影响? (Did COVID-19 cause any negative effect towards your job selecting or job expectations after your graduation?) [单选题] *

是 (Yes)

否 (No)

67. 您认为新冠疫情对您的毕业及毕业后的就业选择/就业期望有积极影响吗? (Do you think that the COVID-19 has any positive effect towards the graduation and the job making after graduation?) [单选题] *

是 (Yes) _____

否 (No)

68. 总体而言, 您认为新冠疫情对您毕业以及毕业后就业产生了 () 影响 (In general, you think that the COVID-19 makes () effect on your graduation and the job seeking after it) [单选题] *

积极 (Positive)

消极 (Negative)

无 (No)

69. 您感到新冠疫情使得毕业及就业产生的影响, 给您对下列五方面的预期造成了怎样的影响 (What kind of effect do you think that the influence which from COVID-19 caused to your graduation and job seeking will affect your expectations in terms of the following five aspects)[矩阵单选题] *

	积极影响 (Positive effect)	无影响 (No effect)	消极影响 (Negative effect)
留学的预期收获 (The anticipated value)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
海外高校学习环境	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(The overseas environment)			
留学性价比 (The cost-effective)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
海外高校学术声誉 (The academic reputation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
留洋工作的可能性 (The possibility of working abroad)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

70. 疫情影响毕业进而导致您在下列五方面预期的变化，使您对留学的态度变得 (The change of the expectation from the graduation change in terms of the following aspects makes your attitude towards study abroad)[矩阵单选题] *

	更积极 (More positive)	无影响 (No effect)	更消极 (More negative)
留学的预	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

期收获的 变化 (使 态度) (Anticipat ed value)			
海外高校 学习环境的 变化 (使态 度) (Overseas environm ent)	○	○	○
留学性价 比的变化 (使态 度) (Cost- effective)	○	○	○
海外高校 学术声誉 的变化 (使态 度) (Academic reputatio n)	○	○	○
留洋工作	○	○	○

的可能性 的变化 (使态 度) (Working abroad possibility)			
--	--	--	--

71. 疫情影响毕业进而导致您在下列四方面预期的变化, 使您感到若选择留学, 您将 () 掌控您的海外学习生活 (The change of the expectation from the graduation change in terms of the following aspects makes you feel that if you choose to study abroad, it will be () for you to control your study life)[矩阵单选题] *

	更能 (Easier)	无影响 (No effect)	更难 (Harder)
海外高校 学习环境 的变化 (Overseas environm ent)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
留学性价 比的变化 (Cost- effective)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
海外高校 学术声誉 的变化 (Academic reputation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

)			
留洋工作的可能性的变化 (Working abroad possibility)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

72. 您身边是否有正在留学或刚于海外高校毕业的朋友或家人由于新冠疫情遭遇毕业相关(包括应届毕业生就业)的困难? (Do you have any friends or family members who are studying abroad or just graduated from the overseas universities and suffering from the COVID-19 in terms of graduation (including the job seeking for the fresh graduate?)) [单选题]

*

是 (Yes)

否 (No)

73. 新冠疫情对其他留学生毕业的影响, 使您在下列五方面的预期发生了怎样的变化 (The influence from the COVID-19 towards other international students' graduation makes your expectation () in terms of the following aspects)[矩阵单选题] *

	更积极 (More positive)	无影响 (No effect)	更消极 (More negative)
留学的预期收获 (Anticipated value)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
海外高校学习环境 (Overseas)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

environm ent)			
留学性价 比 (Cost- effective)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
海外高校 学术声誉 (Academic reputa tion)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
留洋工作 的可能性 (Working abroad possibility)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

74. 新冠疫情对其他留学生毕业的影响，进而导致使您在下列五方面的预期发生的变化，使您对留学的态度变得（ ）了 (The change of your expectations on the following aspects from the COVID-19's influence on the other international students' graduation makes your attitude towards study abroad ())[矩阵单选题] *

	更积极 (More positive)	无影响 (No effect)	更消极 (More negative)
留学的预 期收获的 变化 (使 态度) (Anticipat ed value)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

海外高校 学习环境 的变化 (使态 度) (Overseas environm ent)	○	○	○
留学性价 比的变化 (使态 度) (Cost- effective)	○	○	○
海外高校 学术声誉 的变化 (使态 度) (Academic reputati on)	○	○	○
留洋工作 的可能性的 变化 (使态 度) (Working	○	○	○

abroad possibility)			
---------------------	--	--	--

75. 新冠疫情对其他留学生毕业的影响，进而导致使您在下列五方面的预期发生的变化，使您感到若选择留学，您将 () 掌控您的留学生活 (The change of your expectation on the following aspects from the COVID-19's influence on the other international students' graduation makes you feel that if you choose to study abroad, it will be () to control your study life)[矩阵单选题] *

	更能 (Easier)	无影响 (No effect)	更难 (Harder)
留学的预期收获的变化 (Anticipated value)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
海外高校学习环境的变化 (Overseas environment)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
留学性价比的变化 (Cost-effective)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
海外高校学术声誉的变化 (Academic)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

reputation)			
留洋工作的可能性的变化 (Working abroad possibility)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2.5 新冠疫情带来的文化冲击与种族主义

76. 您是否在新冠期间遭遇过种族歧视? (Have you ever met the racism during the COVID-19 pandemic?) [单选题] *

是 (Yes)

否 (No)

77. 您是否在新冠疫情期间感受过或听说过相关的文化冲击, 例如国外民众对待口罩的态度, 国外政府对待疫情的态度, 疫情期间仍旧持续的西方派对文化等吗? (Have you experienced the culture shock related to the COVID-19 pandemic, such as the local residents' attitude towards the face masks, the local government's attitude towards the pandemic and the consistent party culture during the pandemic and so forth) [单选题] *

是 (Yes)

否 (No)

78. 您是否由于留学生身份在新冠疫情期间遭遇过就医方面的不便? (Have you experienced inconvenience that related to the medical help due to the international student identity?) [单选题] *

是 (Yes)

否 (No)

79. 您通过什么途径听说过中国留学生遭遇种族歧视的经历? (Did you hear about any experience about the racism or discrimination on Chinese? From which channel?) [多选题] *

社交媒体 (包括各类推送、小视频等) (Social media including tweets and videos)

家人朋友 (family and friends)

主流媒体 (包括各类网站、新闻、报纸等) (Public communications including websites, news and newspapers)

其他 (Others) _____

从未听说过 (Never heard about)

80. 您认为新冠疫情对缓解文化冲击于种族歧视有积极作用吗? (Do you think the COVID-19 has any positive effect towards relief the culture shock and racism?) [单选题] *

是 (Yes) _____

否 (No)

81. 总体而言,您认为新冠疫情对缓解针对华人的文化冲击与种族歧视有()影响 (In general, you think that the COVID-19 has () effect on releasing the culture shock and the racism which aimed at Chinese) [单选题] *

积极 (Positive)

消极 (Negative)

无影响 (No effect)

82. 新冠疫情对文化冲击与种族歧视的影响,使您对留学的预期收获()了 (The COVID-19's influence towards the culture shock and the racism makes your anticipated value of the study abroad ()) [单选题] *

提升 (Increased)

降低 (Decreased)

无影响 (No effect)

83. 由文化冲击与种族歧视的变化带来的您对留学预期收获的变化, 使您对留学的态度变得 () 了 (The culture shock and racism changed your anticipated value of study abroad which makes your attitude towards the study abroad ()) [单选题] *

更积极 (More positive)

更消极 (More negative)

无影响 (No effect)

84. 新冠疫情对文化冲击与种族歧视的影响, 使您对海外高校学习环境的预期 () 了 (The COVID-19's influence towards the culture shock and the racism makes your expectations on the overseas universities' study environment ()) [单选题] *

提升 (Increased)

降低 (Decreased)

无影响 (No effect)

85. 由文化冲击与种族歧视导致的您对海外学习环境预期的变化, 使您对留学的态度变得更 () 了 (The change of the culture shock and the racism caused the change of your expectation on the overseas environment which makes your attitude towards study abroad ()) [单选题] *

积极 (More positive)

消极 (More negative)

无影响 (No effect)

86. 由文化冲击与种族歧视导致的您对海外学习环境预期的变化, 使您感到若选择留学, 您将 () 掌控您的留学生活 (The change of your expectation on the overseas environment from

the change of culture shock and the racism makes you feel that if you choose to study abroad, it will be () to control your study life) [单选题] *

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

87. 新冠疫情对文化冲击与种族歧视的影响, 使您感到留学的性价比 () 了 (The influence from the COVID-19 towards the culture shock and racism makes you feel that the cost-effective of study abroad ()) [单选题] *

- 提升 (Increased)
- 降低 (Decreased)
- 无影响 (No effect)

88. 由文化冲击与种族歧视变化导致的您对留学性价比预期的变化, 使您对留学的态度变得 () 了 (The change of your expectation towards the cost-effective of study abroad from the change of the culture shock and racism makes your attitude towards study ()) [单选题] *

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

89. 新冠疫情对文化冲击与种族歧视的影响, 使您感到留学期间有关保护自身安全与反歧视方面的成本 () 了 (The COVID-19's influence on the culture shock and racism makes you feel that the cost related to self-protect and anti-discrimination ()) [单选题] *

- 升高 (Increased)
- 降低 (Decreased)
- 无影响 (No effect)

90. 文化冲击与种族歧视变化带来的安全与反歧视成本的变化，使您对留学的态度变得 () 了 (The change of the cost above from the change of the culture shock and the racism makes your attitude towards study abroad ()) [单选题] *

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

91. 文化冲击与种族歧视变化带来的安全与反歧视成本的变化，使您感到若选择留学，您将 () 掌控留学生活 (The change of the cost above from the change of the culture shock and the racism makes you feel that if you choose to study abroad, it will be () to control your study life) [单选题] *

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

2.6 新冠疫情与精神健康状态 (The COVID-19 and the mental health)

92. 您是否在疫情期间由于学业问题，交通限制，缺乏集体活动等原因感到过精神健康问题 (如焦虑，抑郁，失眠，精神紊乱等)？请在下表中给出分值 (Have you ever experienced mental health problems due to your academic trouble, travel restrictions and lack of group activities etc. during the pandemic? Please choose the rank in the following table) [单选题] *

- | | | | | | | | | | | |
|----------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------------------|
| <input type="radio"/> 从未 (Never) | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 有时 (Sometimes) | <input type="radio"/> 6 | <input type="radio"/> 7 | <input type="radio"/> 8 | <input type="radio"/> 9 | <input type="radio"/> 每天 (Everyday) |
|----------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------------------|

93. 您是否在国内疫情严重期间由于担心国内的家人朋友而感到过精神健康问题？请在下表中给出分值 (Have you ever experienced mental health problems due to concern about

your family or friends in China? Please choose the rank in the following table) [单选题] *

- | | | | | | | | | | | |
|-------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--|
| <input type="radio"/> 从未
(Never) | <input type="radio"/> 1 | <input type="radio"/> 2 | <input type="radio"/> 3 | <input type="radio"/> 4 | <input type="radio"/> 5 | <input type="radio"/> 6 | <input type="radio"/> 7 | <input type="radio"/> 8 | <input type="radio"/> 9 | <input type="radio"/> 每天
(Everyday) |
|-------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--|

94. 您是否听说过留学生经历精神健康问题? 请选择您获取该信息的渠道 (Have you ever heard about any information about the international students' mental health problems? Please choose the information channel) [多选题] *

- 社交媒体 (Social media)
- 主流媒体 (Public Communication)
- 家人朋友 (Family and friends)
- 其他 (Other) _____
- 从未听说过 (Never)

95. 您认为新冠疫情对留学生的精神健康状态有积极影响吗? (Do you think the COVID-19 has any positive effect on the international students' mental health?) [单选题] *

- 是 (Yes) _____
- 否 (No)

96. 总体而言, 您认为新冠疫情对留学生精神健康状态带来了 () 影响 (In general, you think that the COVID-19 caused () effect towards the international students' mental health) [单选题] *

- 积极 (Positive)
- 消极 (Negative)
- 无影响 (No effect)

97. 新冠疫情对留学生精神健康状态的影响, 使您对留学的预期收获 () 了 (The COVID-19's

influence on the international students' mental health makes your anticipated value of study abroad ()) [单选题] *

- 提升 (Increased)
- 降低 (Decreased)
- 无影响 (No effect)

98. 疫情带来留学生心理健康状态的变化导致的您对预期收获的变化,使您对留学的态度变得 () 了 (The change of anticipated value above makes your attitude towards study abroad ()) [单选题] *

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

99. 新冠疫情对留学生心理健康状态的影响,使您对海外高校学习环境的预期 () 了 (The COVID-19's influence on the international students' mental health makes your expectation on the overseas environment ()) [单选题] *

- 提升 (Increased)
- 降低 (Decreased)
- 无影响 (No effect)

100. 疫情带来留学生心理健康状态的变化进而导致的您对海外学习环境预期的变化,使您对留学的态度变得 () 了 (The change of your expectation on the overseas environment makes your attitude towards study abroad ()) [单选题] *

- 更积极 (More positive)
- 更消极 (More negative)
- 无影响 (No effect)

101. 疫情带来留学生心理健康状态的变化进而导致的您对海外学习环境预期的变化, 使您感到若选择留学, 您将 () 掌控您的留学生活 (The change of the expectation above makes you feel that if you choose to study abroad, it will be () to control your study life) [单选题] *

- 更能 (Easier)
- 更难 (Harder)
- 无影响 (No effect)

2.7 新冠疫情与经济状况 (The COVID-19 and the financial status)

102. 您或您的家庭是否由于新冠疫情导致的失业、经济下行、交通限制等而遭遇经济方面的问题? (Did you or your family experienced financial problems due to the unemployment, economy recession or the travel restrictions which caused by the COVID-19?) [单选题] *

- 是 (yes)
- 否 (No)

103. 您是否了解或听说过海外教育机构由于新冠疫情引发的资金不足或财政问题而裁员, 倒闭或招聘职位减少? (Have you ever heard about that the overseas universities experienced the financial problems which were caused by the COVID-19 and their jobs cut or closing down?) [单选题] *

- 是 (yes)
- 否 (no)

104. 您认为新冠疫情对于您家以及海外高校的经济状况有积极影响吗? (Do you think the COVID-19 has any positive effect on your financial status and the overseas universities' financial status?) [单选题] *

- 对个人家庭有 (My family)
- 对海外高校有 (Overseas universities)

二者均有 (Both)

没有积极影响 (None)

105. 总体来说, 您认为新冠疫情对您家以及海外高校的经济状况产生了 () 影响 (In general, you think that the COVID-19 caused () effect towards our family and the overseas universities' financial status) [单选题] *

积极 (Positive)

消极 (Negative)

无影响 (No effect)

106. 新冠疫情对您家的经济状况的影响, 使您感到留学费用 () 了 (The COVID-19's influence on your family's financial status makes you feel that the fees of the study abroad becomes ()) [单选题] *

更高昂 (Higher)

更低廉 (Lower)

无影响 (No effect)

107. 您对留学费用看法的变化, 使您对留学的态度变得 () 了 (The change of your opinion towards the study abroad fees makes your attitude towards study abroad ()) [单选题] *

更积极 (More positive)

更消极 (More negative)

无影响 (No effect)

108. 您对留学费用看法的变化, 使您感到若选择留学, 您将 () 承担相关费用 (The change of your opinion on the study abroad fees makes you feel that if you choose to study abroad, it will be () to afford the related fees) [单选题] *

更能 (Easier)

更难 (Harder)

无影响 (No effect)

109. 新冠疫情对海外高校经济状况的影响, 使您对海外雇佣率的预期 () 了 (The COVID-19's influence on the overseas universities' financial status makes your expectations about the overseas employability ()) [单选题] *

海外雇佣率包括海外高校的雇佣率 (例如带薪/全奖博士, 博士后名额) 以及留洋工作的概率

(The overseas employability includes the employability of the overseas universities and the working abroad possibility)

提升 (Increased)

降低 (Decreased)

无影响 (No effect)

110. 您对海外雇佣率看法的变化, 使您对留学的态度变得 () 了 (The change of your expectation towards the overseas employability makes your attitude towards study abroad ()) [单选题] *

更积极 (More positive)

更消极 (More negative)

无影响 (No effect)

111. 您对海外雇佣率看法的变化, 使您感到若选择留学, 您将 () 掌控留学生活及后续规划 (The change of your expectation on the overseas employability makes you feel that if you choose to study abroad, it will be () to control the study life and the future plans) [单选题] *

更能 (Easier)

更难 (Harder)

无影响 (No effect)

2.8 他人的观念对留学意向的影响 (Subjective norms' effect on the study abroad intention)

112. 您是否主动/被动通过以下渠道 (个人社交圈) 了解到他人对新冠疫情期间留学的负面评价或建议? 请在您选择的渠道后, 依据该渠道信息在多大程度上能影响您的留学意向, 在 0-10 范围内打分, 0 代表毫无意义, 10 代表极为重要 (Have you ever heard about the negative comments/advice from the following channels (interpersonal sources) both actively or passively? Please give the rank between 0-10 based on the importance of the channel. 0 is nonsense, 10 is extremely important) [多选题] *

- 父母 (Parents) _____
- 父母以外的亲人 (Family members without parents) _____
- 亲人的朋友 (The friends of family members) _____
- 正处于留学状态的朋友 (Friends who is studying abroad) _____
- 其他朋友 (Other friends) _____
- 同学 (Classmates) _____
- 老师/导师 (Teachers/tutors) _____
- 同事 (Colleagues) _____
- 陌生人 (Strangers) _____
- 其他 (请注明) (Others) _____
- 从未听说过 (Never heard about)

113. 您是否主动/被动通过以下渠道 (个人社交圈) 了解到他人对新冠疫情期间留学的正面评价或建议? 请在您选择的渠道后, 依据该渠道信息在多大程度上能影响您的留学意向, 在 0-10 范围内打分, 0 代表毫无意义, 10 代表极为重要 (Have you ever heard about the positive comments/advice from the following channels (interpersonal sources) both actively or passively? Please give the rank between 0-10 based on the importance of the channel. 0 is nonsense, 10 is extremely important)

is nonsense, 10 is extremely important) [多选题] *

- 父母 (Parents) _____
- 父母以外的亲人 (Family members without parents) _____
- 亲人的朋友 (The friends of family members) _____
- 正处于留学状态的朋友 (Friends who is studying abroad) _____
- 其他朋友 (Other friends) _____
- 同学 (Classmates) _____
- 老师/导师 (Teachers/tutors) _____
- 同事 (Colleagues) _____
- 陌生人 (Strangers) _____
- 其他 (请注明) (Others) _____
- 从未听说过 (Never heard about)

114. 您是否主动/被动通过以下渠道 (外部来源) 了解到他人对新冠疫情期间留学的负面评价或建议? 请在您选择的渠道后, 依据该渠道信息在多大程度上能影响您的留学意向, 在 0-10 范围内打分, 0 代表毫无意义, 10 代表极为重要 (Have you ever heard about the negative comments/advices from the following channel (external sources) both actively or passively? Please give the rank between 0-10 based on the importance of the channel. 0 is nonsense, 10 is extremely important) [多选题] *

- 社交媒体 (Social media) _____
- 官方媒体 (Official media) _____
- 学术报告 (Academic report) _____
- 政府报告 (Government report) _____
- 留学中介 (Agency of study abroad)

其他（请注明）(Others) _____

从未听说过（Never heard about）

115. 您是否主动/被动通过以下渠道（外部来源）了解到他人对新冠疫情时期留学的正面评价或建议？请在您选择的渠道后，依据该渠道信息在多大程度上能影响您的留学意向，在0-10范围内打分，0代表毫无意义，10代表极为重要 (Have you ever heard about the positive comments/advices from the following channel (external sources) both actively or passively? Please give the rank between 0-10 based on the importance of the channel. 0 is nonsense, 10 is extremely important) [多选题] *

社交媒体（Social media）_____

官方媒体（Official media）_____

学术报告（Academic report）_____

政府报告（Government report）_____

留学中介（Agency of study abroad）

其他（请注明）(Others) _____

从未听说过（Never heard about）

116. 总体来看，来自个人社交圈的对于新冠疫情时期留学的评价，使您的留学意向（）了 (In general, the comments about study abroad during the COVID-19 pandemic which from your personal network makes your study abroad intention ()) [单选题] *

提升 (Increased)

降低 (Decreased)

无影响 (No effect)

117. 总体来看，来自外部来源的关于新冠疫情时期留学的评价，使您的留学意向（）了 (In general, the comments about study abroad during the COVID-19 pandemic which from the

external sources makes your study abroad intention () [单选题] *

提升 (Increased)

降低 (Decreased)

无影响 (No effect)