Part 2: Questionnaire Analysis

Abstract

Our survey is constructed in two parts. The first part aims to design a questionnaire and ask UNSW students for responses. The second part aims to use the responses from the questionnaire about the pressure we designed to solve our main problem about pressure. Factor analysis is the main method we used to analyze our questionnaire. By using factor analysis, there are several factors we find that can dramatically explain the data. The factor that explains the data the most is mainly influenced by the questions "Study has influenced my sleeping time" and "Please rate your feelings about academic pressure". Since these two questions are all about academic pressure, our group infer academic pressure is the main pressure of UNSW students.

Introduction

Our main problem is "Which factor is the primary reasons that make UNSW suffer from pressure?" And our group aims to find whether it is financial, academic, or relationships. Perhaps, it is other factors we did not realize or interaction of these three factors.

Method

The sampling of the questionnaire is general random sampling. Our group utilized online tools to create a website for our questionnaire. Then, we randomly

asked UNSW students to scan the QR code of the website and fill in our

questionnaire. Most questions request students to choose "strongly disagree",

"somewhat disagree", "neutral", "somewhat agree", and "strongly agree" as

responses. When our group got the response, we standardized the choices to be "-2",

"-1", "0", "1", and "2", used these data to construct factor analysis, then checked the

reliability by testing Cronbach's Alpha. When starting the analysis, KMO was first

checked for whether our questionnaire was suitable for factor analysis. Then the

Bartlett test was used to check whether the KMO value was significant. After that, we

use code to find the Latent root and plot the Scree plot. Based on the a.k.a Kaiser's

Rule, we select the factors that have variance (y-axis in our plot) larger than 1 as the

factors we need. Then, we use proportion variance to find which factor explains the

data most and find which questions in the questionnaire maximum influence the

factor. Finally, we can determine what is the factor. Except that, we also utilized rank

questions to directly let UNSW students rank which factor puts the most pressure on

them. We would give scores to the factors in rank questions and check whether the

factor with the highest score is similar to the result we find by factor analysis.

Result

The result of the reliability of our survey is not very ideal. By using R to compute

Cronbach alpha $\left(\frac{k}{k-1}\right)\left(1 - \frac{\sum \hat{\sigma}_i^2}{\hat{\sigma}_t^2}\right) \approx 0.582$, which means the data of the survey is not

reliable enough. Our analysis mostly uses R. The "packages("EFtools")" was installed

first. Our group use code "library(EFAtools)" for using the package and code

"EFAtools::KMO(resil)" to calculate the $KMO = 0.625$, which is mediocre, where resil is our dataset, which means factor analysis is partly suitable for our survey. Then, we use "EFAtools::BARTLETT(resil)" to find $p < 0.001$, which means it is significant. By code "eigen(cor(resil))", we can find the root. Therefore, we use code "plot(eigen(cor(resil))$values, type = "o", xlab = "Principal Component", ylab = "Variances") and find there are three factors that have variance larger than 1. By the code "(fa<- factanal(resil,3)), we can find the proportion var of factor 1 is 0.231, which is the largest in all factors. In factor 1, we find the questions "Study has influenced my sleeping time" and "Please rate your feelings about academic pressure" influenced factor 1 the most. These two questions are all about academic pressure, so academic pressure is determined to be factor 1. We may guess academic pressure is the main pressure of UNSW students. According to the scores of the rank question, after we give the rank 1 factor 4 scores, the rank 2 factor 3 scores, the rank 3 factor 2 score, the rank 4 factor 1 score, and the factor which is not ranked 0 scores (rank N/A), the academic pressure gets the highest score 106, which means academic pressure is the largest pressure that UNSW students are facing. It is the same with what we determine by factor analysis.

Discussion

In our study, we explored the different sources of pressure faced by students by collecting questionnaire data. To ensure the reliability and structural validity of the questionnaire, we used a method similar to that in Lin et al. (2020). After collecting

the data from the questionnaire results, our group member calculated the value of

Which is used to test the reliability of the questionnaire. Then KMO test was used to

test whether factor analysis could be used in our survey. The Bartlett test was used to

confirm whether the structure was statistically significant. As KMO and Bartlett tests

were eligible, factors with eigenvalues greater than 1 were extracted by principal

component analysis. These methods are highly consistent with the research methods

of Lin et al. (2020), which further proves our rigor and science in the process of data

analysis. However, in addition to these methods, we also miss some methods in our

literature. For example, Compton et al. (2008) may have used more sophisticated

psychometric tools to assess depressive symptoms in students, or Huang (2021) may

have applied more extensive longitudinal data analysis techniques to track changes in

student stress over time. These methods, while widely used in related fields, are not

used within our research scope and objectives.

Our response rate is about 80%. We asked about 60 people in total and received

46 questionnaires. We removed 13 of them because some people filled out the

questionnaires randomly or misunderstood the questions. We used 33 questionnaires

to analyze the conclusions.

We encountered many problems in collecting questionnaires using both online

and offline methods. The first problem is that it is difficult to get responses for online

questionnaires. We shared the QR code of our questionnaire in WeChat circles and

posted QR codes and slogans on the walls of the school's law library. However, it was

difficult for us to receive responses through this online survey method. To collect

enough questionnaires, we could only invite students to scan the QR code and fill out our questionnaires offline. The second problem is that some students who answered the questionnaires filled out the questionnaires randomly. When we sorted out the questionnaire content, we found that some questionnaires were filled out with similar options, such as almost all of them selected strongly disagree, and selected the other option as the first in the sorting question but did not write the content of other. To solve this problem, we can only pick out questionnaires that feel randomly written and do not use these questionnaires as data when analyzing the conclusions.

If we can repeat this project or have more time to complete this survey, we would increase the number of online questionnaires collected, because most of the data we collected this time came from students we invited offline. The number of questionnaires collected through the online APP and the QR code we posted in the law library is very small. We will try to promote our questionnaires on more online communication platforms and make more attractive posters posted in the law library and main library to attract students to complete our questionnaires. When we get more data, we will repeatedly test the reliability to select the best data to analysis.

For future students, we recommend that they use a unified measurement standard when designing questionnaires, such as the five-point Likert scale. This way, when conducting data analysis, the step of standardizing the data can be omitted and the analysis can be carried out directly.

Reference

Lin, XJ., Zhang, CY., Yang, S. et al. Stress and its association with academic performance among dental undergraduate students in Fujian, China: a cross-sectional online questionnaire survey. BMC Med Educ 20, 181 (2020). https://doi.org/10.1186/s12909-020-02095-4

Huang, F. (2021). Japanese doctoral students' stress: Main findings from a national survey in 2017. International Journal of Chinese Education, 10(1). https://doi.org/10.1177/22125868211006206

Compton, M. T., Carrera, J., & Frank, E. (2008). Stress and Depressive Symptoms/Dysphoria Among US Medical Students. The Journal of Nervous and Mental Disease, 196(12), 891-897. https://doi.org/10.1097/NMD.0b013e3181924d03

Appendices

Our topic:

There are many pressures and challenges for students – financial, academic and personal (relationships etc). What most concerns students? Are there any "risk factors" that predict students' concerns?

Research Organization:

UNSW

Interviewer:

MATH3831 Students

Research Topic:

What are the main pressures that students face in terms of economic, academic and personal factors?

Confidentiality: Your answer will be kept completely confidential and used for research purposes only. All data will be processed anonymously without revealing your personal information.

Purpose: This survey aims to understand the main pressures and challenges faced by students, providing a reference for UNSW and related institutions to help formulate policies and measurements to provide support for students.

Survey length: 5 – 10 minutes

1   Financial Pressure

1.1 Tuition at UNSW is reasonable.*

1.1 Tuition at UNSW is reasonable.*

○ Strongly agree

○ Somewhat agree

○ Neutral

○ Somewhat disagree

○ Strongly disagree

1.2 The cost in Sydney is affordable to me.*

○ Strongly agree

○ Somewhat agree

○ Neutral

○ Somewhat disagree

○ Strongly disagree

1.3 Please rank the source of your tuition and life costs by the primary to the secondary from 1 to 5. (Click N/A for the choices you do not want to rank) *

	1	2	3	4	5	N/A
Funded by parents or relatives	○	○	○	○	○	○
Commonwealth Support	○	○	○	○	○	○
Private payment (Part-time job or own savings)	○	○	○	○	○	○
Student loans	○	○	○	○	○	○
Other (optional)	○	○	○	○	○	○

Other

[text area]

1.4 I am concerned about my financial situation.*

○ Strongly agree

○ Somewhat agree

○ Neutral

○ Somewhat disagree

○ Strongly disagree

2   Academic Pressure

2.1 Study has influenced my sleeping time.*

○ Strongly agree

○ Somewhat agree

○ Neutral

○ Somewhat disagree

○ Strongly disagree

2.2 I feel that the course load is too heavy.*

2.2 I feel that the course load is too heavy.*

○ Strongly agree

○ Somewhat agree

○ Neutral

○ Somewhat disagree

○ Strongly disagree

2.3 How many courses do you think are difficult at UNSV

○ A lot (above 80% courses)

○ Several (60% to 80% courses)

○ Some (40% to 60% courses)

○ A few (20% to 40% courses)

○ Few (0% to 20% courses)

2.4 Please rate your feelings about academic pressure.*

○ Very worried

○ Somewhat worried

○ Neutral

○ Somewhat unconcerned

2.4 Please rate your feelings about academic pressure.*

◯ Very worried

◯ Somewhat worried

◯ Neutral

◯ Somewhat unconcerned

◯ Very unconcerned

3   Relationships Pressure

3.1 It is difficult to make friends at UNSW.*

◯ Strongly agree

◯ Somewhat agree

◯ Neutral

◯ Somewhat disagree

◯ Strongly disagree

3.2 How often do you participate in Arc-UNSW activities or work?*

◯ Never (0 times per semester)

◯ Occasionally (1-5 times per semester)

◯ Sometimes (5-10 times per semester)

◯ Often (10-15 times per semester)

◯ Always (more than 15 times per semester)

3.3 I feel lonely or lack social support.*

◯ Strongly agree

◯ Somewhat agree

◯ Neutral

◯ Somewhat disagree

◯ Strongly disagree

3.3 I feel lonely or lack social support.*

○ Strongly agree

○ Somewhat agree

○ Neutral

○ Somewhat disagree

○ Strongly disagree

3.4 It is easy to get help with academic questions at UNSW.*

○ Strongly agree

○ Somewhat agree

○ Neutral

○ Somewhat disagree

○ Strongly disagree

4   Overall Evaluation

4.1 Please rank the source of pressure by the primary to the secondary from 1 to 4. (Click N/A for the choices you do not want to rank) *

	1	2	3	4	N/A
Financial	○	○	○	○	○
Academic	○	○	○	○	○
Interpersonal relationships	○	○	○	○	○
Other (optional)	○	○	○	○	○

Other

Other

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4.2 Please rank what UNSW should take to help students reduce stress by the primary to the secondary from 1 to 5. (Click N/A for the choices you do not want to rank) *

	1	2	3	4	5	N/A
Provide more scholarships and grants	○	○	○	○	○	○
Reduce course load	○	○	○	○	○	○
Organize more social activities	○	○	○	○	○	○
Provide more psychological counseling services	○	○	○	○	○	○
Other (optional)	○	○	○	○	○	○

Other

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Other

General Qusetion

Name

First Name

Last Name

Age

Gender

○ Male

○ Female

○ Other

○ Prefer not to say

What is your enrolment status?*

What is your enrolment status?*

○ Local Student

○ International Student

Are you willing to participate in further interviews or discussions?

○ Yes

○ No

Email

Optional, For further interviews

Phone

Optional, For further interviews

Register today

Data is submitted with code and peer evaluation.