

Comparisons of students' stress source in different countries

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Abstract: - This study investigated level and sources of stress among university students in different areas like Taiwan, NZ, USA and China. The study was a cross sectional survey and the population comprised convenient samples. A questionnaire was designed by the researchers and validated through expert judgment. The data collected were analyzed using mean, standard deviation, and ANOVA for the research questions. Using extracted factors to make comparison. It is found that Taiwan has the most student problems in four places, followed by China, then New Zealand and the United States. Students feel depressed when they confront with stress and that will deter their learning. In the research we traced the source of stress and made comparison among three countries, finding out possible solution and giving some suggestions for the future curriculum design.

Key-Words: - Classroom Assessment, Psychological Measurement, Stress, Teachers.

1 Introduction

The goal of higher education is to foster talented people to develop the country's economy; however, politic, economic and environmental situation go from bad to worse in the 21st century, all these conflicts continue to affect young people's learning. Not only in the United States, but Taiwan, China and New Zealand also have to face the same problems. All countries in the world are affected. Many scholars in the field of behavioral science have carried out extensive research on stress and its outcomes and concluded that the topic needs more attention [2][12][35][40]. Young people's problem continues to emerge, the status of young people and the prospect for the future is worrisome; Ji and Zhang [17] found the positive correlation between study conditions and mental stresses of college students. An online survey by Votta and Benau [42] found that academic concerns were a primary source of stress. When stress is perceived negatively or becomes excessively, it can affect both health and academic performance [8]. University students often attempt to control and reduce their stress through avoidance, religious and social support, or positive reappraisal [28]. Another research [19] indicated that secondary school students had a medium level of stress and the significant sources of stress included academic, intra-personal and environmental. An investigation by Beiter et al. [39] indicated that the top three concerns were

academic performance, pressure to succeed, and postgraduation plans.

Is it a unique phenomenon in Taiwan? Or it is a universal problem? Joseph E et al., [23] suggested replication of this study using larger samples from other parts of the world to validate academic stress findings. From 2014 to 2016, we executed a series of students' psychological stress survey. This study sample data took from three countries; including China, Taiwan, New Zealand and USA. The objective of this research is to identify the source of stress of university students, and comparing the difference among three countries to find out what we can do to help students.

2 Literature

2.1 Stress

Stress is defined as the body's non-specific response to demands made upon it, or to disturbing events in the environment [30]. Personal and environmental events that cause stress are referred to as stressors [43]. Stress in academic institutions can have both positive and negative consequences if not well managed [48][51][52]. Kohler, Munz, and Grawitch [20] proposed the interaction dimension of stress and indicated that in this interaction, demands, limitations and opportunities related to work may be perceived as

threatening to surpass the individual's resources and skills. Institutional (university) level stressors are overcrowded lecture halls, semester system, and inadequate resources to perform academic work [35].

Researchers have long identified stress symptoms as lack of energy, taking over the counter medication, high blood pressure, feeling depressed, increase in appetite, trouble concentrating, restlessness, tensions and anxiety among others[31][34][1]. An individual experiencing one of these factors is likely to be a victim of stress. Although this may also depend on how the individual appraises the situation, and how resilient is the person. Earlier study by Siegrist [47] also indicated a close link between high amounts of occupational stress and ill health. This means that deterioration in health of the individual is likely to affect the individual performance.

2.2 Stress Source

A variety of stress sources is studied by researchers. Cheng [26] summarized the sources of stress as physical/mental factor, family factor, school factor, relationship factor, and social factor. Ji and Zhang [17] indicated four sources of stresses, namely employment situations, study conditions, personal factors, and economic conditions. Akande, Olowonirejuaro, and Okwara-Kalu[19] defined the sources of stress as interpersonal, intrapersonal, academic and environmental.

2.3 Teacher

In the classroom, we need qualified teacher to provide high-quality education to all students [29]. The Organization of Economic Co-operation and Development (OECD) focuses on the need to provide high quality education for all, where teachers and their proven competence play a vital role [33][32]. Indeed, it has been shown that students' performance levels are higher when the teachers' competence has been proven [16][11] [15][53]. Talking about the development process of young generation, teachers always played a very important role [21]. Also, Jim [22] proposed teacher's role, should be: (1) A diagnostician (found in the students' needs and interests). (2) A Planner (selection of materials, courses or class method). (3) A manager (management and activities of students during school hours).

2.4 Classroom assessment

Assessment is probably the most important thing we can do to help our students learn [13], as Black, Paul [7]. mentioned in his book "Inside the Black Box" , improving formative assessment raises student achievement, it helped teachers change their practice and students change their behavior so that everyone shares responsibility for the students' learning. Also it is an approach designed to help teachers find out what students are learning in the classroom and how well they are learning it [2] .

2.5 Education

Zheng Shiyan [9] said: "Education should include the following goals: to develop good attitudes, self-development, from the creation, know yourself, develop relationships and cultivate emotions, imagination and gaining capabilities". Perry Jr [37], talking about education: A path from adolescence into adulthood is mapped from the accounts of college students. The evolution in students' interpretation of their lives is seen and understood through changes in the " forms" in which they conceptualize the issues they face. Also Geoffrey Walford [14] in his "Education Policy" mentioned: They focus on key issues with broad relevance to social scientists such as access, interviewing, data restrictions, ethical dilemmas and the role of theory.

2.6 Psychology analysis

In this research, we searching for factors influenced students' mental ability. Rucker, Derek D [44]., pointed out: " A key aim of social psychology is to understand the psychological processes through which independent variables affect dependent variables in the social domain". Also Ashmore, Richard D [4], mentioned: A critical analysis of central concepts covers the thoughts, feelings, and behaviors of individuals in social interaction.

3 Method

For more than 80 years, factor analysis [50][49] has contributed to psychological research, we use this method in searching for factors influenced students' mental ability. The participants came from 3 countries and four places. In Taiwan, 358 students joined the investigation, 152 students from China, 117 students from New Zealand and 114 students from USA

participated in this survey. A face-to-face survey was applied to collect the data. The participants were asked the likelihood of stress source.

The psychology scale developed by Chang [18] was applied to measure stress source. This instrument includes questions about communication with teacher, teachers' feature, academic feature, anxiety, employment and social context. Each dimension has 6 to 7 questions of multiple choices anchored on 7 being the most intense stress and 1 would be having no stress at all. To test reliability and validity; first, we examined KMO value shown in **Table 1**.

According to Kaiser & Rice [24], KMO value between 0-1, when KMO value gets bigger, it means that more communalities between variables, so it is suitable for processing factor analysis. In **Table 1**, all four places' KMO value are greater than 0.82. It means that the survey designed is suitable for investigation. And when we tested reliability, China was 0.95, Taiwan was 0.964, USA was 0.984, and New Zealand was 0.961. When Cronbach's α is great than 0.7, it means this Stress Scale is suitable for investigation.

Table 1. KMO and Bartlett's Test

	USA	NZ	China	Taiwan
Number of sample	114	117	152	358
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.931	0.897	0.820	0.905
Bartlett's test of Spherical Chi-Square	6223.708	12308.97	6531.294	17957.57
Df	1035	1431	1770	1770
Sig	.000	.000	.000	.000

After examining reliability and validity, then we used factor analysis to extract main factors. **Table 2** shows total variance explained of 4 places, only eigenvalue great than 2 were chosen. There are 11 items measuring "Communication with teacher" with reliability of 0.94, 4 items measuring

"Socialization" with reliability of 0.95, 4 items measuring "Anxiety" with reliability of 0.93, 3 items measuring "Part-time work" with reliability of 0.86, 4 items measuring "Personality" with reliability of 0.83, and 2 items measuring "Future expectation" with reliability of 0.77.

Table 2. Validity and Reliability of Measurement on students

Stress source	Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Communication with teacher	Teachers seldom provide students with positive feedback	.870					
	Teachers cannot be expressed content clearly in class	.857					
	Teachers teaching without patience or lack enthusiasm	.850					
	Teachers and students do not have two-way communication	.843					
	Teachers seldom encourage students to think	.837					
	Teachers offer little help for student's troubles	.835					
	Students not informed of the teacher's requirements and expectations	.828					
	Teacher uses a single, rigid teaching methods	.821					
	Teachers often give a negative evaluation - blaming or criticizing	.815					
	Teachers will not accept the views of students	.811					
Teachers treat students with a lack of respect	.809						
Socialization	Fear of being rejected		.683				
	I do not know how to say "No!"		.678				
	Attention to evaluate others on their own		.636				
	Ridiculed by others if I am studious		.505				
Anxiety	Afraid of exams			.756			
	Anxiety over exams			.699			
	Fear of not graduation on schedule			.659			
	Fear of being expelled			.591			
part-time work	Part-time work places often too far away - failing to get to school on time				.841		
	Owners are not allowed to work hours reading				.824		

	Is part-time work affecting learning				.736		
personality	Have Poor memory / recall					.734	
	Feel a lack of capability or confident					.631	
	Lack of perseverance / quit halfway through					.543	
	Lack of communication skills					.512	
Future expectation	Dilemma – continue studying or find employment						.659
	Do not know how to do things for yourself						.634
Eigenvalue		22.439	2.765	2.663	2.507	2.393	2.054
Variance		37.398	4.608	4.439	4.179	3.988	3.423
Cumulated variance		37.398	42.005	46.444	50.623	54.611	58.034

4 Result

There are significant difference in stress comparison among these three countries and four places. First, comparison of six factors we extracted shown on **Table 3**. Taiwan has the highest score in F1, F3 and F6, China has highest score in F2 and F5, New Zealand is highest in F4. USA is lowest in 5 factors of F1, F2, F3, F5 and F6.

Secondly, on the dimension of correlation analysis (Table 4 -Table 7), Taiwan is significant correlated in 6 factors, in China, F1 and F6, F2 and F5 are not significant correlated. In USA, all 6 factors are significant correlated, but NZ is bizarre, F5 is not significant correlated with F1, F3 and F4; and F6 is negative correlated with all other factors except F4.

Table 3. Cross-country Comparison of Stress Source

Stress	China (1)		Taiwan (2)		NZ (3)		USA(4)		F	p	Scheffe's
	Mean	SD	Mean	SD	Mean	SD	Mean	SD			
F1: Communication with teacher	2.6100	1.0141	2.9448	1.26159	2.4852	1.06571	1.5971	.71996	42.685	<.001	2>1>3>4
F2: Socialization	4.0390	1.28023	3.8595	1.46350	2.7920	.82872	2.2434	.86184	69.126	<.001	1>2>3>4
F3: Anxiety	2.6201	1.36009	4.0635	1.65026	3.4202	.83294	2.2390	.86115	70.363	<.001	2>3>1>4
F4: Part-time work	2.7078	1.40924	3.1657	1.78605	3.9720	.69648	3.1316	1.53146	15.305	<.001	3>2>4>1
F5: Personality	3.9610	1.27030	3.7961	1.36302	2.8067	.62558	2.7697	.70408	44.392	<.001	1>2>3>4
F6: Future expectation	3.8149	1.59036	4.6578	1.62252	2.7647	1.08695	2.4079	.97664	95.870	<.001	2>1>3>4

Table 4. Correlation between Stress Sources (Taiwan)

	F1	F2	F3	F4	F5	F6
F1	1.000	.305**	.396**	.470**	.327**	.262**
F2	.305**	1.000	.325**	.414**	.347**	.290**
F3	.396**	.325**	1.000	.379**	.480**	.317**
F4	.470**	.414**	.379**	1.000	.304**	.181**
F5	.327**	.347**	.480**	.304**	1.000	.393**
F6	.262**	.290**	.317**	.181**	.393**	1.000

**p<.001

Table 6. Correlation between Stress Sources (USA)

	F1	F2	F3	F4	F5	F6
F1	1.000	.445**	.450**	.216*	.564**	.408**
F2	.445**	1.000	.813**	.776**	.416**	.844**
F3	.450**	.813**	1.000	.775**	.425**	.875**
F4	.216*	.776**	.775**	1.000	.253**	.817**
F5	.564**	.416**	.425**	.253**	1.000	.381**
F6	.408**	.844**	.875**	.817**	.381**	1.000

**p<.001

Table 5. Correlation between Stress Sources (China)

	F1	F2	F3	F4	F5	F6
F1	1.000	.312**	.326**	.436**	.225**	.132
F2	.312**	1.000	.343**	.233**	.406**	.239**
F3	.326**	.343**	1.000	.170*	.315**	.174*
F4	.436**	.233**	.170*	1.000	.078	.201*
F5	.225**	.406**	.315**	.078	1.000	.479**
F6	.132	.239**	.174*	.201*	.479**	1.000

**p<.001

Table 7. Correlation between Stress Sources (New Zealand)

	F1	F2	F3	F4	F5	F6
F1	1.000	.262*	.335*	.326*	.184	-.179
F2	.262*	1.000	.288*	.279*	.320*	-.062
F3	.335*	.288*	1.000	.148	.145	-.228
F4	.326*	.279*	.148	1.000	.011	.028
F5	.184	.320*	.145	.011	1.000	-.017
F6	-.179	-.062	-.228	.028	-.017	1.000

**p<.001

5 Discussion

The study was a cross sectional survey and the population comprised convenient samples. The total number of 358 students in Taiwan came from two schools. One is Oriental Institute of Technology (OIT) [36], tracing back to 1968, when the Oriental Academy of Industrial Technology was established. Yu-Ziang Hsu, the founder of Far Eastern Textile group, aimed to meet the need of the economic growth nationwide, presented his version of a school based on the spirit of "Broaden Knowledge, Appreciate Virtue, Cultivate Talents, and Prosper Nation". Another one is Asia University (AU) [5], which is a dynamic higher education institution with great vision. There are 114 participants from USA, 152 participants from China and 117 participants from New Zealand. All participants are university students.

There were something we found interesting in the result, it deserves our attention and we make further discussion as the following:

5.1 The difference of stress sources across three countries

The results of **Table 3**. shows the difference of stress sources for three countries. Among these 6 factors, Taiwan's students had the highest score for 3 factors. It means that psychological stress of Taiwan students were heavier than the other three places. The first factor is: "Communication with teacher", it accounts for 37 %; that is the highest percentage of all six factors. Students think about their teachers as: "Teachers often give a negative evaluation - blaming or criticizing", "Teachers treat students with a lack of respect", "Teachers will not accept the views of students", "Relationship with teachers is unfriendly", "Teachers seldom provide students with positive feedback", "Teachers offer little help for student's troubles", "Teachers seldom encourage students to think".

From above we find out the relationship between teacher and student of Taiwan seems not good at all, students attributed all problems to their teachers. But the scores of New Zealand and USA are below average, it means that there are no problems in these countries. Part-time work is main concern of students in these two countries, because students of these two countries are more independent, they care about "part-time work" because they concern about their finance. Parents of Taiwan's students always pay all tuition through graduate of college, so it is

not any problem and don't need to worry about it in Taiwan.

Students' opinion on their teachers is not good at all in Taiwan, also the score of China close to Taiwan, but the score of USA below average. So we can find out students of USA are not complaint so much as the other two countries, they are more independent and can solve problems by themselves. American students are used to ask and challenge their teachers. But, Taiwan's students are more prudent with the level of interaction sometimes even being silent when expected to participate. Further, Taiwan's students are accustomed to follow instructions and have a higher level of respect towards their teachers.

The second high factor of Taiwan we extracted is "Anxiety", it accounts for 4.4 %; it is the second highest score in three countries, it includes: "Afraid of exams", "Anxiety over exams", "Fear of not graduation on schedule", "Fear of being expelled". All students in three countries worry about exams, it's a universal problem, but students of Taiwan is a little bit higher. From kindergarten, after school, children go to the pro classes, review and test what they learned in daytime, until 9 pm; then they go home. Remedial education accounted for the majority of school of children in Taiwan, while western students leaving school at 2 pm. So, Taiwan students do not have enough time to relax, education authorities of Taiwan need to reconsider if it is suitable for these young generation.

Also, "Future expectation" is the third high of Taiwan in comparison which reflects the environment of Taiwan is getting worse; uncertainty is so strong that students can't even expect what will happen next minute.

5.2 Stress on correlation analysis

Several studies examining school adjustment have proved that internal factors, external factors, and home environment have contributed to the adjustment of college students [25][27][41][45][46][55]. Whenever there is stress, it deters learning. We found students' stress confronted from school is getting worse. **Table 7**. shows the correlation of New Zealand in fifth factor "personality" correlated with "communication with teacher; anxiety and part time work" are not significant, but it relate with the sixth factor of "Future expectation" shows negative correlation. "Future expectation" negative correlate with 4 factors, it needs more discussion. For USA, China and Taiwan's students correlated on each

dimension and were all significant. The issue of "Part-time work" in NZ and USA gets highest score in **Table 3**. It is a serious problem; even though NZ is a tuition free country, part-time work still affect their joining school. There are more and more students having part time jobs in Taiwan, it really affected their learning. In the classroom, teachers wondering should they wake up those students sleep lying on the table. Some families with better-economic-students were surfing mobile phone in class without paying attention to the class. So there are a lot of problems we need to face and find out the solution.

5.3 Difference in Taiwan and China

Taiwan and China are a country and two places; it means that they were originally from the same ancestor, so they had the same culture and characteristics. But after the Cultural Revolution, the two places moved in different directions, the more farther and farther in the study survey, we found that as shown in **Table 3** at least four factors are closely tied, either China's top, or is Taiwan's top. Students in these two places are faced with the same problems such as: communication with teachers, socialization, personality and future expectations.

5.4 Some trivial issue

Only New Zealand is a free tuition country, students of New Zealand don't have a burden on it, but that is a source of stress on USA and Taiwan. When tuition hike each year, students shouted intolerable. Item 56(Attention to evaluate others on their own) of Taiwan students shows significant higher; they care about others' opinion and that affect their own behavior.

From this comparison, it can be explained that students in Taiwan have problem of communication with teacher, either the teacher's problem or student's problem, it accounts for 37% and needs to be settle down in first priority. As the second of the variance is "Socialization", they are either fear of being rejected or do not know how to say "No!" or attention to evaluate others on their own, or ridiculed by others if he is working hard and so on. So students in Taiwan are worrying too much, in the full developed economic society as Taiwan, psychology problems getting worse. China is a fast growing economic society; in these investigations we found that students face socialization and

personality problems. How to get along with anyone else in the society is getting complicate, also students have same problems to get alone with other students. Students in NZ have highest score of part-time work; they need to work to raise themselves.

For each country, it seems that Taiwan's students have higher stress than other countries. There were 5 dimensions with scores of more than 3. The students from NZ had 2 dimensions with scores of more than 3, and the students from USA had only one dimension with higher value.

The result showed that the highest score was the dimension of anxiety for students from Taiwan, and for both New Zealand and USA, the highest score was the dimension of "part-time work". The correlations between each dimension for three countries are shown as Table 4, 5, 6 and 7 respectively. For Taiwan's students, the correlations between each dimension are significant. For New Zealand's students, the correlation analysis of F5 (personality) toward communication with teacher, part-time work and anxiety are not significant.

6 Conclusion

Studying about education, we can trace back as early as the time of Plato[38] and Aristotle[3], and even farther before them, believed the purpose of education is to train all kinds of psychic abilities, such as memory, judgment, reasoning, learning technique and so on[9]. Moving into 21th century, do our students happy in learning? Or getting worse? All over the world, countless parents and teachers have been shocked, delighted or inspired by "Neill of Summerhill" [10], his subversive ideas about education. It might be controversial and debatable issue, but it really inspired us to think about offering better education for younger generation.

From 2014 to 2016, we continued our exploration on students' psychology stress issue. In 2014, our research topic of "Technical institute student's psychological stress investigation reflect on the role of the teachers" "[54], we discussed about psychological stress of students in the classroom. Our main concern on this paper was about learning of students, can they just accept whatever teachers offer in the class? What bother them the most? We discuss further more on this paper by comparing with USA, New Zealand, China and Taiwan four places, the result might be a help to understand the source of stress and figure out the

best solution. Only comparing with different countries we can find out applauded problem solutions. Higher levels of stress may induce students' psychological maladjustment and have negative impact on their academic career. We need

to take care of all these problems. Besides these, there are more topics about school's problem such as: Graduates' Customer Satisfaction Survey and Teachers' Satisfaction Survey, it will be the focus of our future explored.

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