

## Research article

# Exploring the Shared Knowledge Repositories Program to Reduce International Credit Transfer (ICT) Students' Academic Stress

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**ORCID**Fitri Aprianti: <https://orcid.org/0000-0002-0825-5679>**Abstract.**

Exposed to a completely different learning environment, international credit transfer students tend to experience severe symptoms of academic stress. Moreover, the lack of research and treatment related to students' academic stress-coping makes it difficult to measure their stress levels. This article reports on a study that explored the use of shared knowledge repositories to reduce the exchange students' symptoms of academic stress. Data were collected using a quantitative method in naturalistic settings of three departments at one of the universities that followed the international credit transfer program to Taiwan and India. An inventory test was accordingly adapted to measure changes in the participants after a shared knowledge repositories program was conducted. A total of 20 ICT students from two groups were selected as the sample for the research. Findings were gathered through document analysis, followed by an inventory *t*-test to investigate changes in the participants after the sharing session program. In this case, the results of the *t*-test and document analysis suggested that an improvement was seen in the degree of students' stress coping system. The results indicated that the program requirements for the participant to constantly create and share learning resources and strategies might have reduced students' stress related to academic expectations and examinations. Besides, the stage of observation and reflection might have contributed to students' ability to cope with stress in academic self-perceptions.

**Keywords:** shared knowledge repositories program, ICT students, academic stress

## 1. Introduction

Various programs are continuously developed, tested, and implemented to increase the quality of education in Indonesia [1,2,3]. These involve the programs which are implemented both nationally and globally. However, up to this day research show that there is still great indication for the majority of the students to show relatively poor academic performance. The source of students' deficient academic performance is complex and multivarious as it may arise from both academic and non-academic factors. However, it is indicated that one of the major influential factors is the students' academic stress [4,5,6]. Students may not all experience the academic stress with the same

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intensity, therefore, it may cause different consequence from students to students. In some cases, small amounts of academic stress can be considered as normal and can help the students to be more active and productive in their learning [7]. However, it is crucial to be noted that if academic stress is left to pile up and unsolved, then it may escalate to a significant proportion and if it is experienced over a prolonged period, then it can cause significant mental and physical problems which in turn it may have a detrimental effect on their academic performance and achievement [8].

Research reported that the students' academic stress varies among trait related groups [9,10]. The first trait which is often associated with academic stress is gender. It is reported that male students tend to show more academic stress than that of female students in the area of academic achievement and performance [11]. However, female students perceived more stress in the area of personal and interpersonal domain especially in the aspect of self-perception score more significantly than male students [10]. The second trait is the learning environment. It is indicated that when the students are being exposed to a new learning environment, they tend to experience academic stress. In a recent study, for instance, it was demonstrated that the most common sources of stress among high school and university students were related to stage where they have to change learning environment from high school to university level or from university to the work field [9]. This condition can be considered as a significant issue, considering academic stress could have its own effect on the students' academic performance and achievement [4, 12].

Yet, although the change of learning environment is indicated as one of the fundamental source of students' academic stress, yet less attention is given in exploring the area of international credit transfer (ICT) students. Meanwhile it is evident that the ICT students are exposed to new culture and expected to performed well as the representative of the nation [13, 14, 15]. Thus, again, it can be concluded that conducting research on exploring the ICT students' academic stress and way to cope it is paramount.

As well-predicted, ICT Program leads the students to experience new learning environment and expectation as the students are following the course from the university abroad. Although at the time of Covid-19 Pandemic the learning process are mostly done online, yet the source of academic stress remains [1, 2]. In the area of international student exchange programs, typically there are three indicators which are potentially be the source of academic stress in among the students.

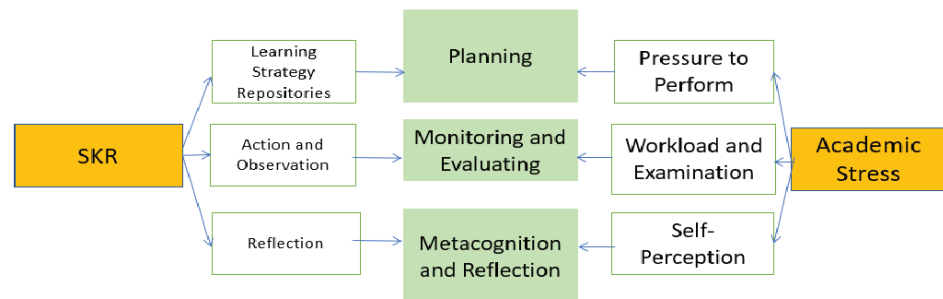
The first indicator is the pressure to perform. Pressure to perform is associated to the parental pressures and teachers' expectations regarding the students' performance and achievement on their academic study or future career [16]. The exchange students often

deal with the criticism from supervisors about academic results or academic works that they get from the targeted university. Research show that students tend to experience stress symptom such as having an excessive worry and attempt to withdraw from the school. The second aspect is the academic workload and examination [11]. This condition is typically found in around the examination periods where the extensive course loads, lack of physical exercise, and long duration of exams are experienced by the students. The symptoms associated with this condition are anxiety, changes in appetite, sleep problem, and unusual crying spell [17]. And the last aspect is self-perception. It is related to their personality characteristics, intelligence, their past academic achievements, and other academic environmental and psychosocial sources [18]. The symptom may be in a form of excessive worry and negative thought about oneself.

The students' academic stress during the ICT program is concerning. It may not only jeopardize the students' academic performance and achievement, but also affect the students' confidence when latter dealing with projects or works at the international level [6]. Therefore, many have proposed various methods to cope with the ICT students' academic stress [1, 18, 19]. One of the promising methods is known as the shared knowledge repositories program (Sein-Echaluce et al., 2016). Unlike any other methods, the shared knowledge repositories program requires the students to continuously reflect on their own selves and cope with the source of stress form within. Moreover, it is also indicated that the word "shared" refers to the mechanism of the method in leading the students to share strategies in coping with the academic stress of ICT program [20]. The session of sharing and collecting the strategies in coping with academic stress in a form of repositories could eventually lead the students to be more resilient and ready in facing the demand of ICT program. This cycle is essentially aimed to exhibits the students' effort, progress, and development in coping with the symptom of academic stress.

A total of three stages are applied in the shared knowledge repositories program. Each of the stage is aimed to cope with the specific indicators of the students' academic stress. The first stage is known as the process of creating the students' own learning and stress coping strategy repository [20,21]. This stage the students are grouped in teams. Each team creates resources for learning and for coping with stress. The students are also introduced to the students who have background experience in following similar program. This activity is used to promote dynamic and cooperative work teams to train and assess the students' academic stress [20]. The second component is the action and observation. This activity facilitates certain ways of observing the students' strategies of coping with academic stress, which is monitored by the students, the peers, and by more

knowledgeable experts [22]. The last component is reflection. The reflection consists of the can-do descriptors and log which are referred to facilitate the ICT students' strategies of coping with academic stress [23, 24]. The connection among the three stages in SKR and the indicators of academic stress can be viewed in the Figure 1.



**Figure 1:** The Shared Knowledge Repositories Program and the Students' Academic Stress.

Based on the rationale above and based on the detrimental effect of students' academic stress on the students' academic performance and achievements then conducting research on exploring the Knowledge Repositories Program in reducing the students' academic stress is critical. It is expected that the findings of this research can lead to the rapid development of methods in coping with the students' academic stress in following ICT Program. Therefore, this purpose is represented in two research questions as follow.

1. How is profile of the ICT students' academic stress?
2. To what extend does the Shared Knowledge Repositories Program able to reduce the ICT students' academic stress?

## 2. Methods

The nature of the research question leads the research to apply the quantitative research approach. To be more precise, in this research the data were gathered by using the experimental design in a form of the Non-equivalent Pre-Test-Post-Tests Control Group [25]. This design highlights that an intervention in a form of shared knowledge repositories program was implemented in order to decrease the university students' academic stress as a result of following the ICT Program. In order to test the effectiveness of the program, then tests were implemented. The tests were in a form of Pre-test and Post-test [26]. The tests were aimed to determine whether the intervention could cause a significant difference in regard to the academic stress management or coping of the participants.

The population who also the participants of the research was consisted of 20 university students who followed the International Credit Transfer Program to Taiwan and India. The participants were further divided into two classes using random sampling technique [27]. Each of the class (Group A and Group B) consisted of 10 ICT students. Group A referred to as Experimental Group meanwhile Group B was classified as the Control Group. Both groups received a pre and post-test. The Group A was further received the treatment.

To get the data needed, two types of research instrument were used in this research. The first one was in a form of inventory tests (Pre and Post-test) which were given to the Class A and Class B. The inventory tests were in a form of questionnaire which was aimed to measure the degree of academic stress of the participant [20]. There were 25 items listed in the instrument. The items involve the three indicators of the students' academic stress namely; the pressure to perform, the academic workload and examination, and lastly the self-perception.

The intervention was given in a form of the shared knowledge repositories program which was lasted for 14 weeks. The program is specifically aimed as a means of reducing the students' academic stress. Three stages of SKR program were implemented in the intervention. The precise stages of conducting the program can be viewed in the Table 1.

TABLE 1: The Implementation of the Shared Knowledge Repositories Program.

Program	Specification	Week
Opening	Preliminary Inventory Test	1
	Introduction to the Program	1
1 <sup>st</sup> Stage- Learning and Coping Stress Strategies Repositories	Internal Group Discussion	2-3
	Joined Group Discussion	4-5
2 <sup>nd</sup> Stage-Action and Observation	Learning Log	6-7
	Assessment	8-9
3 <sup>rd</sup> Stage-Reflection	Reflection Log	10-11
	Group Discussion	12-13
Closing	Program Report	14

### 3. Discussion

### 3.1. The profile of the students' academic stress during the ICT program

The profile of the students' academic stress in following the ICT Program was viewed based on the tree indicators of stress namely the pressure to perform, the academic workload and examination, and lastly the self-perception. The formulation of the Shared Knowledge Repositories Program was also based on the results of the students' academic stress profile. Therefore, the test aimed to reveal the profile of students' academic stress was conducted in the beginning of the program (week 1). The result of the students' academic stress is depicted in Table 2.

TABLE 2: The Profile of Students' Academic Stress.

Categories	Score Interval	Frequency	Percentage	Mean Score
High	>67	13	64,55	79,15
Moderate	34-66	5	35,23	
Low	<33	2	0,23	
<b>Total</b>		440	100	

Table 2 shows that the mean score of the population was 79,15 which means the population was in the high category of academic stress. High degree of academic stress indicates that the students generally felt as though they were exposed to relatively high pressure to perform well, they also experienced stress from the extensive course loads, lack of physical exercise, and long duration of exams, and lastly, they were stress from the academic environmental and psychosocial sources.

The profile of the students' academic stress can further be revealed from the mean scores of its categories. Figure 2 depicts that the mean scores the pressure to perform, academic workload and examination, and lastly self-perception were 78.7, 80.5, and 78.83 respectively. The profile of the students' academic stress based on the three indicators were all in the high category.

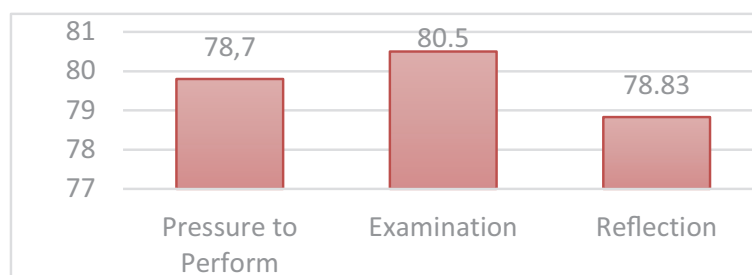


Figure 2: Mean scores of the three indicators of academic stress.

The high category of the indicators of the students' academic stress as shown in Chart 1 indicates that the students generally experienced the symptom which were closely related to the academic stress. This indication appeared since the beginning of the program. Generally, the students felt high degree of anxiety due to the expectation to perform well in the targeted university, experienced difficulties in sleeping due to the fearful of getting extensive course loads and exams, and lastly, they were under-pressured from the academic environmental and psychosocial sources. The students' academic stress was evident as on the beginning of the program many of the students demand the need for extra guidance in facing the new semester in the targeted university. It also indicated that the students were not sure on how to get involve in the learning process.

This condition highlight that a learning model that could assist the students to lower their degree of academic stress during the implementation of ICT program is required. This research focus on depicting the Shared Knowledge Repositories Program in reducing the students' academic stress.

### 3.2. The impact of the shared knowledge repositories program on the students' academic stress

This section is aimed to reveal the answer to the second research question which is: To what extend does the Shared Knowledge Repositories Program able to reduce the ICT students' academic stress? The impact of the Shared Knowledge Repositories was viewed both from the students' academic stress in general and in each of the indicator.

In general, the impact of the program to the students' academic stress was gain by analyzing the mean scores and the results of the t-test. Based on the mean scores, both the experimental and control group's mean scores were lower in the post test than that of pre-test.

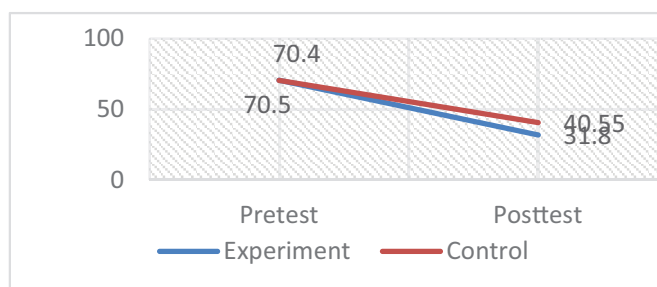


Figure 3: The distribution of the mean scores.

The data in the Figure 3 shows that in the post test the two groups were in two different stress categories. The control group remain in the moderate category, meanwhile the experimental group was in the low category of stress. This initial finding signifies that the SKR Program outperformed the SKR free class in terms of the degree of the degree of stress. The t-test result supports as in the pre-test, the significance of probability (.998) was higher than alpha (.05), which means that there was no significance difference between the group with the SKR Program with the group of SKR program free. Conversely, in the post-test the null hypothesis was rejected in the level of probability of .01 (1 per cent). It further supports that the group with the SKR Program was able to manage their stress symptom better than that of group without the SKR Program.

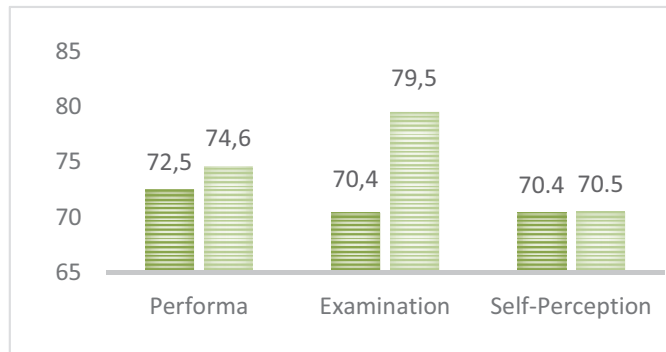
The ability of the SKR program group to outperform the SKR Program free group may be due to the fact that in the group of SKR Program the students were directed to early recognize the symptom of stress that they experienced. Once they managed to identify it, they were given opportunities to reflect on their own strategy of coping with stress and learn from the strategies of coping with academic stress from the other group members. Meanwhile, the program also offered opportunities for the students to communicate their experience during the ICT Program. Some of the students were clearly expressing how they struggled with the new environment and also ways of solving these problems. Although, the ICT Program itself was conducted virtually, yet, still the pressure was just as big as they were required to attend the class synchronously.

The communication between peers, alumnus, and also knowledgeable expert helped the students to realize that they were not entirely on their own and that other people could help and assist them in coping with the academic stress. The strategies of coping with stress were well documented in the repositories that the students made. The repositories were saved online so that each of the member could have an easy access to it. Similar finding is also shown by Aprianti & Winarto (2021) as they also found that the reflection saved online made it easier for both the students and the learners to access it. Thus, the students' improvement in learning became much more evident.

### **3.2.1. The impact of the shared knowledge repositories program on the three indicators of students' academic stress**

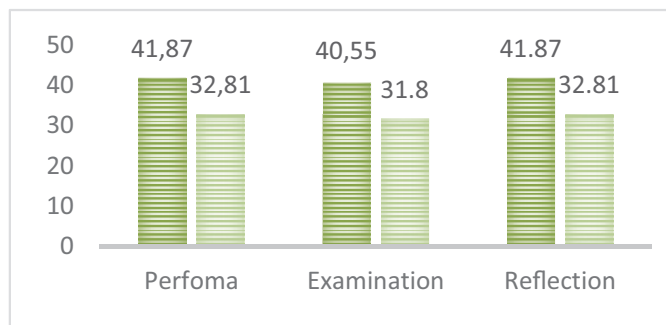
The impact of the Shared Knowledge Repositories (SKR) Program on the three indicators of the students' academic stress will be depicted on this section. The three indicators of students' academic stress are; pressure to perform, academic workload, and self-perception.





**Figure 4:** The distribution of the mean scores in pre-test.

The mean scores in Figure 4 indicates that in the pre-test the students were having relatively high degree of academic stress. All of the indicators of stress, namely; pressure to perform, academic workload and examination, and lastly self-perception were all in the high categories. This condition happened to both the control and the experimental groups. Conversely, different state of academic stress between the control and the experimental group was found in the post test as shown in the Chart 4.



**Figure 5:** The distribution of the mean scores in post-test.

The mean scores of both groups improved in the pot test. However, still Figure 5 indicates that the experimental group made better improvement than that of control group. In this case, all of the aspects in the post-test fell on the low categories of academic stress. It indicates that the students were able to reduce their degree of academic stress from high to low degree of academic stress. The results of the t-test support this finding as shown in the Table 3.

The t-test which was conducted to the three indicators of academic stress, pressure to perform, academic workload and examination, and lastly self-perception reveals that in the pre-test, the results of all of the significance (2 tailed) of probabilities were all higher than alpha (0.05). These prove that there was no significant difference between students means scores in the pre-test in 1% significance. Conversely, in the post-test the data showed that the significance value of the three indicators of stress in post-test were

TABLE 3: The t-test results of the indicators of students' academic stress.

Aspect	Test	Assumption (2-tailed)	Sig	Category
<b>Pressure to Perform</b>	Pretest	.856	0.05	Not Significant
	Posttest	.000	0.05	Significant
<b>Workload and Examination</b>	Pretest	.858	0.05	Not Significant
	Posttest	.000	0.05	Significant
<b>Target Language Use</b>	Pretest	1.000	0.05	Not Significant
	Posttest	.000	0.05	Significant
<b>Value of Sig (2-tailed) &lt; <math>\alpha</math> (0.05) = significant Value of Sig (2-tailed) &gt; <math>\alpha</math> (0.05) = Not significant</b>				

all .000. This means that the significance of probability was lower than alpha (0.05) which indicated that all of the three-null hypothesis in the post test were rejected. In other word all the three indicators show such significant difference between mean scores of experimental and control groups in the post-test in 1% significance. It also means that the findings signify that SKR Program had an effect on reducing the students' academic stress.

In the program, the first stage that the ICT students had to do was creating learning and stress coping strategies repositories. They were firstly indicated the stress symptom that they are experiencing through a checklist given to them. Then, they communicated the results with the other member of the group. Together, they tried to find solution for the problems. One of the members indicated that this activity has somehow made them easier to accept the new learning environment and that they also believed that other they were not alone in this condition. This activity suggested that the students was able to manage the pressure that they get from the people around them. In this case, they were able to reduce the symptom of stress caused from the pressure to perform such as that of parental pressures and teachers' expectations regarding the students' performance and achievement on their academic study or future career.

The findings also indicated that the students who experienced the SKR program were able to significantly reduce the symptom of stress associated with workload and examination. The students stipulated that they experienced difficulties in sleeping and also had constant fatigue. This could happen as the result of the workload and the pressure of facing examination. Yet, after consulting with their peers, alumnus of the previous ICT students, and more knowledgeable experts the students show relatively acceptance on this condition. They stated that by sharing with their peers they could manage to overcome stress and anxiety in facing examination. They shared strategy on how to reduce their stress as well as shared the strategies in learning efficiently. Lastly,

the relatively low degree of stress caused from self-perception was also found in the post-test. In this case, both spoken and written reflectivity that the students conducted could help them to overcome the degree of academic stress that they had.

## 4. Conclusion

After the implementation of the shared knowledge repositories program, the students were proven to be able to make improvement in terms of reducing their degree of academic stress especially during the ICT Program. The success of the program was evident in the significant difference between the pretest and posttest scores of the SKR group and the SKR free group in terms of the students' ability to cope with the symptom of academic stress. Thus, the research show that shared knowledge repositories program can be implemented to reduce the students' academic stress.

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