The Effects of Remedial Devices on Study Orientation Skills and Its Relation towards Academic Performance

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ABSTRACT

The purpose of this research is to measure the study orientation skills and to provide remedial tools in correcting respondents' study orientation skills faults. The research also measures the relationship between study orientation skills and the academic performance among first year students of University Malaysia PAHANG. The measurement of study orientation skills is done by innovating a website based on a survey of study habits and attitudes questionnaire (SSHA); http://portal.ump.edu.my/survey. The students' study orientation skills are analyzed and sorted into three groups of achievement; the higher achiever, normal achiever and lower achiever. The treatment tools comprise of the treatment website; http://portal.ump.edu.my, a textbook (Study Orientation Skills in Action, Ghani format of note-taking, DVD on the study orientation skills and lecture on study orientations skills aspects. The assessment on the academic performance is based on grade point average (GPA) scores of UMP undergraduates from their first semester and second semester results. 59 respondents are randomly selected from two groups of undergraduate's students from the Faculty of Computer Science & Information Technology and from the Faculty of Civil Engineering & Natural Resources. The research uses Quasi-experimental design with a pre-test and post-test by comparing both group samples. The finding has shown that the study orientation skills (SOS) website was able to measure SOS effectively among the respondents in the two groups. There is a significant difference in SOS and academic performance between pre-test and post test scores of the respondents. The results also show that there is a correlation between SOS and GPA scores in pre-test and post-test within and between each group.

Keywords: Study Orientation Skills (SOS), Study Habit (SH), Study Attitude (SA), Remedial Devices

INTRODUCTION

New students enrolling in tertiary institutions will feel disorientated as they face learning difficulties due to a transition period and changes in their study orientation. A lot of research has been done to show that changing environment of study among undergraduates students who have to orientate themselves from the various systems of learning from dependent, teacher centered, monotonous and convergent into independent, student centered, autonomous and divergent form of learning (Carpenter, 1990; Rohana Zubir, 1988, Entwisle, 1982). Hence, a study on their study orientation skills will be able to determine their study difficulties encountered by these students and by knowing the faults the students can easily re-correct them by using a series of remedial devices and improve their academic performance.

STATEMENT OF PROBLEM

There is so much literature and research done by well known scholars in the field of study skills to measure study orientation skills among undergraduates using the Study Skills Habits and Attitudes questionnaire. These studies used traditional methods of assessing the SOS and GPA among undergraduates across many disciplines including

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engineering, humanities and medical. Eventually these traditional ways in measuring SOS takes time to interpret the data.

Reviewing the academic performance among those graduated in 2006/2007 and the entry qualifications of new students, UMP students are considered as average students. The academic performance of those graduated from the Civil Engineering faculty in 2007 show that only 8% passed with a first class honors, 92 % second class upper and lower class honors. In comparison the Computer Engineering (Computer system and network) graduating students in show that only 5.63% scored first class, 94.3 % second class upper and lower class.

With regards to the above student's academic performance, this research is trying to determine the level of study orientation skills among group achievers and its correlation towards the academic performance of UMP undergraduates. The research used new and more complete SOS devices comprising of a website for measurement and remedial, textbook, DVD and lectures in measuring students SOS and method in re-correcting students SOS. Results from the research will show the UMP undergraduates score in their SOS and its relationship to their academic performance. These findings can be used to access and provide remedial devices to all university undergraduates in Malaysia either local or private universities, college or polytechnics.

RESEARCH OBJECTIVES

The objectives to be achieved by the research are:

1. To develop devices in enhancing SOS among first year undergraduates.
2. To classify the SOS group achievers based on study orientation skills measurement.
3. To determine the effectiveness of the devices in improving students' study orientation skills.
4. To determine the effectiveness of the remedial devices in improving study orientation skills in relation towards their academic performance.

RESEARCH HYPOTHESiS

Below are the null hypotheses to be answered by the research finding:

1. There is no significant difference between pre-test and post-test of study orientation skills among Civil Engineering respondents.

2. There is no significant difference between pre-test and post-test in the study orientation skills among Computer Engineering respondents.

3. There is no significant difference in pre-test of study orientation skills between Civil Engineering respondents and Computer Engineering respondents.

4. There is no significant difference in post-test of study orientation skills between Civil Engineering respondents and Computer Engineering respondents.

5. There is no significant difference between pre-test and post test on grade points average of Civil Engineering respondents.

6. There is no significant difference between pre-test and post-test on grade point average of Computer Engineering respondents.

7. There is no correlation between study orientation skills and academic performance among Civil Engineering respondents

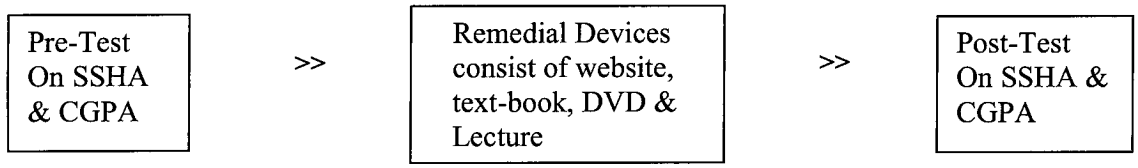
8. There is no correlation between study orientation skills and academic performance among Computer Engineering respondents.

9. There is no correlation between study orientation skills and academic performance among Civil Engineering respondents and Computer Engineering respondents.

METHODOLOGY

Conceptual Framework:

The conceptual framework for this research is illustrated in the following chart as:



RESEARCH PROCESS

This research is using pre-test and post-test with remedial devices with two different groups of engineering undergraduates comparatively. Pre-test was given to the respondents after two weeks they resumed their study in their second semester. The assessment on SOS is measured and the GPA score for the first semester results is obtained. Post-test is given after both groups of respondents received their second semester results. The assessment on SOS and GPA is once again calculated as sources of data. Analysis of data by percentage scores, mean scores and ANOVA was determined to find out the significant difference at p-values of 0.05 between pre-test and post-test scores on SOS and GPA within the groups and in between the groups. The correlation test using Spearman – Brown formula was tested to find out the correlation within and between the groups.

RESULT AND DISCUSSION

The measurement of Study Orientation Skills in pre-test and post-test based on group achievers among Civil Engineering respondents:

Pre-test result showed that the number of higher achiever group was 0%, normal achiever was 9 (15.25%) and under achiever was 50 (84.75%). Post-test results shows that there was an increase in the percentage value for the higher achiever group 3 (5.08%), and normal achiever group, 23 (38.98%) and decrease in the under achiever number to 33 (55.93%). All parameters of SOS such as DA (Means = 14.8 to 20.9), WM (16.1 to 23.1), TA (18.8 to 24.4), EA (20.3 to 24.4), SH (30.9 to 43.8) and SA (39.1 to 48.8) showed an increase in each means score.

This result has shown that there was an increase in higher and normal achiever group as well as decrease in the percentage of under achiever after the respondents had received the remedial devices of study orientation skills. This means the respondents were successful in re-correcting their study orientation skills and the website seems successful in measuring the value of study orientation skills among Civil Engineering respondents into three group achievers.

The measurement of Study Orientation Skills in pre-test and post-test based on group achievers among Computer Engineering respondents:

Pre-test results shows that the number of higher achiever group for computer respondents was only 1 (1.69%); normal achiever was 16 (27.12%) and under achiever was 42 (71.19%). It showed that SOS practiced among respondents was incorrect (Mean score for SO is only 83.9, S.D 25.589 out of 100). Post-test result shows that after remedial devices were given to the respondents it was very obvious there was a tremendous increase in the percentage score of higher achievers 9 (15.25%), normal achievers 23 (38.98%) and under achievers becomes less 27 (45.76 %). Mean scores for study orientation has increased to 98.93 and the S.D was at 34.237. All the study orientation skills parameters showed an increase in means score in the pre-test and post-test, DA (Mean score = 18 to 21.8), WM (19 to 22.9), TA (23.2 to 28), EA (23.7 to 26.3), SH (37 to 44.6), SA (46.9 to 54.3).

The results show there was an improvement in all aspects of study orientation skills. The respondents study habits and study attitudes and study orientation scores has also increased. This showed that the methods of intervention used in this research are effective. It also can provide early remedial help to the respondents in correcting their study orientation skills.

The measurement of Study Orientation Skills in pre-test score between Civil Engineering Students and Computer Students

Table 1: The significant difference test score on study orientation skills between Civil Engineering and Computer Engineering respondents in pre-test.

Groups (Factor)	*Count*	*Sum*	*Average*	*Variance*
Pre-test Civil	59	4130	70	522.8965517
Pre-test Computer	59	4950	83.89831	654.817066

ANOVA

Source of Variation	*SS*	*do*	*MS*	*F*	*P-value*	*F crypt*
Factor	5698.305	1	5698.305	9.676894279	0.002349	3.922878
Error	68307.39	116	588.8568			
Total	74005.69	117				

Reject Ho if Ftest > Fcrit ($F_{0.05,1,116}$) or P-value < 0.05
9.6769 > 3.9229 and 0.002349 < 0.05
So Reject Ho and accept H_1.

There was sufficient evidence to conclude that there was a difference in pre-test score between Civil Engineering Students and Computer Students at a significant level of 0.05

Table 1 show that there was a significant difference of study orientation skills between Civil Engineering and Computer Engineering students in the pre-test at P- Value 0-002349 < 0.05. Thus, we accept Ha and reject Ho. But the difference in value is rather minimum when compared with the difference in mean score for Civil engineering respondents, which is 70 (variance 522.9) and mean score for Computer Engineering respondents is 83.9 (variance 654.8). The result has shown that there was a difference among the respondents before the respondents who had undergone remedial devices of SOS. The Computer Engineering respondents had a much better score in study orientation skills compared to Civil Engineering respondents.

The measurement of Study Orientation Skills in post-test score between Civil Engineering Students and Computer Students

Table 2: The significant difference test score on study orientation skills between Civil Engineering and Computer Engineering respondents in post-test.

Groups (Factor)	*Count*	*Sum*	*Average*	*Variance*
Post-test AWAM	59	5463	92.59322	899.86616
Post-test COMPUTER	59	5837	98.9322	1172.20222

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1185.39	1	1185.39	1.14416092	0.286996	3.922878
Within Groups	120180	116	1036.034			
Total	121365.4	117				

Reject Ho if Ftest > Fcrit ($F_{0.05,1,116}$) or P-value < 0.05
1.1442 < 3.9229 and 0.286996 > 0.05
So accept Ho and reject H_1.

There was sufficient evidence to conclude that there was no difference in post-test score between Civil Engineering Students and Computer Students at a significant level of 0.05

Table 2 above shows that there was no significant difference in post-test of study orientation skills score between Civil Engineering and Computer Engineering respondents in study orientation skills score at P – Value of 0.2869 > 0.05. Thus, we have to reject Ha and accept Ho. The mean score for Civil Engineering respondents was 92.59 (variance 899.9) and mean score of SO for Computer Engineering respondents was 98.93 (variance 1172.2). This result shows that after the remedial devices were given to both groups of respondents, there was a more or less similar increase in study orientation skills among Civil Engineering and Computer Engineering respondents. It shows that the remedial devices given to the respondents were effective and correct.

The measurement of Study Orientation Skills in pre-test and post-test on grade point average of Civil Engineering respondents

Table 3: Significant difference between pre-test and post-test on grade point average of Civil Engineering respondents

Groups (Factor)	*Count*	*Sum*	*Average*	*Variance*
Pre Test	59	162.32	2.751186	0.169683
Post Test	59	181.96	3.084068	0.105576

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	3.268895	1	3.268895	23.75138	3.51E-06	3.922878
Within Groups	15.96504	116	0.13763			
Total	19.23394	117				

Reject Ho if Ftest > Fcrit ($F_{0.05,1,116}$) or P-value < 0.05
23.75138 > 3.9229 and 3.51E-06 < 0.05
So Reject Ho and accept H_1.

The significant difference between pre-test and post-test on grade points average of Civil Engineering respondents.

Results from Table 3 showed that there was a significant difference on the score of grade points average between pre-test and post-test for the Civil Engineering respondents. P-value is 23.75 > 3.92 at significant level of 0.05. Thus, we reject Ho and accept Ha. Pre-test means was 2.75 (variance 0.17) and means for post test has increased to 3.08 (variance 0.11). The increase in means value was quite obvious between the pre-test and post-test. The results showed that the remedial devices given on SOS had an impact on the grade point average score or in the respondent's academic performance. This concurs with the findings of Schultz (1989) and Carpenter (1990).

The measurement of Study Orientation Skills between pre-test and post-test on grade points average of Computer Engineering respondents.

Table 4: Significant difference between pre-test and post-test on grade point average of Computer Engineering respondents

Anova: Single Factor

Groups	*Count*	*Sum*	*Average*	*Variance*
Pre Test GPA	59	183.57	3.111356	0.262236
Post Test GPA	59	198.05	3.35678	0.101439

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	1.776868	1	1.776868	9.771721	0.00224	3.922879
Within Groups	21.09318	116	0.181838			
Total	22.87005	117				

Hypothesis Null: there is no significant difference between pre-test and post-test grade point average of Computer Engineering respondents
Hypothesis Alternative: there was significant difference between pre-test and post-test grade point average of Computer Engineering respondents
Reject Ho if Ftest>Fcrit or P-value < 0.05 9.7717 > 3.922879 and 0.00224 < 0.05
So Reject Ho.

The significant difference between pre-test and post-test on grade points average of Computer Engineering respondents.

The results from Table 4 shows that there was a significant difference in grade point average between pre-test and post-test of Computer Engineering respondents at probability of 0.05, where F test > F critical 9.77 > 3.923. Mean score for pre-test is 3.111 (S.D = 0.512) and post-test was 3.357 (S.D = 0.318). Thus, we reject Ho and accept Ha. This means that the difference in mean score between pre-test and post-test was obvious. The results also support the hypothesis and also previous findings. Wang (1993), Roxana Zuni (1988) in their experiment found similar where an increase in study orientation skills will also influence an increase in grade point average among the undergraduates.

The correlation between study orientation skills and academic performance among Civil Engineering respondents.

Result shows that there was a weak positive correlation between study orientation skills and grade point average among Civil Engineering respondents. The r Spearman Brown formula score is 0.2395. This value shows that the correlation between study orientation skills and grade point average score after the respondents received the remedial devices within the 6 months of interval. The strong correlation is determined by the value of $r > 8.0$. Weak positive correlation was sometimes found due to the sample size and the duration of the remedial devices used in correcting the respondents study orientation skills. The smaller the number of the sample will contribute to the smaller the value of correlation between SOS and GPA.

The correlation between study orientation skills and academic performance among Computer Engineering respondents.

Result shows that there was a weak correlation between study orientation skills and grade point average score among Computer engineering respondents. The value of r was 0.382. This means that after receiving the remedial devices after 6 months, the respondents seem to show some changes in the study orientation skills score and their academic performance. The weak positive correlation between SOS score and GPA among Computer Engineering respondents was due to the sample size and the duration of the remedial devices used in correcting the respondents SOS. This result is quite similar to the results obtained among Civil Engineering respondents. Cox (2001) has shown that the students who received the study skills program were more successful then those students who did not receive.

The correlation between study orientation skills and academic performance among Civil Engineering and Computer Engineering respondents.

Result shows that there was a weak positive correlation between study orientation skills and grade point average between Civil engineering respondents and Computer Engineering respondents. This finding has shown that two groups of respondents have the correlation in study skills orientation skills as well as grade point average. The value of r is 0.3058. Once again, the result shows a weak positive correlation comparatively between Civil Engineering respondents and Computer Engineering respondents. The weak correlation is still influenced by the number of sample and the duration of re-correcting SOS by using all the devices used in this research. Graham (1991) showed among native students senior high schools girls has shown increase in study habits and study attitudes and this will help the students to perform better in the academic performance. As the conclusion to the above results, both Civil Engineering and Computer Engineering has shown a significantly difference in GPA scores between pre-test and post-test. Beside that it also shows that there was a significant difference in SOS and GPA scores between pre-test and post test of both respondents. The correlation score of SOS and GPA also shows correlated results for both group respondents.

DISCUSSION

These findings show that the remedial devices used in evaluating and intervention of the students study orientation skills was effective and correlated. The findings seem to support the past findings done by Wang (1993) who carried out a research in Hubei University and had indicated that students having a high score in SOS also excel in their academic performance. Zainul Asmawi (1988) also found that there was a strong correlation between SOS and the academic performance. He further quoted that a good score in SOS will also secure a good score in their CGPA.

Generally all hypothesis tested in the research showed a positive result by rejecting Ho and accepting Ha. Thus, all the tested hypothesis can be accepted and supports the past findings about measuring and re-correcting study orientation skills among undergraduates in institutions of higher learning.

The result shows that all the respondents either from Civil Engineering or Computer Engineering were positive in improving their SOS. Post-test and pre-test scores of all parameters of study orientation skills for both groups have also increased after the respondents received the remedial devices intervention. There was an increase in all parameters of study orientation skills including delay avoidance (DA), work methods (WM), teacher approval (TA) and educational acceptance (EA). Apparently an increase in means score has also occurred in student study habits (SH) and study attitudes (SA). Thus, there is a significantly difference in pre-test and post-test in study orientation scores.

The result also shows that both groups of respondents have improved in their grade point average (GPA) score although the correlation between study orientation skills and grade point average was weakly positive. The weakly positive correlation may be due to the number of sample not being too big, (59 respondents for each group) and the duration taken in giving the intervention was only for a period of six months only.

The significant difference test between pre-test and post-test of both group respondents also shows there were a significant difference between pre-test and post-test at the p value of 0.05. This results show that the remedial devices on SOS given to both groups respondents were effective. It is demonstrated by the increase in values of means score in post-test compared to the pre-test. Increasing in the mean scores between pre-test and post-test of both groups respondents also showed a significant difference in grade points (GPA) scores.

Correlation test using r spearman brown formula of correlation coefficient shows that there was a weak positive correlation between SOS and GPA value in post-test of both group respondents and comparatively in between the groups of Civil Engineering and Computer Engineering respondents. The weak correlation between SOS and GPA found probably was due to the sample size (Navidi, 2006)

CONCLUSION

It was found that the portal website was successful in measuring respondents study orientation skills and divided them into three groups of achievers such as higher achiever, normal achiever and under achiever. The results also showed there was an increase in mean scores from pre-test to post-test. The increase in the number of higher achiever and normal achiever as well as decrease in the number of under achiever for Civil Engineering respondents and Computer Engineering respondents showed that the SOS remedial devices were effective in inculcating SOS among respondents. And the intervention website was an effective device in inculcating SOS and re-correcting students fault in their study methods. With the help and guidance by the SOS text book or using DVD supplied then the respondents can easily go through the process of intervention to re-correct their study methods. The results above shows that the finding of this research is effective and will produce a new portal website in evaluating and re-correcting the undergraduates study orientation skills.

The results also proved that with an increase in respondents study orientation skills it will also increase the respondent's academic performance. These findings were supported by previous finding done by Brown & Holtzman (1960), Hill & Porter (1981), Rohana Zubir (1988), Wang (1993), Isaak (2007) and many other research findings. The innovation and improvement done by this research through its portal website inn accessing and providing remedial devices to the respondent's study orientation skills in short interval period of time and in a more convenient way.

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