The Effect of Students' Attitude and Achievement in Computer Related Programing Language Courses

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ABSTRACT

In view of the title above, this research work was carried out to explain the major difference in students learning attitude and achievement, the relationship among other students towards computer related programing language and their academic performance. At-test was used to administer 50 males and 40 females in a computer related programming language and since t-calculated=3.1 lies outside any of these range. The effects of student's attitudes and achievements in a computer related programming language is therefore statistically significant at both 0.01 and 0.05 level of significance. The result showed that the male student had more positive attitude towards computer related programming language than female students.

Keywords: gender difference, programming attitude, computer programing, and achievement.

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1. INTRODUCTION

Many years ago, it was discovered the student's attitude towards computer related programming language has been reduced due to the fact that computer science students all over the world believe that computer related programming language is too tasking, boring, unsocial and difficult to understand. In view of this, students tend to show negative attitude towards computer related programing languages. As a result of this problem above, the student's performance in computer related programming language is affected by the student's attitudes towards programming language which is very important for student to know and that the effects of student's performance in computer related programming language describes the attitude of male and female students may be different in any programming languages.

2. LITERATURE REVIEW

The believe of students studying computer science and computer engineering in going to programming languages aspect is that computer related programming language is too tedious to learn, no interest and too boring to study for students to understand. However, attitude of students towards programing is just the evaluation of student's attitude which are based on the effective, cognitive and behavioural procedure, bear it in mind that student's attitudes and achievements are not directly seen and observable whereas the social intellectuals develop a lot of methodologies to assess attitude and achievement of students towards programming languages. The student's attitudes have shown that they influence how they process information and that student's performance in programming is affected by this behaviour towards programming languages.

In some cases, attitude and achievement are positively related because attitude have a greater role to play on the way information is being perceived and the degree of retention is being affected. More so, the following scholars Golding, Tenants and Facey-Shaw find out that the student's attitude towards programming have nothing to do with the academic performance of students while another school of thought, Aiding, Kabala and Erodogan believe that only personal confidence contributes immensely to academic excellence of students.

Attitude scale towards computer related programming language, the attitude is defined as an overall evaluation of an objective that is based on cognitive, affective and behavioural information since attitude are not direct observable. Social psychologist developed various methodologies for assessing attitudes. Programing attitude and gender; although Ada Lovelace who the famed British Poet Lord Bryon was the first programmer, women are severely underrepresented in the field of computer science and engineering. Attitude of woman towards computing is one of among several factors that might explain the low participation of women in computer related programing languages. The result of computer education research showed that attitude of females towards programing are more negative than that of male.

Generally, researchers found that the attitude of female towards computer were more negative than that of male but some others either found no difference or female has more positive attitudes towards computers compared to male. Programming is not alluring for females this could be contributed to female's low confidence and programming abilities. Therefore, their attitude towards programming are more negative than males as found at by Korkmaz and Altun. Pair programming could be a chance to dissipate gender difference in attitudes towards programing. For instance, Kraisit and Hongwarittorn believe that using (Java Program Visualization tool, http//cs.joesuit.fi/jeliot) can increase student's attitude towards programming but it was later discovered that it has nothing to do with student's attitude towards Java programing.Moreso, the use of (3-0 interactive programing environment, http://www.aliec.org.//) increases student's enjoyments and promotes positive attitude towards programing.

3. METHODOLOGY

The main purpose of this research work is to find out if the effects of student's attitude and achievements in computer related programing languages have any significant difference in the attitude of students towards computer programming where;

H0: Effects of student's attitude has no effect on computer related programing languages.
HI: Effects of female students have a negative effect on computer related programing language.
H2: Effects of male students have a negative effect on computer related programing language.

4. ANALYSIS OF RESULTS AND DISCUSSION

Independent sample t-test comparing the gender difference of students in attitude towards computer related programming languages

	Male	Female
Sample	50	70
Mean	79	74
Variable	49	64

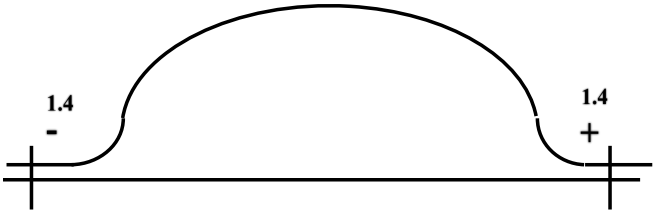
Since the sample are large, independent t-test or normal distribution can be applied.

$$t = \frac{M1-M2}{\sqrt{\frac{S1^2 + S2^2}{N1 + N2}}}$$

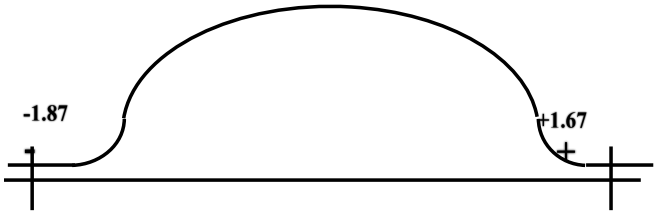
$$t = \frac{79-74}{\sqrt{\frac{49+ 64}{50+ 40}}}$$

t = 5/1.606
t=3.1
Degree of freedom = N1 + N2 – 2
=50 + 40 -2
df=88

At 0.01 level of significance; reject3.1



At 0.05 level of significance;



t- obtained = 3.1

t-table = 1.29 at 0.01 level of significance.

Also, t calculated = 3.1

t-critical = 1.67 at 0.05 level of significance.

Since our t-cal =3.1 lies outside any of those ranges. The effects of student's attitude and achievement in computer related programing languages are therefore statistically significant. Hence, we concluded that male students have a positive attitude towards computer related programing language than female students from the test conducted i.e. male attitude towards programming was significantly higher than female students. However, students mean scores of attitudes towards programming were calculated as 3.1, therefore it can be calculated that students did not have a

negative attitude towards programming. Independent sample t-test was performed to know if there was a significant difference between both sexes (male and female) attitude towards programming. The measures obtained are given in the table above. On the other hand, there was no significant correlation between attitudes towards success in computer related programming languages and achievements.

5. RECOMMENDATION AND CONCLUSION

The purpose of this research work is to look into the relationship that the effects of student's attitude and achievement towards computer related programming languages and the individual performance among the male and female students. In fact, student's attitude toward programming are a determinant factor to consider when deciding teaching of computer program. However, students programming achievement can be attributed to their confidence, motivation and the perception of students toward the usefulness of computer programming. But it was discovered that the contribution of programming attitude to performance is considerable low, then the programming attitude is not the only predictive factor of performance. Although the statistical analysis showed that the sample was adequate, the research work should be repeated with a large sample size for more accurate results. The results were in accordance with the study Korkmaz and Altun et al that showed that attitude of male students towards computer programming is meaningfully higher than that of female students. Since student's attitude towards programming can yield increased performance and the programming concept, then there is need to increase student's attitude towards programming for better performance.

REFERENCES

1. Bishop-Clark, C., Courte, J., Evans, D. & Howard, E.V., 2007. A quantitative and qualitative investigation of using Alice Programming to improve confidence, enjoyment and achievement among non-majors. Journal of education computing research, 37(2): 193-207.
2. Heersink, D. & Moskal, B.M., 2010. Meaning high school students' attitudes towards computing. In proceedings of the 41st ACM technical symposium on computing science education (SIGCSE' 10). ACM, New York, NY, USA, pp:446-450.
3. Hongwarittorn, N. & Krarit, D., 2010. Effects of program visualization (jeliots3) on students' performance and attitudes towards java programming. In the spring 8th international conference on computing, communication and control technologies, 2010.
4. Hutchinson, A., Moskal B., Scooper S. & Dann W., 2008. Impact of the Alice curriculum on community college students' attitude and learning with respect to computer science. Paper appears in the proceedings of the American society for Engineering Education, Pittsburgh, PA.
5. Maio, G.R., & Haddock, G., 2010.The psychology of attitudes and attitude change. London: SAGE publications Ltd. Doi:10.4135/9781446214299.
6. Nagappan, N., Williams, L., Wiebe, E., Muller, C., Balik, S., Ferzil, M. & Petlick, J., 2003b. Pair learning: With an eye toward future success. Extreme Programming and Agile Methods-XP/Agile Universe, pp:185-198.
7. Palageorgiou, G.E, Siozos, P.D., Konstantakis, N.I. & Tsoukalas, I.A., 2005. Computer science freshmen and its educational implications. Journal of Computer Assisted Leaerning, 21: 330-342. Doi: 10.1111/j.1365-2729.2005.00137.x
8. Prokop P., Tuncer, G. & Chuda, J., 2007. Slovakian students' attitudes towards Biology. Eurasia Journal of Mathematics, Science and Technology Education, 3(4): 287-295.
9. Wiebe, E., Williams, L., Petlick, J., Nagappan, N., Balik, S., Miller, C. & Ferzli, M., 2003a. Pair programming in introductory programming labs. In proceedings of the 2003 America Society for Engineering Education Annual Conference and Exposition.