Relationship between Interest in Learning and Academic Achievement Mediated by Scaffolding Pedagogy

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ABSTRACT

Purpose: The study investigated the relationship between students' interest in learning and their academic achievement mediated by scaffolding learning within the Zone of Proximal Development.

Methodology: Sequential explanatory design within the mixed methods approach was adopted involving 204 students and 10 teachers picked out through purposive sampling. Quantitative data was collected using pre-post experimental design which involved a pretest, scaffolding learning and a post-test, while qualitative data was collected using interview technique. Instruments of data collection were the pre-test and post-test Interest questionnaires an Achievement Test, a scaffolding module and interview schedules. Descriptive and inferential statistics of mean standard deviation as well as Karl Pearson product moment correlation and regression analysis were utilized to analyze quantitative data while qualitative data was analyzed using the thematic framework.

Results: After scaffolding learning, Pearson Correlation showed a positive relationship between students' interest in learning and their academic achievement (r=.659). Similarly, qualitative results established that learners achieved better results due to increased interest in learning as a result of scaffolding pedagogies.

Conclusion: Scaffolding learning is necessary in boosting learners' interest and eventually their achievement of learning goals.

Keywords: Interest in learning, achievement, scaffolding

INTRODUCTION

Students learn better and achieve independence when they receive support from more knowledgeable others through scaffolding (Wood, Bruner and Ross, 1976) within the Zone of Proximal Development (Vygotsky, 1978). Scaffolding is the support given to a student that enables the student to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted effort (Van de Pol, Mercer & Volman, 2019)**.** The process involves a more knowledgeable person demonstrating to learners how to tackle a learning task and later allowing the learners to do the rest on their own while the more skilled person offers support where necessary (West, Swanson and Lipscomb, 2019). With time the learners gain confidence and can apply the new acquired knowledge independently (West, Swanson & Lipscomb, 2019). Scaffolding is closely related to the Zone of Proximal Development (ZPD) (Vygotsky, 1978) which is 'the distance between what a learner can do without assistance and what the learner can do under adult guidance or in collaboration with more capable peers (Vygotsky 1978). Therefore, for learning to be effective, educators should help students learn within their ZPD so that learners can increase their skill and knowledge without becoming frustrated with things that are currently too difficult for them to accomplish (Sarikas, 2020).

Scaffolding learning enables learners develop interest in the learning process (Anisa & Sutapa, 2019). Achieving good learning outcomes involves interests which significantly influences learning motivation (Herpratiwi & Tohir, 2022) where learners develop attentiveness or curiosity when learning a concept as displayed through learners' active participation in the classroom processes, showing that the students derive fun and enjoy the

processes (Vanden Bos, 2015). Similarly, achievement is based on the results of standardized ability tests and assessments of performance by a teacher or supervisor which gives learners the strong desire to accomplish goals and attain high standards of performance and personal fulfillment (Vanden Bos, 2015). Thus, achievement is not only determined by the results of standardized tests but also a strong desire to accomplish goals and attain high standards of performance and personal fulfillment. Therefore, interest, and achievement are important constructs a learner needs to develop in the process of learning hence, scaffolding as related to the ZPD has been endorsed as the appropriate learning process to boost these learner aspects.

A study in Mexico by Goganza and Arellano (2022) on the role of teacher support in motivation, engagement and achievement based on metacognition and cognition as established in literature revealed that cognitive engagement is directly influenced by metacognitive engagement. This implies that learning engagement is influenced by cognitive engagement and all of them are triggered by motivation. Moreover, scaffolding enhances emotional engagement, fosters student emotions of being enthusiastic, interested in class, joyful in learning activities and proud of the learning achievements. Similarly, Sahaya and Raja (2024) determined how scaffolding impacted students' enjoyment in mathematics in India and established interest and enjoyment among learners who had been subjected to scaffolding pedagogies. Enjoyment in the learning process is amounts to achievement.

Comparatively, Dorigo (2023) in their study revealed that the level of reading comprehension skills before the application of scaffolding was Approaching Proficiency in Philippines. Students belonged to Approaching Proficiency level in making predictions while they developed in terms of making inferences, making connections, determining text importance and getting the meaning through text clues. After exposure to scaffolding, the level of students still remained at Approaching Proficiency but with a higher mean score. Hence there was a significant difference in reading comprehension skills of students before and after exposure to scaffolding. Echoing this, Muhidin, Wibawa, Khaerudin, Doriza and Rahmadi (2023) probed the effect of scaffolding self-regulated learning on target achievement among university students in Negeri Jakarta University, Indonesia and reported that students over-targeted achievements and were less likely to achieve their decided targets. The study reiterated that self-regulated learning required advanced scaffolds to promote higher outcomes.

Moreover, Kus Maryono, Gufron and Gusdiontoro (2020) investigated the students' achievement in in learning after scaffolding and attested that through scaffolding, students were able to reflect and correct mistakes in solving previous problems. This means scaffolding could be effective to help students move across different zones of proximal Development. Furthermore, The findings indicated that students exposed to scaffolding in teaching social studies achieved better results compared to those taught using the conventional methods (Filgona and Sakiyo, 2020)

Finally, Isoe, Mugambi and Wawire (2022) examined academic scaffolding as a predictor of achievement motivation for learning chemistry among secondary school students in Kenya reporting a moderate positive statistically significant correlation between academic scaffolding and achievement motivation. Moreover, according to Song and Glazewski (2023), self-generated questioning with scaffolding had a positive effect on learning out comes and the quality of student generated questions. Additionally, student generated questioning improved reading comprehension levels through engaged reading with support of metacognitive guidance.

Thus, studies established that scaffolding pedagogy can boost students' interest in the learning processes as well as their academic achievement. However, there is scanty literature on whether interest in learning leads to better achievement of learning goals, for instance, it is not known whether learners who develop interest in learning perform better in tests and examinations or not, It is for this reason that the study sought to determine the relationship between learners' interest in learning and achievement mediated by scaffolding pedagogy.

METHODOLOGY

Sequential explanatory design within the mixed methods approach was adopted; hence data was collected in two phases. Quantitative data was collected utilizing pre-test post-test quasi experimental design and data was analyzed, followed by qualitative data collection and analysis based on the quantitative data findings. Figure 1 illustrates the data collection procedure

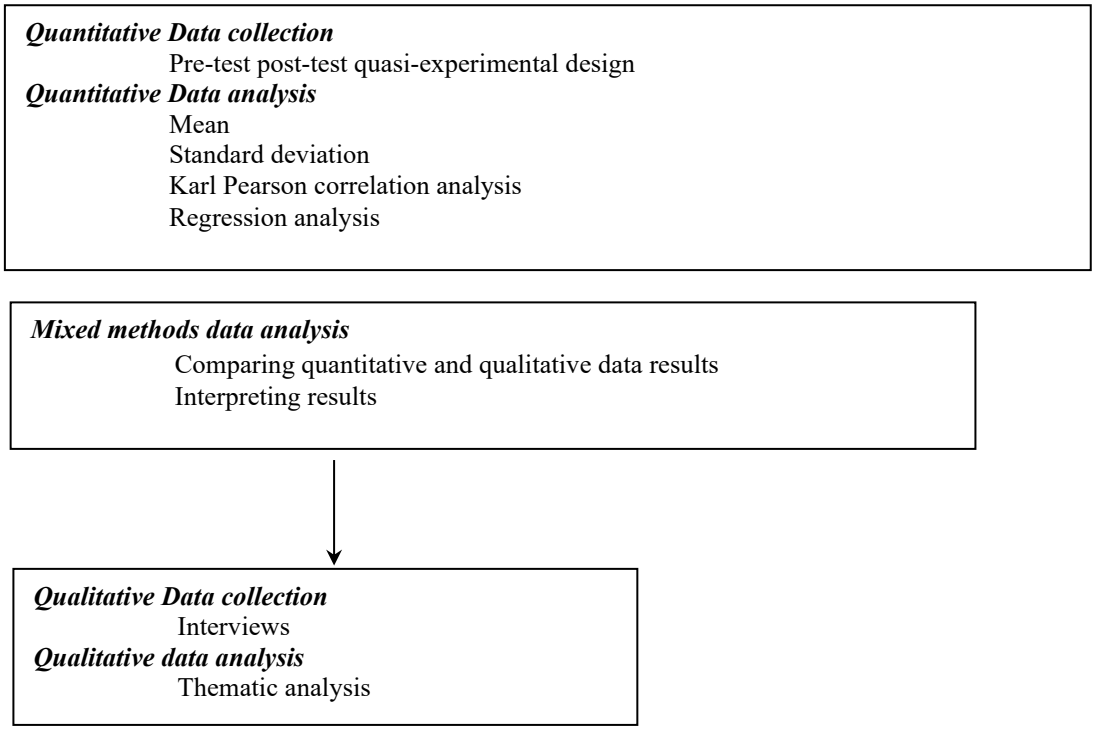

Figure 1: The Sequential Explanatory Design (Creswell 2014, p. 270)

Quantitative Phase

Quantitative data was collected using pre-test post-test quasi experimental design. Quasi experimental design was appropriate for this study because the researcher used participants in their naturally occurring groups which constituted the schools and the already existing classes. This means that sampling and assignment of subjects to the various study groups (experimental and control groups) was non-random (Jones and Bartlett, 2000).

The researcher sampled the two groups of students from 2 schools and assigned them to the experimental group and the control group after which all students filled in the Interest questionnaires as well as sat for a pre-test examination to ascertain the level of their interest in learning and achievement respectively before the application of scaffolding pedagogies. This was followed by the exposure of the experimental group to scaffolding learning for duration of 8 weeks and an eventual post-test where interest questionnaires were filled in and an examination done. Pretest and post-test data were analyzed using mean and standard deviation then compared to establish the effect of scaffolding on both interest in learning and achievement. To find out the relationship between interest in learning and achievement, Karl Pearson product moment correlation and linear regression were employed.

Qualitative Phase

Qualitative data was collected using interview technique using unstructured and generally open-ended questions that were few and intended to elicit views and opinions from participants (Creswell, 2014). Interview was appropriate for this study because it touches on human psychological variables; hence the respondents were expected to give their own views, feelings and experiences that would not be captured by the pre-test and post-test questionnaires and examinations. Thus, teachers and students were able to give their experience on scaffolding and its effects on learner aspects. At the same time, interviews enabled students give open-ended information on the effects of scaffolding on their psychological aspects. Moreover, interview data allowed the researcher to compare, confirm, support and explain the findings of the experiment (Creswell, 2014). Therefore, interview questions were formulated based on quantitative data findings as a follow up to the findings.

Qualitative data was analyzed using the thematic framework (Braun and Clarke 2012)

RESULTS

The posttest scores of subject interest and achievement were correlated and the results on Table 1 obtained:

Table 1: Correlation between subject interest and achievement post test scores

Correlations			
		Interest post test	Achievement posttest scores
Interest post test	Pearson Correlation	1	.659
	Sig. (2-tailed)		.000
	N	103	103
Achievement posttest scores	Pearson Correlation	.659	1
	Sig. (2-tailed)	.000	
	N	103	103

Correlations

The results on Table 1 show that r=.665 indicating a positive relationship between learners' interest in learning and achievement. This means that interest and achievement move in the same direction, hence as interest increases among learners, achievement also increases. Moreover, $p < .005$, suggesting a statistically significant relationship between interest in learning and achievement. Therefore, the improvement in achievement among the experimental group learners might have been due to the increase in interest among the students.

The findings were confirmed by interview respondents as follows:

> *I am happy that I am performing better in exams. In fact this is because of late I have enough time to study on my own and discover my weak areas. After that I go to fellow students in our group and I ask them to assist me. When we are defeated the teacher comes in to assist us… Also our teacher is encouraging us to concentrate on easy sections first before we move to the difficult ones. I have learned that this method where I start from the simple topics or questions has made me discover that one topic leads to the other. Even we as students we are encouraged to learn together without discrimination… Compared to last time, I think I enjoy learning. In the past I used to think that examinations are difficult but I have discovered that I was not taking time to do my studies properly. (LoE1)*

Another respondent made the following comments:

> *Sure enough many of my students performed better in this exam and I can confidently associate their good performance to the new teaching method. I think when we give them the opportunity to do things on their own, they own up the learning process. These learners are very active in group work, consultations and I am making minimal follow ups for home works. They are happy and they even come for me when the lesson is due. (ToE1)*

The responses by LoE1 and ToE1 suggest that one of the reasons why there was overall improvement in the post test mean was due to the increase in learning interest among the learners. LOE1 states that learners have the ability to discover where they are weak, something a teacher using the traditional methods could not do. The learners further get support from their superior others who comprise of the more knowledgeable peers and teachers only when there is need. This is possible through cooperative learning. Moreover, the learners were studying within their ZPD and this made studies very easy for them. But as much as the learners were enjoying learning actively on their own, teacher support was necessary as respondent ToE1 admits that support was given as well as making follow up to the few who had not owned up the process. In overall, the positive effect of scaffolding on interest made the learners perform better in the posttest exam compared to the pretest.

Linear Regression between Interest in Learning and Achievement

Linear regression was carried out to determine the variability in achievement that could be predicted by interest

in learning and the results on tables 2-4 were obtained. Results on Table 2 help figure out how well a regression model fits the data.

Table 2: Regression model summary for interest in learning and achievement.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.816[a]	.667	.662	6.590
a. Predictors: (Constant), post test scores				

The results on Table 2 indicate a strong positive correlation between interest in learning and achievement, R=.816. Moreover, R Square, the coefficient of determination determines the percentage of achievement that interest in learning can account for. Therefore, since R Square =.667, 66.7% of variability in achievement is predicted by interest in learning. This variability is large implying that the major determinant of achievement of learning goals of learners is determined by their interest in learning.

Table 3 the ANOVA table reports how well the regression equation predicts interest in learning and achievement with the F test and the P-value.

Table 3: ANOVA for interest in learning and achievement

ANOVA[b]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.194	1	.194	137.004	.000[a]
	Residual	4386.020	101	43.426		
	Total	4386.214	102			
a. Predictors: (Constant), achievement post test scores b. Dependent Variable: interest post test scores						

Table 3 shows that F, (102) =137.004, P<0.05, hence there a statistically significant relationship between interest

in learning and achievement. Therefore, there is a linear relationship between interest in learning and achievement.

Table 4 shows the regression coefficients and their significance.

Table 4: Regression coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.616	4.486		.067	.947
	achievement post test scores	1.005	.077	.0816	9.499	.000
a. Dependent Variable: interest post test						

From Table 4, Beta = .816, a positive value which shows a positive relationship between interest in learning and

achievement. Furthermore B=1.005,t=9.499, P<0.05 a indication of a statistically significant relationship between interest in learning and achievement.

DISCUSSION

Both quantitative and qualitative findings establish a strong positive relationship between interest in learning and achievement at the end of scaffolding learning process. Quantitative findings indicated a statistically significant positive relationship between learners' interest and achievement (r=.659, P<0.05). Similarly, from qualitative findings, learners' interest in learning was enhanced by the scaffolding pedagogies, and the effect brought about an improvement in achievement. Before the application of scaffolding processes learners' interest in learning was low, implying low achievement. Therefore, scaffolding learning method is necessary in boosting learners' interest and hence achievement.

REFERENCES

1. Annisa, A., & Sutapa, P. (2019). Scaffolding strategies to increase children science interest. Advances in Social Science, Education and Humanities Research, 296, 279-284. DOI:10.2991/icsie-18.2019.50
2. Braun, V. & Clarke, V. (2012). Thematic analysis. in H.Cooper, P.M. Camic, D.L. Long, A.T, Panter, D. Rindscopf, & K.J. Sher (Eds)., APA Handbook of Research Methods in Psychology, Vol. 2: Research Designs: Quantitative, Qualitative, Neuropsychological and Biological (pp57-71). Washington DC: American Psychological Association
3. Creswell, J. W. (2014). Research design: Qualitative, quantitative and mixed methods approach (4th ed.). Thousand Oaks, CA: Sage.
4. Dorigo, J.P (2023). Reading comprehension skills through scaffolding strategies of Grade 7 students. East African Journal of education, Humanities and Literature, 6(9), 390-401. DOI:10.36349/easjehl.2023.v06i09.002.
5. Filgona, J., & Sakiyo, J. (2020). Assessing junior secondary school students' achievement and learning retention in social studies through the application scaffolding and brain storming instructional models: Quasi experimental research. International Journal of Research Publication and Reviews, 6 (6), 70-89
6. Goganza, E.A, & Arellano, A.R. (2022). Scaffolding matters? Investigating its role in motivation, engagement and learning achievements in higher education. Sustainability. 14(4), 1-17
7. Herpratiwi, P., & Tohir, A. (2022). Learning interest and discipline on learning motivation. International Journal of education in Mathematics, science, and Technology (IJEMSTI), 10(2), 424-435. https://doi.org/10.46328/ijemst.2290.
8. Isoe, J., Mugambi, D. & Wawire, C.K. (2022). Academic scaffolding as a predictor of achievement motivation for learning Chemistry among secondary school students in Kenya. International Journal of Research and Innovation in Social Science, 6(11), 881-889.
9. Jones & Bertlett. (2000). Nurse's Drug Handbook. Sudbury, MA, Jones and Bertlett Publishers
10. Kusmaryono, I., Gufron A.M., & Gusdiontoro, A. (2020). Effectiveness of scaffolding strategies in learning against decrease in mathematics anxiety level. Numerical Journal Matematika dan PendidkanMatematika, 1, 10-23. DOI:10.25217/numerical.v4i1.770
11. Muhidin, A., Wibawa, B., Khaerudin, Doriza, S. & Rahmadi, I.F. (probing scaffolding self-regulated learning responses, resources contribution and target achievements of university students of statistics course. International journal of Interactive Mobile Technologies, 17(170, 82-93
12. Sahaya, T.M & Raja, B.W.D. (2024). Optimizing students' enjoyment and engagement in learning via scaffolding-fused digital game-based learning. Indian Journal of Science and Technology. 17(10),891-898
13. Sarikas, C. (2020). Vygotsky Scaffolding: What it is and how to Use it: https//blog.prepscholar.com
14. Song, Y., & Glazewski, K. (2023). Scaffolding self-regulated learning in student-generated questioning using mobile phones. Education and Information Technologies. 28(8),1-22.
15. Van de Pol, J.V., Mercer, N.M., & Volman, M. (2019). Scaffolding student understanding in small group work: students' uptake of teacher support in subsequent small group interaction. Journal of the Learning Sciences, 28(2), 206-239
16. VandenBos, G. R. (2015). APA Dictionary of Psychology. Washington, DC: American Psychological Association. Chicago/Turabian

17. Vygotsky, L.S. (1978). Mind in Society. The Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press
18. Wood, D.J., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. Journal of Child Psychiatry and Psychology, 17(2), 89-100
19. West, A., Swanson, J., & Limpscomp, L. (2019). Instructional Methods and Strategies to Meet the Needs of all Learners.: https://granite.presbooks.pub