



# EDUCATIONAL COUNSELLING AND EVALUATION

Readings in Honour of  
**PROFESSOR E. ADENIKE EMEKE**



**Adams O.U. Onuka**  
**Monica N. Odinko**

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Professor E. Adenike Emeke

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Edited by Adams .O. U. Onuka and Monica N. Odinko

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*Educational Counselling and Evaluation*

*- A book of Readings in Honour of*

**PROF. E. ADENIKE EMEKE**

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## **EFFECT OF PROBLEM BASED LEARNING STRATEGY ON STUDENTS' ACADEMIC ACHIEVEMENT IN ENGLISH LANGUAGE IN SENIOR SECONDARY SCHOOL IN OYO STATE**

**Oluwakemi O. Amusa**

**&**

**Felix O. Ibode**

### **Introduction**

Problem based learning (PBL) is a pedagogy where problems drive the thinking and learning process, rather than one where a specific thinking skill is taught from the onset (Norman & Schmidt, 2000). In addition, according to Norm and Schmidt, PBL is an approach that challenges students to confront problems from real world contexts that are vague and often ill-structured. Problem-based learning is a challenging and enjoyable learning approach that has resulted from the process of working towards understanding or resolving a problem. Problem based learning is focused, experiential learning organized around the investigation, explanation, and resolution of meaningful problems (Barrows, 2000; Torp & Sage, 2002).

Problem based learning strategy is a teaching method that allows students to come together in small groups and solve problems without the help of the teacher giving the solution from the onset of the teaching exercise but the teacher acts as a facilitator to guide what the students do in the classroom. It is an approach that has been in existence since the late 1960s and engages students in learning how to learn while they also learn language and content. Problem based learning promotes engagement, inquiry, investigation and performance, all of which require a higher level of thinking and promotes a better level of long-term retention of material. It is pertinent to mention that students who are exposed to problem based learning are better in applying their knowledge and remember

more of the knowledge they have acquired because their knowledge has been elaborated during the problem based learning process.

In problem based learning, the dominant method of teaching involves collaborative learning for solving a range of exercise. One factor that is found in international studies which characterizes higher performing countries is the use of cognitively demanding tasks and having students engage in critical thinking and reasoning. In the same view, Clarke (1997) remarked that the call for reform in the teaching and learning process draws its impetus from two main areas: (i) the changing needs of citizens for effective participation in an increasingly technological and global society, and (ii) increased research knowledge about the teaching and learning. The path towards the shift and reform is the adoption of modern methods of teaching whose focus is on students sharpening their problem-solving abilities, as well as their abilities to reason, communicate, connect ideas, and shift among representations of concepts and ideas (Dossey, McCrone, Giordano, & Weir, 2002). Educational researchers like Sungur and Tekkaya (2006), Hallam and Ireson (2005) seem to agree with the idea that, among other factors, the teacher's teaching style has some impact on students' learning and learning outcomes. Sungur and Tekkaya (2006) advocated that problem based learning is the most viable instructional strategy that can be used to enhance students' performance both in the cognitive and non-cognitive learning outcomes.

The problem based learning is one of the modern methods of teaching that allows each learner to use his/her own knowledge. The problem based learning is not in any way dominated by the fetish of the "one right way"- the teachers' way or the textbooks' way- to solve a problem which characterised the traditional method but it is a teaching method which enable all members of a group or community to explore and solve problems together (Abraham, Ramnarayan, Bincy, Indira, Girija, Suvarna, Devi, Lakshminarayana, Mamot, Jamil, & Haripin, 2012). These researchers further claimed that a problem based learning classroom is one that could be called learners' community classroom. In this community, learners engage in discourse, dialogue and work in groups while opportunity is given to each member of the community to express his/her ideas during the lesson and the teacher gives open-ended questions and tasks that allow multiple entries to solving the problems. It is pertinent to mention that problem based learning could promote students' self efficacy which could in turn engender improved students' academic achievement.

Self-efficacy refers to an individual's firm belief that he/she can succeed and achieve something tangible at a purposeful level in a particular task. Bong and



Skaalvik (2003) noted that these beliefs when directed towards academic domains refers to academic self efficacy. Academic self-efficacy influences how students approach a task such as problem-solving, the amount of effort they exert and their levels of persistence, all of which influences students' performance. Teaching strategies used in the classroom can and do make the difference to students' self-efficacy. They further claimed that students' self-efficacy may increase or decrease depending on the type of teaching strategy used on them. Research suggests that having high self-efficacy when attempting difficult tasks creates feelings of calmness or serenity while low self-efficacy may result in a student perceiving a task as more difficult than reality, which, in turn, may create anxiety, stress and a narrower idea on how best to approach the solving of a problem or activity (Downey, Eccles, & Chatman, 2005).

English language is very important to the society as a whole because it is used as a language of instruction in Nigeria. The use of appropriate strategies is necessary for effective dissemination of sound knowledge and corresponding behavioural changes in the learners. The instructional strategy of the teacher is an important factor and is a major challenge in the teaching and learning process. There is an increasing consensus among researchers that there is the need to shift from the traditional, teacher centered method of teaching and learning to a more student centered approach with student actively involved in the learning process.

Several studies have been carried out on problem based learning strategy and achievement in different regions, but very few have been carried out on its effect on achievement in English Language. Therefore, this study investigated the effect of problem based learning strategy on senior secondary school two students' achievement in English Language in Oyo State. It also examined the effect of self-efficacy on senior secondary school two students' achievement in English Language.

### **Research Hypotheses**

- Ho1:** There is no significant main effect of treatment on students' academic achievement in English language.
- Ho2:** There is no significant main effect of self-efficacy on students' academic achievement in English language.
- Ho3:** There is no significant interaction effect of treatment and self-efficacy on students' academic achievement in English language.

## Research methodology

The study adopted pretest-posttest control group quasi-experimental design. The population of the study consisted of all Senior Secondary School II in Oyo State. Simple random sampling technique was used to select six schools in Oyo State using intact class that were distantly located from one another within the state. The researcher randomly assigned four schools to the PBL strategy and the remaining two schools to the conventional method. The participants comprised 319 Senior Secondary School year two English Language students (139 in experimental group and 180 in conventional group). One treatment package [Problem Based Learning Strategy Package (PBLSP)] and one instrument [English Language Achievement Test (ELAT)] were used in the study. English Language Achievement Test (ELAT) was validated using Cronbach alpha and its reliability co-efficient was 0.72. Analysis of covariance (ANCOVA) was used to analyse the data collected.

## Result

**Table 1: Main effect of treatment on students' academic achievement**

Source	Type III Sum of Square	df	Mean Square	f	Sig.	Partial Eta Square
Corrected Model	12788.191a	4	697.048	18.537	.000	.191
Intercept	3169.294	1	3169.294	84.283	.000	.212
Pretest	2557.067	1	2557.067	68.001	.000	.178
Treatment	179.510	1	179.510	4.774	.030	.015
Self-efficacy	14.946	1	14.946	.397	.529	.001
Treatment*						
Self-efficacy	111.646	1	111.6462	.969	.086	.009
Error	11807.395	314	37.603			
Total	1358084.000	319				
Corrected Total	14595.586	318				

*R Squared = .191 (Adjusted R Squared = 0.181)*



The results on table 1 indicate that there is significant main effect of treatment (problem based learning strategy) on students' academic achievement  $F_{(1,318)} = 4.774$ ;  $P < 0.05$ . The null hypothesis  $H_01$  was therefore rejected. The Partial eta squared of 0.015 implies that the treatment (problem based learning strategy) accounts for 1.5% of the observed variance in the post-test scores of students' academic achievement. The adjusted R square value of 0.181 indicates that the independent variables accounted for 18.1% of the variation in students' academic achievement.

**Table 2: Estimated Marginal Means and Standard Error of Treatment Group**

Treatment	Mean	Std.error	95% confidence interval	
Problem Based Learning Strategy	66.029	.632	Lower Bound	Upper Bound
			64.784	67.273
Conventional	64.211	.541	63.146	65.277

Table 2 shows that the mean post test scores of students exposed to problem based learning strategy (= 66.029) is higher than those exposed to the conventional method (= 64.211). The significant difference in the mean difference of students exposed to problem based learning strategy and conventional method shows that problem based learning strategy enhanced students' academic achievement. This may be due to the fact that problem based learning strategy trains students to be reflective and assess their own and others' work. It requires the students to facilitate more enjoyable and more effective learning. PBL encourages learning from experience, allowing students to use and organise what they have learnt to understand problems.

**H<sub>02</sub>:** There is no significant main effect of self-efficacy on students' academic achievement in English language.

The result on table 1 indicates that there is no significant main effect of self-efficacy on students' academic achievement  $F_{(1,318)} = 0.397$ ;  $P > 0.05$ . The null hypothesis  $H_02$  was therefore not rejected. The Partial eta squared of 0.001 implies that self-efficacy account for 0.1% of the variance observed in the post-test scores of students' academic achievement. The adjusted R square value of 0.181 indicates that the independent variables accounted for 18.1% of the variation in students' academic achievement.

**H<sub>03</sub>:** There is no significant interaction effect of treatment and self-efficacy on students' academic achievement in English language.

The result on table 1 indicates that there is no significant interaction effect of treatment and self-efficacy on students' achievement  $F_{(1,318)} = 2.969$ ;  $P > 0.05$ . The null hypothesis  $H_{03}$  was therefore not rejected. The Partial eta squared of 0.009 implies that treatment and self-efficacy when taken together only accounts for 0.9% of the observed variance in the post-test scores of students' academic achievement. The adjusted R square value of 0.181 indicates that the independent variables accounted for 18.1% of the variation in students' academic achievement.

### Discussion of Results

Problem based learning strategy enhanced students' achievement in English Language. This is probably due to the fact that students are involved in the contribution and they took personal responsibilities for their learning. It could also be because in the cause of preparation, each student is able to read and understand very well before the presentation so as to perform better since the teacher acted as a facilitator. The result showed that there was significant main effect of treatment on students' academic achievement with problem based learning strategy having the higher mean on students' achievement, this result is in support of the findings of Chung and Chow (1999) who found out that students attitude towards chemistry was enhanced after the use of problem based learning. Students stated that their problem based learning experience was challenging and agreeable. Students developed several skills related to group work like respect, mutual support, and sharing of information (Chung & Chow, 1999). Interestingly, students perceived that Problem Based Learning tutorial sessions had contributed to their critical thinking development. Problem Based Learning has been found to improve students' motivation and interest.

Gallagher, Stepien, and Rosenthal (1992) found that PBL students were more likely to include problem finding as a step when presented with a novel ill-structured problem. Although research on the influence of PBL on strategy transfer is limited, it does provide some evidence that students in PBL learn problem-solving and reasoning strategies that are transferable to new problems. When there is a focus on real-world issues and problems, the interactions that take place have been found to be more meaningful and authentic than interactions produced during activities such as assigned role plays or repetition of dialogues, and the expectation is that such interactions promote second language acquisition. Because problem-based learning shifts the emphasis on learning activity from teachers to students, it can also help students become more autonomous learners who will transfer the skills learned in the classroom to their lives outside of the



classroom (James, 2006). For adult English language learners in particular, carefully chosen problems directly related to their everyday lives cannot only be highly motivating but also practical for them to work on.

This study negates the work of (Smith, Harris & Reder, 2005) who said that teachers may face a different kind of challenge when they allow students to negotiate meaning and solve the problem among them, without teacher intervention. Research at the Lab School in Portland, Oregon, on pair work in English Language classes suggests that when teachers approach students working in pairs, the nature of the students' interaction changes. Students may stop negotiating, asking the teacher to solve their problem, or start interacting with the teacher about unrelated topics. This change in interaction may keep students from trying out linguistic strategies to solve the problem on their own.

The result of hypothesis 2 showed that there was no significant main effect of self-efficacy on students' achievement. It could therefore be inferred that students with low self-efficacy had higher scores on the economics achievement test than high self-efficacy students. This could be because English Language as a subject has been believed to be a simple subject to pass easily without thorough preparation; this might have given students with low self-efficacy an edge over high self-efficacy students and in turn had affected their achievement in English Language.

The result of this study also negates few studies that indicated that self-efficacy caused higher achievement. Bong and Skaalvik (2003) noted that these beliefs specifically are directed towards academic domains. Self-efficacy is widely believed to affect learning performance. Self-efficacy has been found to have an impact on academic performance. General measures of academic self-efficacy can be good predictors of more general or aggregated academic achievement. But, in general, the best predictors of specific academic performances will be self-efficacy beliefs about those specific academic problems.

## Conclusion

The findings of the study revealed that students that who were exposed to problem based learning strategy performed better than those in the control group. Also, problem based learning strategy has proven to have improved the academic performance in English Language. In problem based learning strategy, the students' played a crucial role of exerting control over the classroom discussion. It allowed an active role of the students and passive role of the teacher. If these methods are employed in teaching subjects in schools, there is tendency for students to be encouraged and motivated to perform very well particularly in their academics endeavour.

## Recommendations

On the basis of the findings of this study, the following recommendations were made:

1. The use of problem based learning strategy has been found to be effective in improving students' academic performance in English language. The method should be used in teaching English Language in senior secondary schools for the purpose of improving academic achievement.
2. It was discovered from the findings of this study that the interaction effect of self-efficacy and treatment is not significant. This implies that teachers should take into consideration the efficacy of the students in order to help those with low self-efficacy perform very well in their academics.
3. Curricula planners should include problem based learning strategy into secondary school curricula and encourage English Language teachers to build in this method into teaching and learning processes

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