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ABSTRACT

Purpose: The study investigated the effects of scaffolding on English language learners' academic buoyancy as informed by social cultural theory, supported by cognitive load theory.

Materials and Methods: Sequential explanatory design within the mixed methods approach was adopted involving 364 learners of English language and 10 teachers who were picked out through purposive sampling from four secondary schools in Kenyena Sub-County, Kenya. Quantitative data was collected using Solomon-four non-equivalent quasi experimental group design while qualitative data was collected using interview technique. Instruments of data collection were pre-test and post-test questionnaires adapted from Martin and Marsh (2008), scaffolding modules and interview schedules. Internal validity of the questionnaires was investigated using Kaiser-Meyer-Okin (KMO Index) and Bartlett's Test of Sphericity, while validity of the experiment was ensured using 2 intervention and 2 control groups. Reliability of the pre-test and post-test questionnaires was established using split

half and Cronbach's Alpha techniques. Quantitative data was analyzed by frequency percentages, mean, standard deviation and t-test analysis using the SPSS package version 26.0 while qualitative data was analyzed thematically.

Findings: Pre-post questionnaire results revealed that the posttest mean scores of academic buoyancy among the experimental groups were significantly higher than those of the control groups. The paired samples t-test showed a statistically significant effect of scaffolding learning on academic buoyancy. From qualitative data, the study established that scaffolding led to an improvement in academic buoyancy among the learners of English language. Therefore, scaffolding learning process enhanced academic buoyancy of learners.

Implications to Theory, Policy and Practice: The Ministry of Education should retrain teachers on scaffolding teaching to empower and refresh teachers' knowledge, since scaffolding learning is very effective in enhancing learners' academic buoyancy.

Keywords: *Scaffolding, Academic Buoyancy, Learners*

INTRODUCTION

Language learning, just like language acquisition is a process and so it should be treated in the classroom as learners acquire new language skills (Boundless, 2016). Vygotsky's Sociocultural Development Theory states that: language has a privileged place in the development of higher human consciousness because as the 'tool of tools' it is used by humans to act on, control and transform their physical, social and semiotic worlds (Gong, Tan & Chin 2018). In the classroom, therefore, language is the tool kit for intellectual activity (Mercer, 2018). With this respect, English language should be learned rather than taught and learning should be process based, as students learn through social interactions with more skilled peers and adults, through scaffolding (Sarikas, 2020).

In the classroom, 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 to develop academic buoyancy; ability to successfully deal with academic setbacks and challenges that are typical of ordinary school life, including poor grades, difficult homework, course work deadlines and exam pressure (Martin & Marsh, 2020). Thus, academic buoyancy is a very important construct a learner needs to develop in the process of language learning, as endorsed by studies around the world.

Zelnick (2017) established multiple challenges encountered by high school teachers of English in the USA brought about by preparation of day-to-day lessons and very large, diverse classes. Consequently, Mahan (2020) asserted that scaffolding is the only possible solution to these challenges as the process was very successful in teaching English when the teachers provided strategies such as modeling to help students solve tasks. Additionally, teachers need to create more specific learning activities to provide their students with more support (Mahan,2020).

However, language learning challenges persisted in China since learners of English had failed to achieve independent learning due to the application of traditional learning methods to teach English in high schools, according to Ma, Xie, Luo and Tian, (2023). Instead of learning on their own, the learners of English were taught by teachers hence the learners lacked the belief in their ability to master the language skills and apply them to communicate comprehensively. Ma, Xie, Luo and Tian (2023) noted that independent learning would be the only way to boost students' ability to master language skills and apply the skills in effective communication. Moreover, challenges in the teaching of English as a second language were reported in Rwanda, since Kinyarwanda is the language of communication and the language of instruction up to grade 3 (Murigase, 2020). English is introduced as a language of instruction from grade 4 onwards, despite English language being a necessary artifact worthy acquiring; hence learning English becomes difficult (Murigase, 2020). For learning of English to take place in Rwanda,

scaffolding learning strategy needs to be employed; learners need to interact with more knowledgeable people (Murigase, 2020). Also, in the language classroom in Rwanda, it is the teacher who has to mediate language learning since the teacher is assumed to be more knowledgeable than learners. Further, classroom peer interactions provide room for brighter students to assist their struggling classmates (Murigase, 2020).

Scaffolding learning method was proposed by the Ministry of Education, Science and Technology (MOEST) in collaboration with the Kenya Institute of Curriculum Development (KICD) during the launch of the Competence Based Curriculum (CBC) Framework in 2017 in Kenya. The CBC would be implemented gradually in basic education institutions (KICD, 2017). In the process of developing the CBC, the concepts of scaffolding and the zone of Proximal Development raised by Vygotsky's Social-Cultural Development theory were found to be useful in designing the pedagogical shifts that teachers would be trained in, to facilitate adoption of the CBC in basic education (KICD, 2017). Activities in the classroom would include journaling, experiential and collaborative and cooperative learning (KICD, 2017. p16).

On the contrary, it is evident that scaffolding learning method is minimally employed in Kenyan classrooms which could make English language learners lack academic buoyancy. For instance, in Nairobi County, Kenya, Mutsotso and Nabukonde (2019) reported teacher centeredness of the language lessons since integration of the language skills was impossible in a 40-minute lesson, due to large class sizes and limited time, which made teachers use very few activities in their teaching. Teacher centered methods made learners lose interest in learning of English language since students were not given a chance to be active participants in the learning processes, meaning, learners could not achieve their academic buoyancy. According to Atandi, Gisore & Ntabo (2019), the use of teacher-centered methods denied learners the opportunity to study independently and discover new knowledge on their own which would make learners lose their buoyancy to face academic setbacks.

Moreover, Omuna and Kurgatt (2023) revealed that teacher centered techniques were more utilized in teaching English as opposed to learner centered pedagogy. Group work was not frequently used in English lessons, though the National Institute of Child Health Development recommends pair work and group work for teaching because the two methods enable learners to learn from one another (Omuna and Kurgatt, 2023). On the contrary, individual work was more frequently used, according to Omuna and Kurgatt (2023). The study reported that scaffolding method is mostly absent in English lessons, implying that its effects on students' academic buoyancy remained unknown.

The challenges had been reported in Kenyena Sub-County, Kenya, by Maiko (2018) where teacher centered methods were being utilized in English lessons more than learner centered method, thus interfering with the psychological well-being of the students. a great percentage, 55% of teachers employed lecture method, 15% discussion while 35% used other methods to teach English. The lecture method adopted by majority of teachers made students remain passive and receptive and not in control of their learning. However, even if the teachers employed these methods, 50% of them admitted that learner centered methods such as scaffolding could make learners develop a positive attitude towards English as language as well as build self-efficacy, which in turn would make the students perform better in exams. Further, 30% of teachers conceded that teacher centered methods encourage laziness and negatively affect students' performance (Maiko, 2018). For students to be academically buoyant, they must believe in their own abilities and be confident that they can discover new ideas, learn the language skills on their own and apply them in a variety of contexts with minimal or no support

at all. Learners' belief in their own abilities is the basis of scaffolding language learning process.

Therefore, in Kenya, studies have attested that scaffolding which is the most appropriate language learning process is minimally employed in Kenyan schools to teach English, a clear indication that the effects of scaffolding on students' academic buoyancy have been scantily investigated, which is the motivation behind the study to investigate the effects of scaffolding on academic buoyancy among secondary school English language learners. The findings of the study would make it possible for curriculum developers to lay emphasis on the use of scaffolding to teach English language in order to make students academically buoyant.

Statement of the Problem

Language learning, like language acquisition is a process, implying that teaching and learning of English in the classroom should be process based as students acquire new skills and apply them in a variety of communicative contexts. Studies have revealed that scaffolding is the most appropriate language learning process which allows students to be active participants in learning and in the process develop academic buoyancy. However, in Kenya, studies have shown that teachers employ teacher centered techniques to teach English where lecture method is utilized by 55% of teachers, while 35 % use question and answer technique to teach English. The techniques make English lessons fully teacher centered, making students to lose interest in learning the language skills hence lack academic buoyancy characterized by ability to deal with schoolwork pressures, academic setbacks and study stress. Moreover, since scaffolding learning is minimally utilized in teaching English, its psychological effects on learners of English are not known, which makes it difficult to adopt scaffolding learning process in English learning. It is for this reason that the present study sought to investigate the effects of scaffolding on academic buoyancy among secondary school learners in Kenya.

Hypotheses of the Study

Ho. There is no statistically significant effect of scaffolding on academic buoyancy

Ha. There is a statistically significant effect of scaffolding on academic buoyancy

Theoretical Review

Socio-Cultural Theory

Social cultural theory points out that, the cognitive development of a child occurs as a result of social interactions with more knowledgeable others, through the process of mediation (Vygotsky, 1978). Thus, learning is a social process, based on collaboration and co-operation between a more knowledgeable other (MKO) and the learner. Social cultural theory further stipulates that learning takes place through scaffolding (Wood, Bruner & Ross, 1976), which is the support given to learners to enable them learn a concept or perform a task within the zone of proximal development (ZPD), and once the learner attains ability to do the task independently, the support is withdrawn (Vygotsky, 1978). The ZPD entails tasks that are just beyond the learners' current abilities but are attainable with guidance or help from more knowledgeable others, who include teachers and the more capable peers (Vygotsky, 1978).

Social Cultural theory informs the study for learning to occur, the ZPD of the learner has to be known such that appropriate learning tasks are provided by a MKO, otherwise the learner will get frustrated. Once the learner is able to accomplish tasks within their ZPD, the MKO should create a higher level ZPD for learning to continue. If a learner is subjected to language learning tasks within the ZPD enhanced by support from the teacher, academic buoyancy comes up as

the learner's becomes able to overcome academic drawbacks. When the teacher gives timely feedback and gives clarification as well as encourages collaborative and cooperative learning, learners learn from one another, hence developing ability to deal with schoolwork pressures. Furthermore, buoyancy in language learning is attained through contingency support by the teacher and eventual transfer of learning responsibility to the learner, implying that learners attain independence to tackle learning tasks on their own. The teacher then identifies a higher level ZPD and learning continues.

Cognitive Load Theory

The study was also guided by Cognitive Load Theory (Sweller, 1988), which builds upon Information Processing Theory (Miller, 1956). Information processing theory outlines three information processing functions: sensory memory, working (short-term) memory and long-term memory. Sensory memory filters important information out of all the information that we perceive through our senses and passes the important information to the working memory. The working memory can hold 5 to 9 chunks of information at a time, hence has limited capacity (Miller, 1956). The working memory discards or processes information and sends it to the long-term memory where the information is stored in knowledge structures known as 'schemas' (Miller, 1956). The concept of chunking and the limited capacity of the working memory is the basis upon which the Cognitive Load theory (Sweller, 1988) is built.

Thus, Cognitive Load relates to the amount of information that the working memory can hold at a time, which is 5-9 chunks. Cognitive Load Theory suggests that learners can absorb and retain information effectively if the information is provided in such a way that it does not overload the mental capacity of the learners. Sweller (1988) argues that if a lot of information is provided to the learners at once, the students will most likely lose it since the information cannot fit in the working memory of the learners. For this reason, when teaching cognitively complex or challenging material, teaching techniques should be acquired to reduce the working memory load in order to facilitate the changes in the long-term memory associated with schema acquisition (Sweller, 2003).

Cognitive Load theory (Sweller, 1988) informs the study in that learning English is complex and it involves a lot of cognitive activities since several language skills are integrated and learned as a unit. Thus, the teacher should first identify the Zone of Proximal Development of every learner before breaking the learning materials into smaller sections, for instance, when teaching reading skills, the text to be read should be broken into sections, depending on the learner and the ZPD of each learner. This should be followed by subjecting each learner to the content that is appropriate to their ZPD since overloading the memory will lead to the inability of the learners to deal with schoolwork pressures, thus, the learner will lack language learning buoyancy. If the right load of information is given to the language learners, they will not experience setbacks such as low marks, and negative feedback as the learner will perform better in tests. Scaffolding from the teacher or a more capable peer will give learners confidence to deal with learning challenges, they will be able to not only acquire the language skills within their ZPD but also apply the skills in a variety of contexts

MATERIALS AND METHODS

Research Design

The study adopted sequential explanatory design within the mixed methods approach where both quantitative and qualitative data were collected; quantitative data was collected using Solomon-Four quasi experimental group design while qualitative data was collected using

interviews. First, quantitative data was collected and analyzed followed by qualitative data collection and analysis as a follow up for quantitative results.

Participants

The sample size comprised of 364 students and 10 teachers from four schools in Kenyena sub-county, Kenya. Regarding Solomon-four research design, the four schools were purposively selected for this study; two boys' schools and two girls' schools which had a total of 364 students. This is because the experimental technique dictates that the subjects must be in the same natural environment. Hence four groups had to be selected from their naturally occurring environments. Interview respondents comprised of purposively sampled 10 teachers and 10 learners.

Data Collection Procedure

Quantitative Phase

Quantitative data was collected using Solomon-four quasi experimental group 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).

Solomon-four group design involved the researcher randomly assigning participants to four groups; two experimental groups that underwent the prescribed treatment of scaffolding learning technique and two control groups which were not taught using scaffolding but served as the benchmarking point for comparison (Levy and Ellis, 2011). The researcher sampled the four groups and went ahead to label them as Experimental group 1, Control group 1, Experimental group 2 and Control group 2. Two groups; Experimental group 1 and Control group 1 were pre-tested while the other two groups (experimental group 2 and control group 2) did not receive the pre-test. But experimental group 2 received the intervention. Finally, all the four groups were post-tested. Pre-test and post-test data from the four groups were then compared.

Qualitative Phase

Qualitative data was collected using interview techniques which involved unstructured and generally open-ended questions that are few and intended to elicit views and opinions from participants (Creswell, 2014). Interviews were advantageous in that this being a sensitive topic, the rapport created between the researcher and the respondents led to generation of more insightful responses. Furthermore, an opportunity was created for the researcher to probe additional information, as well as monitor the tone, facial expressions and body movements, hence a rich understanding of the perceptions, motivations and feelings of the respondents. Interview was appropriate for this study because the study touched on human psychological variable, academic buoyancy, 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.

Research Instruments

The study collected quantitative data using pretest and posttest questionnaires and the English Achievement Test (EAT) and qualitative data using interview schedules.

Questionnaires

The study made use of pre-test and post-test questionnaires to test the level of academic buoyancy of learners of English before and after scaffolding intervention. There were four academic buoyancy items on a 5-point Likert scale as adapted from Martin and Marsh (2008).

Interview Schedules

The interview schedule was constructed at the end of quantitative data collection and analysis through pre-post survey before and after Solomon four group experiment. The questions on the interview schedule were based on quantitative data findings. There were 4 questions which only acted as guidelines since the researcher did a lot of probing of the respondents.

Data Analysis

Quantitative Data Analysis

Quantitative data analysis was carried out using descriptive and inferential statistics which included Mean, Standard Deviation t-test analysis. To find out whether scaffolding intervention had influenced learners' academic buoyancy, pretest and posttest data from the experimental groups was compared with that of the control groups.

T-test analysis was also very useful in testing the null hypotheses using paired samples t-tests, where the mean differences between the various groups was calculated. Through the paired samples t-tests, the study established the effectiveness of randomization at the sampling stage. At the same time the study determined whether the groups that had undergone the treatment scored better than the control groups. Moreover, the t-tests enabled the researcher to establish whether there was a statistically significant difference in mean scores between the intervention groups and the control groups. Finally, through the paired samples t-test, the study ascertained whether confounding or extraneous variables interfered with the results of the study or not. The results were tabulated, interpreted and conclusions drawn. Thus, the study hypotheses were tested using paired samples t-test, to find out whether there was a significant effect of scaffolding on the various psychological variables among students.

Qualitative Data Analysis

Qualitative data was analyzed thematically through the six stages by Braun and Clarke (2012). The first phase was data familiarity. Here the researcher listened to, transcribed and read data that had been collected for the purpose of familiarizing with it (Braun and Clark, 2012). Next, initial codes were created to ease identification of meaningful patterns and themes. Academic buoyancy codes were named for instance AB5aL8 and AB5bT1 where AB stood for academic buoyancy, 5 represented item number 5, for pretest and L8 for student respondent number 8, b represented post-test while T1 stood for teacher respondent one.

After creating the initial codes, minor themes were formed based on pretest data and they included low buoyancy, high buoyancy. The themes were then viewed to ensure validity and accuracy in reflecting meanings evident in the data set. The next stage was analyzing and interpreting information by identifying meaningful patterns and themes and grouping the data collected into them. The final phase was reporting where the extracts were analyzed, whereby conclusions were drawn. The final phase was done in combination with quantitative data.

FINDINGS

Students Level of Academic Buoyancy Before Scaffolding Intervention

Participants were expected to respond to the statements using 5-point rating scale; never (1), rarely (2), sometimes (3), often (4) and always (5). The views were summarized in frequency percentages, mean and standard deviation, as tabulated in Table 1, followed by an interview among control group participants to compare the findings with quantitative data as well as explain, clarify, support and confirm quantitative findings. Both data were then collaborated.

Table 1 Students Rating on Academic Buoyancy (n=103)

Item	1	2	3	4	5	M	SD
I am good at dealing with setbacks at school (eg negative feed-back on my work, poor results)	15 (14.6%)	18 (17.5%)	45 (43.7%)	15 (14.6%)	10 (9.7%)	2.9	1.1
I don't let study stress get on top of me	13 (12.6%)	17 (16.5%)	44 (42.7%)	18 (17.5%)	11 (10.7%)	3.0	1.1
I think I am good at dealing with schoolwork pressures	18 (17.5%)	16 (15.5%)	48 (46.6%)	17 (16.5%)	4 (3.9%)	2.7	1.0
I don't let a bad mark affect my confidence	12 (11.7%)	18 (17.5%)	41 (39.8%)	18 (17.5%)	14 (13.6%)	3.0	1.2
Overall mean rating on students' academic buoyancy						2.9	0.8

Source: Survey Data (2023)

The results Table 1 reveal an overall mean rating of 2.9 (SD=0.8) in academic buoyancy of learners of English.

The study sought to investigate how good the students were in handling setbacks in school, and results indicated that while only 15 (14.6%) were often and 10 (9.7%) were always good at dealing with setbacks at school, sizeable proportion 45 (43.7%) were sometimes able to deal with setback at school while 15(14.6%) were never and 18(17.5) were rarely able to handle setbacks such as negative feed-back on their work and poor results at school. In general, the item attracted a mean response rate of 2.9 (SD=1.1), which was equal to the composite mean, implying that the students' ability to handle setbacks in school is generally average. The mean score suggests that many of the students did not have adequate capacity to effectively cope with the daily pressures encountered in their school life.

The findings were followed by interviews and the following were some of the responses.

... I am not that good at dealing with such challenges. If I get low marks for instance after revising very hard for the exam I really get discouraged because that is like a waste of my efforts. ...Honestly, I am not good in handling such challenges because I get very emotional. (AB1aL2)

Another respondent commented that:

I have many cases of learners who once they drop in their performance, it becomes very difficult for them to improve. I think the drop kills their morale to work harder. About beating deadlines, the learners have no option since failure to do so may attract punishment. In fact, very few of our learners can withstand the daily academic challenges. (AB1aT4)

The responses coded AB1aL2 and AB1aT4 are a clear confirmation of the fact that before the application of scaffolding technique, many survey participants could not deal with academic setbacks, especially, negative feedback and a bad mark. When the learners faced the challenges, instead of addressing them, they got discouraged, meaning their performance would worsen. Thus, before the application of scaffolding, academic buoyance was low among the learners.

Participants were also asked to indicate whether they would let study stress get on top of them and a mean response rate of 3.0 (SD=1.1) was obtained. This was reflected by 13(12.6%) who were never and 17(16.5%) who were rarely able to manage study stress, while 44 (42.7%) of the respondents were sometimes able to manage study stress. On a positive note, 18(17.55) were often while 11(10.7%) were always in a position to overcome study stress. These findings indicate that whereas some of the students of English could effectively handle study stress, many did not have such threshold, implying that they had low academic buoyancy.

Moreover, some respondents were probed whether the learners were able to manage academic stress, and this is what they had to say:

Sometimes I may agree that academic stress may overcome me, though I do try my best to overcome it. In fact, academic stress is not constant. It worsens when the term is coming to an end and the academic activities become too many. But at the beginning of the term when the activities are few, I am able to manage it. (AB2aL2)

The sentiments by LoE3 were echoed as follows:

Managing academic stress can be an uphill task to me but I try my best. It is mostly due to too much work and limited time, until we are forced to do our homework late at night at 11:00pm. the stress that I have is that I do not have enough sleep... To me I am not able to manage this stress (AB2aL5)

From the responses labeled AB2aL2 and AB2aL5, (in Low Buoyancy minor theme) it is evident that the learners could averagely manage their academic stress just like their mean scores indicate. The learners have adopted time management skills, though some admit that they work overnight. The teachers also would come in to assist the learners by giving them stress-free learning activities. The study thus established that stress management among the learners was moderate.

In addition, participants were asked to indicate the frequency with which they could deal with schoolwork pressures and a mean of 3.0(SD=1.2) was obtained. This was evinced by only 4 (3.9%) of the respondents agreeing that they are always able to deal with school pressures and 17 (16.5%) of them agreeing that they are often good at dealing with schoolwork pressures. On the other hand, about a third 18(17.5%) and 16(15.5%) of the respondents admitted that they are never and rarely good in dealing with schoolwork pressures, but a respectable proportion 48 (46.6%) of the surveyed students indicated that they are sometimes able to deal with schoolwork pressures. This suggests that many of the students lack adequate academic buoyancy to handle schoolwork.

I think I am not very good at dealing with the pressures. I just try the best I can but I am not perfect. The pressure of time in relation to the things we are supposed to do in a day do not agree. Not only time, we are made to set targets and our teacher wants us to achieve them. This is another pressure that I fail to manage. Our teacher does not want us to set a small target. So, I just try but honestly some pressures I go through as a student overcome me. Like now

we are supposed to cover a set book in two weeks before we start doing the analysis with the teacher, I am finding it impossible given the very tight school routine. (AB3a L3)

Similar remarks were given as follows:

My students are not very good at dealing with the pressures we give them. This is seen in the shoddy work they are doing. And pressurizing the students is reasonable because my students cannot work without it. We give them time frames within which to do their studies and assignments. Also, they have set targets which they must achieve. But in most cases, they do not achieve them. So, the ability of my learners, from my assessment is below average. (AB3aT3)

Evidently, the remarks codes AB3aL2 and AB3aT3 support the survey findings. The learners are below average in their ability to deal with schoolwork pressures. This pressure arises from inadequacy of time; the time available is not commensurate with the workload. Additionally, learners are made to set very high targets which they cannot achieve, meaning they face the pressure of learning beyond their Zone of Proximal development. Hence, before scaffolding method was applied, the participants were unable to manage schoolwork pressures, a sign of low academic buoyancy.

Another area that was investigated was on the effect of a bad mark on the confidence of the students, the findings produced a mean of 3.0(SD=1.2), suggesting that the respondents were sharply divided on this matter. While 12(11.7%) and 18(17.5%) of the sampled students indicated that a bad mark would affect their confidence. On the other hand, 18(17.5%) and 14(13.6%) of them insisted that they don't let a bad mark in exams affect their confidence. However, 41 (39.8%) of the respondents did not divulge the effect of bad mark in English exam impact on them. The findings therefore show that many students lack ability to cope with fluctuations in performance, an indication that many students are not academically buoyant.

The findings were followed by interviews where the following information was obtained:

After we have done an exam and I score poorly, I find it difficult even to go to the teacher for consultation. You know it is very shameful to score a very low mark. ... In fact, a low mark makes me very much ashamed and I can't show my results to anybody. (AB4aL3)

The remarks were supported by another participant:

A greater majority do not care about a bad mark. That is when they will go underground. If we do not follow them up and try to encourage them, they will get lost altogether. (AB4aT1)

The responses support the findings that the students have moderate ability to withstand a bad mark. Clearly, a bad mark affects the confidence of many of the learners to the extent that the learners do not want to consult their teachers. Also, the students fear criticism by the teacher or fellow students. Although it is evident that there are those students whose confidence is not affected, a majority's confidence is negatively affected by a bad mark. This is an indication of low academic buoyancy among students before the use of scaffolding learning method.

Comparison of Pretest and Posttest Academic Buoyancy Levels

To find out the difference in the level of academic buoyancy, the pretest and posttest mean scores among experimental and control groups were compared and the differences were presented on Figure 1.

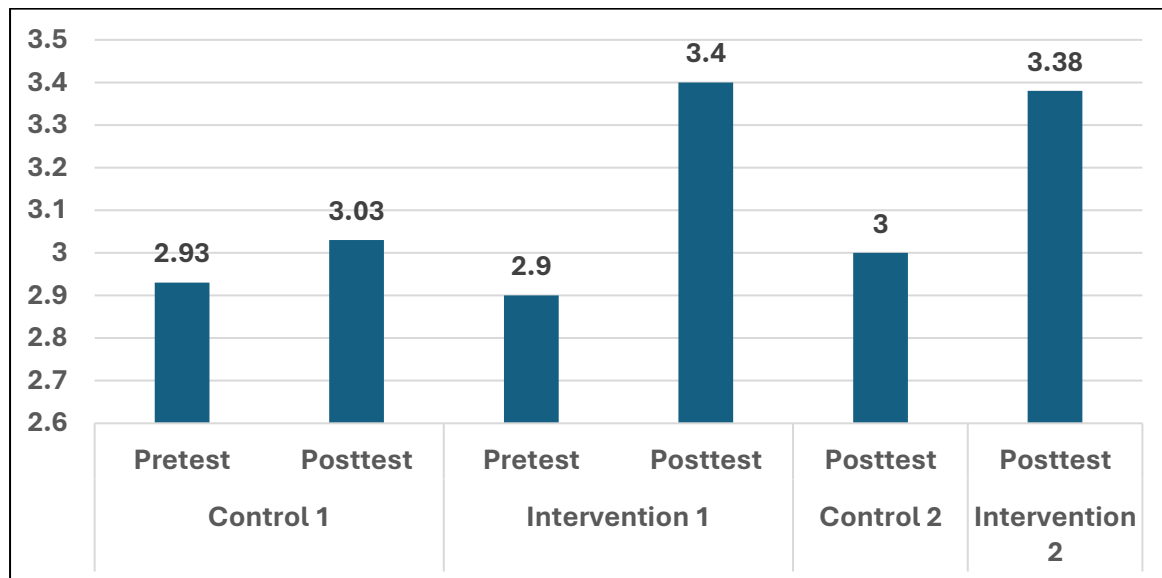


Figure 1 Students’ Level of Students’ Academic Buoyancy

The results on Figure 1 show that academic buoyancy ratings among the students was evidently lower during the pretest stage and higher during the posttest stage. For instance, using the scale of 1 to 5, the experimental group 1 students’ academic buoyancy rating improved from a composite mean of 2.90 during the pretest stage to 3.40 at the posttest stage, similar to experimental group 2 at 3.38. On the other hand, there was a negligible change in academic buoyancy rating from a mean of 2.93 at the pretest stage to only 3.03 at posttest stage among the control group 1, comparable to experimental group 2 post-test score of 3.00. These findings indicate that students who were taken through scaffolding learning technique had higher posttest academic buoyancy rating scores than their counterparts who were only taken through traditional teaching/learning techniques, implying that scaffolding learning technique has more positive influence on learners’ academic buoyancy than the normal teaching techniques.

Table 2 shows the pretest and posttest mean scores for experimental and control groups.

Table 2 Academic Buoyancy Posttest Scores

Indicators	Control grp 1 pretest	Control 1 posttest	Exp. Grp 1 Pretest	Exp. Grp 1 posttest	Control Grp 2 posttest	Exp grp. 2 posttest
I am good at dealing with setbacks at school (eg negative feedback on my work, poor results)	2.9	3.1	2.9	3.4	3.0	3.3
I don't let study stress get on top of me	2.9	3.2	3	3.5	3.1	3.4
I think I am good at dealing with school work pressures	2.8	2.7	2.7	3.3	2.88	3.3
I don't let a bad mark affect my confidence	3.1	3.1	3	3.4	3.1	3.5
	2.93	3.03	2.90	3.40	3.00	3.38

Source: Research data 2023

The results on Table 2 indicate an improvement in academic buoyancy among experimental group 1 comparing the pretest and the posttest results. Similarly, experimental group 2 students who had received scaffolding learning intervention recorded a higher posttest mean compared to control group 1 and control group 2 learners who had not received scaffolding learning treatment' the improvement is attributed to the positive effects of the treatment.

The findings reveal that before receiving the intervention the study participants rated their ability to deal with setbacks at school at 2.9 during pretest and at 3.4 after receiving treatment, while experimental group 2 recorded a posttest mean of 3.3. On the contrary, the control groups reported a negligible improvement from 2.9 to 3.1 and 3.0 for control group 1 and 2 respectively. This shows that scaffolding method had a positive effect on the learners' ability to deal with academic setbacks.

After the results, interviews were carried out and some interview extracts obtained:

... I have found a way of dealing with the issues. I have realized that the negative comment is not an insult but a wakeup call. This is possible because unlike in the past, we have enough time to learn English. We have time to discuss and compare our work. I even have time to read the work of the other students and make corrections using my fellow students' work. (AB1bL6)

Another respondent gave his comments as follows:

Your learning method has made these learners more responsible. ... they want to know the mistake they committed in their assignments so some of them are coming to me for clarification. (AB1bT7).

Evidently, there is an improvement in the way learners deal with academic setbacks. According to the excerpts, utilization of cooperative learning when they tackle academic issues in groups in addition to learning from their superior other peers helped them. The learners are taking negative feedback positively hence the learners go seeking clarification and assistance from their teachers. This is a clear characteristic of academically buoyant students.

Similarly, the ability of the learners not to let study stress get on top of them improved from a mean of 3.0 to 3.50 for experimental group 1 while experimental group 2 attained a posttest mean of 3.4. However, the control groups did not improve much as control group 1 had a pretest mean 2.9 and a posttest mean of 3.2 while control group 2 got a posttest mean of 3.1 in the ability to deal with academic stress.

Interview respondents were probed, and this is what they had to say:

The stress I have been going through was because of lack of enough time and failure to understand some topics. Nowadays we are given enough time to do our personal studies at our own pace. When we learn all of us at the same speed there are areas I do not understand, like writing skills and grammar. I want to be taken slowly so that I can understand. This is now possible. We learn from our group members. We also ask them to teach us. So I don't have much stress. (AB2bL6)

The respondent put it clear that many of the learners have found various ways of dealing with study stress, and the solution is in scaffolding learning. They are involved in cooperative learning, which they refer to as group work. In addition, the learners are learning within their ZPD, hence they do not have to load their memory with things beyond them. They are further getting support from the more knowledgeable others. These are the factors that explain the increase in mean scores in terms of the learners' ability to deal with study stress among the experimental groups. Thus, scaffolding significantly helps learners be able to manage study stress.

Moreover, the ability of learners to deal with schoolwork pressures improved from 2.7 to 3.3 and 3.3 among experimental group 1 and 2 students respectively. This was contrary to the control groups which dropped from a mean of 2.8 to 2.7 for both control group 1 and control group 2. The increase in mean scores among the experimental groups clearly shows that scaffolding method positively affected the learners' ability to deal with schoolwork pressures.

Interview participants were asked how good the learners were in dealing with academic pressures at the end of scaffolding treatment and they gave the following sentiments:

The new method seems favourable on the side of the learner since it allows them to learn without a lot of pressure. They cover very little in a duration when we would have covered a lot of content. They are now more relaxed and I think they are enjoying their studies. (AB3bT6)

The remarks support as well as explain the survey finding that the students are more able to manage academic pressures. According to the requirements of scaffolding, a learner is supposed to learn within their ZPD, and evidently this is in practice as the learners admit that they learn at their speed. Moreover, the learners mention that they do the areas that they can handle before going for more clarification from the teacher. At the same time the learners are setting achievable targets. Thus, it is evident that scaffolding is positively affecting the learners' ability to deal with schoolwork pressures, and this is an indication of academic buoyancy.

Finally, participants were asked to indicate whether they would let a bad mark affect their confidence and the pretest mean score among experimental group 1 was 3.0 while the posttest mean was 3.4. Similarly experimental group 2 who had received the treatment recorded a posttest mean of 3.5 on not letting a bad mark affect their confidence. On the other hand, the control groups maintained a mean of 3.1 throughout both groups and all tests. This shows that

students who learned using scaffolding methods were positively affected by scaffolding in their ability to remain confident in spite of a bad mark.

The study went ahead to do interviews where the following extracts were obtained.

In the past, a bad mark really discouraged me and I got ashamed. But since I started learning together with my friends, I have realized that a low mark means I have not learned properly, so I need to do a lot of consultation. So when I scored lowly in the least CAT, I went to the teacher and he showed me the mistake I had committed. It was a very minor mistake in writing and I hope to improve next time. I do not fear the teacher or my classmates at all. (AB4bL8)

The remarks were supported by another respondent as follows:

Some of my students are quite encouraged to come for clarification when they fail in a test. Some are not yet confident but a good number are. Though I do tell them to consult or try to answer a question in class or in their groups before they come to me. But still I am helping those who come to me directly. I can say that my students are more confident since they come to me without fear of criticism. (AB4bT9)

Thus, the study established that a low mark made learners even more confident. This is because the learners, apart from having confidence to seek for support from the more knowledgeable peers, they got it from their teachers. The learners did not fear criticism at all. They looked for ways of recovering from a bad mark. Thus, the findings support the increase of the mean in terms of ability of learners to regain confidence after a bad mark.

Quantitative Data Findings on The Effects of Scaffolding on Academic Buoyancy

The null hypothesis that was tested was: H_0 : there is no statistically significant effect of scaffolding on academic buoyancy among secondary school learners of English, using paired samples t-test analysis.

Table 3 Solution with the Two Group Control Group Design-Learners’ Academic Buoyancy

	Paired Differences			T	Df	Sig. (2 tailed)	
	Mean	Std. Deviation	Std. Error Mean				
Pair 1	Exp. Group 1- Pretest Buoyancy – Exp. Group 1- Posttest Buoyancy	- 6.06796	2.38567	.23507	- 25.81	102	.000
Pair 2	Control Group1 - Pretest Buoyancy – control Group 1 - Posttest Buoyancy	-.077	.818	.082	-.830	77	.409
Pair 3	Exp. Group 1-Pretest Buoyancy – Control Group 1- Posttest Buoyancy	6.051	2.710	.3069	19.72	77	.000
Pair 4	Exp. group 1-Pretest Buoyancy – Control Group 1- Pretest Buoyancy	.28205	2.72028	.30801	.916	77	.363
Pair 5	Exp. Group 1- Posttest Buoyancy – Control Group 2- Posttest Buoyancy	6.64706	3.24853	.45489	14.61	50	.000

*Significant at 5% level ** significant at 1% level

Results on Table 3 show that the paired sample t-test on pair 2 (control group 1 pretest and control group1 post-test) suggests no statistically significant difference in learners’ academic buoyancy mean scores [$t(77) = -.83, p = .409$]. Thus, the traditional teaching/learning method has no significant effect on learners’ academic buoyancy mean ratings. However, the t-test results on pair 1 reveals that there was a statistically significant difference [$t(102) = -25.814, p < .001$] between experimental group 1 pretest and post-test mean scores, suggesting a statistically significant effect of scaffolding strategy on learners’ academic buoyancy ratings. Pair 3 which compares posttests of experimental Group-1 and control Group1 reveals a statistically significant difference in learners’ academic buoyancy ratings between the two groups, $t(77) = .3069, P < .001$. Pair 5 further shows that there is difference at 0.001 significant level between experimental group post-test1 and control group2 post-test, $t(50) = 14.613, p < .001$, hence a statistically significant difference in mean scores, meaning that there was a statistically significant effect of scaffolding method on learner’ academic buoyancy. Therefore, from the results, the study established that the increase in academic buoyancy in English among students was only as a result of scaffolding learning. The confounding and extraneous variables such as pre-test sensitization were well controlled by using two experimental and to control groups, hence the effect is only attributed to scaffolding learning method.

In addition, results of Pair 4 (experimental group 1 and control group 1 pretest) indicate that the randomization process was successfully applied to sample the experimental and control

groups' participants. This was implied by the fact that there was no statistically significant difference [$t(77) = .916, p = .363$ (ns)] established between Experimental Group 1 Pretest and Control Group 1 Pretest. Hence, assuming that pretesting has no effect on post test results, the study found out that the use of scaffolding learning method is effective in improving academic buoyancy among secondary school learners.

However, it was envisioned that there may be some effect of pre-testing on post-test scores because the mean difference increased from 6.06 to 6.64 from pair 1 to 5, respectively. To ascertain the pretest did not have an effect on the posttest result, solution with the Four Control Group Design was performed and the results on Table 4 obtained:

Table 4 Paired Samples Test- Solution with the Four Control Group Design: Academic Buoyancy

Pair		Paired Differences			T	Df	Sig.
		Mean	SD	SEM			
Pair 1	Exp. Group 1-Pretest Buoyancy – Exp. Group 1-Posttest Buoyancy	-6.06	2.385	.235	-25.814	102	.000
Pair 2	Control Group 1-Pretest Buoyancy – Control Group 1-Posttest Buoyancy	-.073	.818	.092	-.830	77	.409
Pair 3	Exp. Group 1-Pretest Buoyancy – Control Group 1-Pretest Buoyancy	.285	2.720	.308	.916	77	.363
Pair 4	Exp. Group 1-Pretest Buoyancy – Control Group 1-Posttest Buoyancy	.205	2.722	.308	.665	77	.508
Pair 5	Exp. Group 2-Posttest Buoyancy – Control Group 2-Posttest Buoyancy	8.215	5.319	.744	11.030	50	.000
Pair 6	Control Group 1-Pretest Buoyancy – Exp. Group 2-Posttest Buoyancy	-7.038	4.426	.501	-14.042	77	.000
Pair 7	Exp. Group 1-Posttest Buoyancy – Exp. Group 2-Posttest Buoyancy	-.306	4.522	.450	-.682	100	.497
Pair 8	Control Group 1-Posttest Buoyancy – Control Group 2-Posttest Buoyancy	1.117	3.314	.464	2.408	50	.020

From Table 4, results of Pair 2 (control group 1 pretest and posttest) suggests that there was no statistically significant difference in learners' academic buoyancy ratings between pretest and posttest values, $t(77) = -.830, p = .409$ (ns). On the other hand, test results for Pair 1 confirms that there is statistically significant difference at .001 significance level between pretest and post-test scores of experimental groups 1, $t(102) = -25.814, p < .001$, indicating that there is a significant effect of scaffolding learning strategies on learners' academic buoyancy. The results show that learners who were taught using scaffolding strategies had a higher posttest mean score than the pretest mean score. However, for learners who were taught the normal way did not show any significant pretest-posttest difference in academic buoyancy mean scores. The improvement in academic buoyancy mean scores among the experimental group can be associated with scaffolding learning method.

In addition, the t-test results of Pair 3 (experimental group1 pretest and control group 1 pretest) suggest that the randomization process was effective during sampling stage because no significant difference was found between the two groups, $t(77) = .916, P = .363$.

Moreover, t-test in Pair 4 confirms that there is no significant difference between Experimental Group-1 pretest and Control Group1 post-test, $t(77) = .665, p = .508$, further confirming that it is only the use of scaffolding learning strategy which had a statistically significant positive effect on learners' academic buoyancy. On the other hand, the results of pair 5 proves that there is a statistically significant difference between experimental group2 and Control Group2 post-test mean scores at .001 significance level, $t(50) = 11.030, p < .001$. This indicates a statistically significant difference which can be attributed to the effect of scaffolding learning strategies. Therefore, from t-test results from par 4 and 5 the study found out that scaffolding had a positive effect on the learners' academic buoyancy.

Moreover, the mean difference in learners' academic buoyancy ratings for pair 3 is slightly higher than that of pair 4, suggesting that, although pretest could have increased the learner's sensitivity or responsiveness to learners' academic buoyancy questionnaire items, the influence was negligible.

On the other hand, the result of the test in Pair 6, $t(77) = -14.042, p = .001$, between experimental group 2 posttest and control group 1 pretest, indicate a statistically significant difference in the mean scores. On the contrary, there is no statistically significant difference in pair 7 (experimental group 1 pretest and control group 2 posttest), $t(100) = -682, p = .497$. Similarly, pair 8 shows no significant difference between control group 1 posttest and control group 2 posttest mean scores, $t(50) = 2.408, p = 0.20$. Hence the results between pair 6 to 8 are a clear indication that external factors had not been included in the study and improvement on learners' academic buoyancy is largely due to use of scaffolding learning technique. Therefore, considering the results in Pair 1 supported by the findings in Pairs 2-8, there was sufficient evidence that scaffolding had a statistically significant effect on the English learners' academic buoyancy. Hence, the null hypothesis: 'there is no statistically significant effect of scaffolding on English learners' academic buoyancy' was rejected.

Discussion

Survey findings reveal that learners who went through scaffolding learning technique attained a higher posttest academic buoyancy mean scores while students who were taught normally recorded a lower mean score where experimental group 1 had a pretest academic buoyancy mean score of 2.9 and a posttest mean score of 3.40, comparable to experimental group 2 posttest mean score of 3.38. On the other hand, control group 1 posted a pretest buoyancy mean

score of 2.93 and a posttest mean score of 3.03 like that of control group 2 of 3.00, indicating negligible improvement. The results imply that scaffolding had a positive effect on the academic buoyancy of learners who learned using scaffolding process.

Paired sample t-test analysis further revealed a statistically significant mean score differences between experimental groups control groups, exemplified by experimental group 2 posttest and control group 2 posttest, $t(50) = 11.030$, $p < .001$. Additionally, there was a statistically significant mean score difference between experimental group I posttest and experimental group 1 pretest, $t(77) = -.830$, $p = .407$. However, there was no statistically significant difference between the pre-post mean score of control group 1, $t(102) = -25.81$, $p < .001$. Hence from the t-test, the study established a statistically significant positive effect of scaffolding on English learners' academic buoyancy.

From qualitative data analysis respondents admitted that before interacting with scaffolding learning, academic buoyancy among learners was low. This was evidenced by the inability of the learners to deal with academic setbacks, as well as negative feedback. Moreover, schoolwork pressures would overwhelm the learners, and they could not manage work stress. On a positive note, the learners who went through scaffolding took the setbacks, pressures and a bad mark positively. The learners also discovered how to manage schoolwork stress through cooperative learning and other scaffolding techniques. Therefore, the study found out that scaffolding played a positive role in boosting academic buoyancy among learners.

CONCLUSION

Scaffolding made learners develop academic buoyancy because learners who were exposed to scaffolding method scored more highly than learners who were taught normally. Moreover, from qualitative data the study concluded that because of scaffolding method, learners were able to overcome the daily academic setbacks such as low marks, negative feedback as well as academic stress. This could be because learners got the support, they needed not only from their more knowledgeable peers but also from their teachers. Also, with respect to experimental data the study concluded that the statistically significant effect of scaffolding on self-efficacy was attributed to scaffolding only and not to any other variable. This is because the comparison of the results from the posttest only control groups showed that pretest did not influence the results in any way. Thus, the study concluded that to boost academic buoyancy among learners, scaffolding would be a better option.

Therefore, with respect to the overall findings, the study concluded that scaffolding and the Zone of Proximal Development by Lev Vygotsky were very effective in boosting learners' academic buoyancy. Learners were able to learn within their ZPD. At the same time as the learners did their studies, they got contingency support from the superior others through explanations and demonstrations from teachers and cooperative learning such as group discussions, peer teaching and seeking for clarification in relation to Lev Vygotsky's socio-cultural theory. Furthermore, there was transfer of responsibility from the teacher to learners which made learners do their studies on their own with minimum support from the teacher. Therefore, for learners to effectively learn English as a subject, scaffolding is the most appropriate learning method.

REFERENCES

- Atandi, B.C., Gisore, B. & Ntabo, A.J., (2019). *Influence of teaching methods on students' academic performance in Kiswahili subject in public and private secondary schools in Lang'ata sub-county. African Research Journal of Education and Social Sciences*, 6(2), 16-24.
- Boundless (2016). *Human Language Development: Boundless Psychology*.
<https://www.boundless.com>
- Braun, V., & Clarke, V. (2012). Using thematic analysis in psychology. *Qualitative research in psychology* (3) 11-101
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage.
- Gong, C., Tan, C. & Chin, C.K. (2018). Scaffolding instruction for Chinese essay writing with assessment as learning. *Teaching Chinese Language in Singapore, 1*, 121-134. DOI: 10.1007/978-981-10-8860.5-9
- Jones & Bertlett. (2000). *Nurse's Drug Handbook*. Sudbury, MA, Jones and Bertlett Publishers
- Kenya Institute of Curriculum Development (2017). *Basic Education Framework*. Nairobi. Kenya Literature Bureau.
- Kenya Institute of Education (2012). *Secondary Education English Syllabus*. Volume 2. Nairobi. Government Printers
- Levy, Y., & Ellis, T.J. (2011). A guide for novice researchers on experimental and quasi-experimental studies in information systems research. *Interdisciplinary Journal of Information, Knowledge and Management*, 6(1), 151-161
- Ma, X., Xie, D., Luo, S., & Tian, S. (2023). Research on English teaching practice in high school based on independent learning theory. *Open Journal of Social Sciences* 11(11) 397-419
- Maiko, R.B. (2018). *Strategies employed in teaching integrated English and their influence on performance among secondary school students in Kenyena Sub-County, Kisii County* [Published MED Thesis, Kenyatta University] <http://ir-library.ku.ac.ke/handle/123456789/18656>
- Mahan, K.R. (2020). The comprehending T\teacher: Scaffolding in content and language integrated learning (CLIL). *The Language Learning Journal*, 2, 34-45. DOI: 10.1080/09571736.2019.1705879
- Martin, A.J & Marsh H. (2020). Academic buoyancy: Towards an understanding of students everyday resilience. *Journal of School Psychology*, 46(1), 53-83
- Martin, A.J & Marsh H. (2008). Academic buoyancy: towards an understanding of students everyday resilience. *Journal of School Psychology*. DOI: 10.1016/j.jsp.2007.01.002
- Mercer, (S. 2018). Psychology for language learning. Spare a thought for the teacher. *Language Teaching*, 51(4),504-525
- Miller, G.A (1956). The magical number seven plus or minus two, some limits of our capacity for processing information. *Psychological Review*, 63, 81-97

- Murigase, G. & Desai, Z. (2020). *Language of instruction and quality of education in Rwanda: A case study of secondary schools' third form learners in the Gisagara District*: <http://hdl.handle.net/11394/7244>
- Mutsotso, E. & Nabukonde, L. (2019). An analysis of characteristics and students' understanding of integrated English skills approach in teaching English language in selected secondary schools in Nairobi County. *African Research Journal of Education and Social Sciences*, 6(1), 20-34.
- Omuna, M.O., & Kurgatt, C.K. (2023). Influence of teaching methods used on the acquisition of English reading skills in secondary schools in Kenya. *International Journal of Innovative Research and Development*, 12(11), 15-21
- Sarikas, C. (2020). *Vygotsky Scaffolding: What it is and how to Use it*: <https://blog.prepscholar.com>. Retrieved from <https://www.cfrinc.net>
- Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257-285
- Sweller, J. (2003). Evolution of Human cognitive architecture. *The Psychology of Learning and Motivation*. 43 (2003), 215-266
- Van de Pol, J., Volman, M. & Beishizen, J. (2018). The effects of scaffolding in the classroom: support contingency and student independent working time in relation to student achievement, task effort and appreciation of support. *Instructional Science*, 43(5), 615-641
- 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
- Vygotsky, L.S. (1978). *Mind in Society. The Development of Higher Psychological Processes*. Cambridge, MA: Harvard University Press
- West, A., Swanson, J., & Limpscomp, L. (2019). *Instructional Methods and Strategies to Meet the Needs of all Learners*.: <https://granite.pressbooks.pub>
- 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
- Zelnick, E. (2017). *Teacher induction mentor support for beginning English teachers: a narrative enquiry*: California University from: <https://www.Academia.edu>

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