# TASK-BASED LEARNING AND LEARNER ACHIEVEMENT IN READING COMPREHENSION IN PRIMARY SCHOOLS IN NAIROBI, KENYA: FOCUSING ON LEARNER CRAFTED OUESTIONS

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### **ABSTRACT**

Effective employment of question creation technique incorporates stimulation cognitive processes while monitoring understanding for optimal learning. However, improperly crafted questions could undermine active reading by preventing learners from accurately assessing own comprehension. Objective was influence of designing questions on learner achievement in reading comprehension in public primary schools in Nairobi, Kenya. A sample of 506 was purposive, simple random sampling, principles of Solomon Four Group design and census model. The response rate was 94.1% translating to 476 learners who completed and were included in analysis. Quasi-experimental design based Solomon Four Group Design was used yielding 223 and 253 learners assigned to experimental and control groups respectively and eight teachers of English. Data were captured using reading comprehension in-class quizzes, questionnaires, observations, and follow-up discussion sessions. Learners in experimental group obtained post-test mean 33.47 (SD=15.55); control group obtained mean of 26.82 (SD=12.76),indicating experimental scored highly in post-test than

control group, not exposed to creating questions. The analysis obtained t-statistic of 3.24 (df=428, p=0.001), suggesting up to 99% chance that mean obtained by learners in experimental and control groups were significantly different. Prior to reading, asking questions, checking responses, and moving up and down were significantly correlated with reading comprehension ability concluding that generating questions enhances text comprehension for improved achievement. Multivariate analysis revealed that moving back and forth text caused the greatest improvement in achievement in reading comprehension in experimental and *control groups* (B = 0.153, Beta = 0.140, t =2.044, p = 0.042; B = -0.149, Beta = -0.139, t = -1.911, p = 0.057). However, the effect was stronger in experimental group which could be attributed to training provided to teachers in experimental group. Teachers should be urged to adopt self-questioning strategies instructing when reading comprehension.

**Key Words**: Asking questions, confirming answers, moving back and forth, reading comprehension, task-based learning.

### INTRODUCTION

Task-based learning premised on development of reading abilities in specifically through design of quizzes that support instructor workload and learner distinctiveness, improves achievement in reading comprehension. In situations where workload is less, there is possibility of balancing questions and creating more inquisitive queries to boost understanding for better learning outcomes. According to van der Meij (1994), questioning may be discerned as raising questions because of observing cognitive conflict that prompts internal discussion targeting identifying solutions for better text comprehension. On the other hand, when answers are not within reach, questions are posed to increase learning and accomplishment through social interaction for increased grades. Asking questions before reading, reviewing answers, and keeping an eye on understanding tends to trigger deeper levels of thinking and reflection for better comprehension capabilities. Moreover, Wong (1985)claimed that using questions to activate prior knowledge to interpret incoming content may aid reading comprehension for better learning outcomes. In the same vein, Han & Choi (2018) contended that learner created questions enhance assimilation of material read which may possibly improve reading comprehension capacities consequently raising learner achievement.

However, inadequately constructed question generation strategy may weaken connecting past knowledge to content to be read by compromising understanding, lowering attainment.

Additionally, Taboada et al. (2012) claimed that learner generate questions may promote a sense of autonomy and control over the learning process by increasing awareness of understanding of content for sustained learning. In support, Bugg and McDaniel (2012) learner generated questions stimulate engagement with reading materials strengthening cognitive surveillance of comprehension passages for accelerated learning. On the one hand, incorrectly organized question generation strategy may inhibit ability think critically creating less inquisitive queries resulting in impoverished grades in comprehension. Moreover, moving up and down the text develops understanding by stimulating engagement with content for high scores. According to Zargar, Adams, and Connor (2020)identifying misconceptions early on in comprehension process can expedite remediation for higher grades. On the one hand, incorrectly organized questions have the potential to impair comprehension regulation and reduce attainment.

#### STATEMENT OF THE PROBLEM

Prioritizing innovative inquiry in task-based learning may enhance acquisition of enriched vocabulary leading to higher test scores. However, if questioning may not be appropriately sequenced concept generation by incorrectly appending suffer confirmation of responses. Additionally, task-based learning centred on verifying responses to questions while reading may hasten comprehension development. On the one hand, inability to properly affix confirmation of responses may reduce comprehension grades. Moreover, task-based learning revolving around going up and down the text asking questions may boost comprehension scores. Nevertheless, attainment may be decreased in situations where task-centred learning may not be effectively linked to up and questioning. Based on this, the study sought to establish effect of question creation on learner achievement in reading comprehension.

## PURPOSE AND OBJECTIVES OF THE STUDY

The purpose of this study was to examine effect of learner-generated questions on achievement in reading comprehension in public primary schools in Nairobi City County, Kenya. Objectives were to:

 Determine the effect of asking questions before reading on achievement in comprehension.

- ii) Establish the effect of confirming answers while reading on learner achievement in reading comprehension.
- iii) Assess the effect of pausing and returning to material on learner achievement in reading comprehension.

# REVIEW OF RELATED LITERATURE Asking questions before reading and accomplishment in comprehension

Task-oriented learning anchored on reading competencies built on learner-made quizzes focusing on asking questions before reading with learner characteristics and manageable teacher workload tends to activate prior knowledge to predict content and connect messages for improved acquisition of comprehension skills. Prior to reading, asking oneself questions enhances prediction of themes in the text for increased understanding. According to Irawati (2019), questions to weld using background knowledge to anticipated content improves mastery of passages for effective learning. In instances where learner generated questions are inappropriately structured, connecting concepts may be weakened, restricting extensive construction of cognitive networks lowering attainment. Additionally, Janssen (2002) claimed that learners formulate questions prior to reading to recollect previous experiences for better textual comprehension.

In circumstances where question formation is hampered, connecting prior knowledge to new concepts may be weakened lowering accomplishment in reading comprehension.

Task-based learning premised on development of reading abilities focusing of crafting questions especially validating responses while reading with supportive teacher workload may increase achievement in reading comprehension. According to Joseph et al. (2016) checking answers while reading enables the learner to keep track of reading comprehension promoting autonomous learning for higher comprehension capabilities. More still, Amalia and Devanti (2016) asserted that learner awareness of content sought improves reading material appraisal for rapid learning. According to Black et al., (2002), self-questioning stimulates learners to assess monitor understanding for rapid learning. Furthermore, Underwood (1997) observed that searching for answers while reading improves active engagement by directing attention to key concepts for high accomplishment. Inappropriately designed confirmation process for references may lead to frustrations and disengagement reducing attainment in comprehension.

Once more, rereading material and asking questions to acquire clarity on discrepancies noticed helps to construct meaning more effectively for better mastery of concepts.

In situations where pausing to check for understanding is compromised, making sense of text read is hampered which lowers attainment. Generation of questions may occur when learners detect inconsistencies that exist between incoming information and prior knowledge (Chin and Osborne, 2008) effective learning. Self-questioning increases awareness of comprehension for better mastery of concepts. Self-questioning stimulates learners to self-evaluate and monitor understanding (Black et al., 2002). Opening a line of communication with oneself encourages the mind to search for trends and connections, making link with past knowledge and creating bridges to new perspectives to transform themes into new meaning (Chin and Osborne, 2008). According to Wong (1985) pausing when unable to provide a response to self-created questions to activate background knowledge improves comprehension ability for effective learning.

In support of this, van der Meij (1994) suggested that raising a question heightens awareness of knowledge gaps and initiates the process of employing inner dialogue for deeper understanding of reading material. Nevertheless, reading without challenging understanding of text may hinder growth, lowering grades.

The study was guided by Schema theory by Bartlett (1932) which supports building and utilizing prior knowledge during the reading process. According to Munsakorn (2015), self-questioning integrates previous knowledge with literal meaning of text increasing text understanding for effective learning. Moreover, Kibui (2012) asserted that everyone has schema for every experience encountered which may affect interpretation of reading materials.

In the same vein, Munsakorn (2015) argued that prior knowledge personalizes questions crafted for accelerated learning. On the other hand, reading comprehension is impaired when learner lack schema, lowering grades. In essence, comprehension entails harmonizing prior knowledge to incoming content using self-questioning for improved attainment. Based on this, the theory focuses on the concept that learning takes place when learners activate background knowledge by crafting questions and predicting answers to activate schema improving text comprehension for sustained learning.

The conceptual framework in Figure 1 displays connection between competency in question generation and attainment in understanding content read.

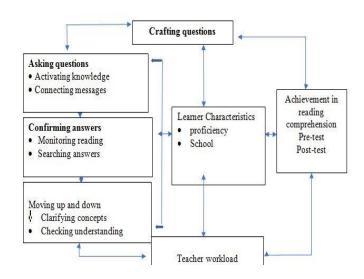


Figure 1: Perceived frame of question generation and achievement in reading comprehension

The study conceptualized a relationship between formulation of questions and learner success in reading comprehension. Question generation was realized through posing questions before reading, verifying answers, and scrolling up and down the text influenced by learner characteristics and teacher workload for accelerated learning.

# RESEARCH METHODOLOGY

**Positivist** and constructivist research paradigms served as the study's foundation. The study was quasi experimental involving Solomon Four Group design which mixes pre-test post-test and post-test only group designs. All teachers and learners in public primary schools in Nairobi City County were targeted. Within schools, class seven learners were incorporated in the study. Based on the research paradigms, both quantitative and qualitative methods were applied to capture primary data on creation of questions when reading comprehension passages.

The decision to use standard 7 was informed by learners' sufficient exposure to language to engage in meaningful conversation during task-centred instruction. The sample size was established using Solomon Four Group Design principles, census data, simple random sampling, and purposeful sampling. Four educational divisions were involved based on simple random sampling, deriving 2 schools from each division according to socio-economic criteria. The process yielded 8 schools with one teacher of English from each school selected language Furthermore, 476 of 506 purposively. learners successfully completed the study yielding a response rate of 94.1%.

Eight public primary schools were randomly assigned to four groups based on the design's guiding principles; experimental group which received both pre- and postintervention, experimental group receives post-test only, control group which received pre- and post-intervention and control group with post-test only. The four groups were subjected to post-test after treatment period. The experimental group included schools code named A, B, C and D, (n=223), while control group consisted of schools E, F, G and H, (n=253). Teachers of English in the experimental group were trained on application of task-based learning while control group were not.

Again, learners in schools B and C in experimental group and schools F and G in control group were exposed to pre-test. After observation, learners in the eight schools were subjected to post-test. Data capturing tools were created, developed, piloted, and verified before actual data collection. The pilot study was conducted between July and September 2021 and required modifications were integrated. The tools comprised a set of questionnaires for learners and for teachers of English, class observation. reading comprehension achievement test (pre-and post-test) and follow up discussion sessions. To increase reliability and validity, data capturing tools were triangulated.

Quantitative analysis techniques included One-way **Analysis** of Variance for generating means; independents samples ttests to determine significance of variations between scores achieved by two groups, cross tabulations with Chi Square tests to ascertain relationship between learner perceptions of practises and post-test scores and multiple regression analysis assess effect learner generated of questions on achievement in reading comprehension. Thematic analysis was performed transcribed qualitative data detect to recurring themes in reading comprehension achievement. Statistical Package for Social Sciences (SPSS) version 26 was used to analyse quantitative data.

Ethical guidelines for social research were adhered to in the study. Authorization letter for capturing data was received from National Commission for Science, Technology, and Innovation as well as introductory letter from University of Nairobi to streamline the procedure.

#### RESULTS AND DISCUSSION

The findings demonstrated that the creation of questions had a positive influence on achievement in reading comprehension. This was assessed using reading post-test scores in reading comprehension displayed in Table 1.

Table 1: Variation in post-test scores between learners in experimental and control groups

a)

Independ ent Samples Test		Post		Exper iment	N 2 2 2	M ea n	Std. Devi atio n	Std. Erro r Mea n	95 % CI Lo we r 32. 42	95 % CI Up pe r 34. 51
				al Contr ol	3 2 5 3	29. 21	12.7 6	0.8	6 28. 40 8	30. 01 2
		Leve Test Equa of Vari es	for ality	t-test for	Equ	ality of	Means			
		F	Si g.	t	d f	Si g. (2- tai led )	Mea n Diff eren ce	Std. Erro r Diff eren ce	Do we r	Up per
P os t- te st	Equ al vari ance s assu med	8. 17 9	0. 00 4	3.28	4 7 4	0.0 01	4.28	1.3	1.7 07	6.8
	Equ al vari ance s not assu med			3.24	4 2 8	0.0 01	4.28	1.31	1.6 74	6.8 49

According to results presented in Table 1, post-test scores for learners in experimental group was 33.47 (SD=15.55); while those in control group obtained a mean score of 26.82 (SD=12.76). This indicated that experimental group outperformed the control classes who not exposed to activity-centred learning, in post-test. The outcomes of the study showed t-statistic of 3.24 (df=428, p=0.001), suggesting there was up to 99% possibility that mean obtained by learners in experimental and control groups differed significantly. This showed that task-based education had a substantial impact on improving comprehension of text.

Furthermore, mean obtained by learners in experimental group (33.47) was greater than of control cohort (29.21). The findings demonstrated that educating instructors in proper implementation of activity-centred learning improved learner progress in acquisition of question crafting skills for better learning outcomes. The study results are consistent with Anyienda, Odundo and Kibui (2019) observation that teacher preparation on proper use of creative approaches improved learner reading comprehension success.

In this part, learners were required to rate opinions on question creation on a scale of one to four using the following options: 'strongly disagree', 'disagree', 'agree' and 'strongly agree'.

ISSN: 2708-261X, Vol 4. No.3 (2023) pp 116-128

To quantify comprehension abilities, learner opinions on question development were cross-tabulated against post-test results sorted into four categories of, '20 marks', '20-29 marks', '30-39 marks' and above 40 marks.' The analysis conducted are describe in the ensuing subsections shown in Table 2.

II. **TABLE 2**: QUESTION GENERATION AND ACHIEVEMENT IN READING COMPREHENSION

Ques	Post-test scores										
tion gene ratio	<20	0	20-	29	30-	-39	40-	40+		tal	Chi -
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											are
											An alys
											is
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	e		e		e		e		e		
	q		q		q		q		q		
I ask m	ı · ıvsel	f aue	· stion	s abo	ut w	hat	•		•		
the tex											
Stron	1	1	1	9.	8	6.	3	2.	3	7.	χ2
gly	2	0.	2	6		2		8	5	4	=17
disag ree		6 %		%		%		%		%	.64 5;
Disa	1	1	9	7.	1	1	2	1	5	1	df=
gree	6	4.		2	3	0.	0	8.	8	2.	9;
		2		%		0		5		2	p-
		%				%		%		%	val
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e	3	8. 1	6	4. 8	8	4. 6	)	2. 4	9	0.	40
		%		%		%		%	_	%	
Stron	4	3	4	3	5	3	5	4	1	4	
gly	2	7.	8	8.	1	9.	0	6.	9	0.	
agree		2		4		2		3	1	1	
I confi	rm o	% new/	re to	%		%		%		%	
questic					t.						
Stron	1	8.	7	5.	1	9.	6	5.	3	7.	χ2=
gly	0	8		6	2	2		6	5	4	19.
disag		%		%		%		%		%	758
ree Disa	2	1	2	2	1	1	6	5.	7	1	; df=
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		%		%		%				%	val
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e	9	4.	0	2.	5	6.	6	2.	6	3.	0.0 19
		5 %		0 %		9 %		6 %	0	6 %	19
Stron	4	3	5	4	6	5	5	4	2	4	
gly	4	8.	1	0.	5	0.	0	6.	1	4.	
agree		9		8		0		3	0	1	
~ .	بــا	%		%		%		%		%	
Going	back	and	torth								

asking	ques	tions									
Stron	1	1	1	1	1	9.	1	1	6	1	χ2=
gly	9	6.	8	4.	2	2	2	1.	1	2.	10.
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ree		%		%				%		%	;
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gree	0	7.	0	6.	7	0.	2	0.	9	8.	9;
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		%		%		%		%		%	val
Agre	3	3	4	3	3	3	4	4	1	3	ue=
e	4	0.	9	9.	9	0.	4	0.	6	4.	0.3
		1		2		0		7	6	9	25
		%		%		%		%		%	
Stron	4	3	3	3	5	4	3	2	1	3	
gly	0	5.	8	0.	2	0.	0	7.	6	3.	
agree		4		4		0		8	0	6	
		%		%		%		%		%	

The initial claim was to pose queries regarding a forthcoming text. Table 2 indicated that of 476, 383 (80.4%) admitted to using questions to integrate prior knowledge with reading material, whereas 93 (19.6%%) did not. Comparison of results showed a strong association between asking questions and successfully completing reading comprehension tasks at confidence level ( $\chi$ 2 value of 17.645, df=9, &  $\rho$ -value =0.040). Of 8 teachers, 5 (62.5%) fully approved and 1 (12.5%) highly supported crafting questions to understand text. However, 1 (12.5%) teacher had reservations and 1 (12.5%)strongly disagreed. This implied that majority of educators, 6 (75.0%) approved use of inquiry to learn about upcoming materials. Lessons observed revealed that, in contrast to control group, learners in experimental class were encouraged to engage schema about subject by asking questions before reading.

The outcomes support Lopez-Rizzi (2016), who claimed learners must ask questions that advance understanding and knowledge for improved attainment. This indicated that asking questions before reading hastened connection with comprehension passages for raised performance.

Confirming responses to queries while reading was the second statement. On this point, Table 2 indicated that of 476, 370 (77.7%)agreed with the perception statement, while 106 (22.3%) learners did not. A substantial correlation, detected at 95% confidence level was found by crosstabulating learner opinions and post-test scores ( $\chi$ 2 value of 19.758, df=9, &  $\rho$ -value =0.019). Findings corroborated results from teachers' questionnaires indicating that of 8 teachers, 4 (50.0%) supported checking response while reading, and 2 (25.0%) agreed strongly. On the other hand, 2 (25.0%) teachers disapproved the statement. This suggested that majority, 6 (75%) considered confirming predictions while reading as a strategy that promotes active participation in the reading process. Lesson observations showed that learners in experimental group received greater support from teachers than those in control class. This is consistent with Janssen (2002) assertion that teaching learners to pose questions during reading facilitated progress toward long-term learning.

Learners shared thoughts on the strategy moving up and down the text. Results in Table 2 showed that of 476, 326 (68.5%) respondents agreed that reading for clarity enhances comprehension. This indicated that most participants valued the ability to switch between concepts for better mastery. However, 150 (31.5%) disagreed with the According to cross-tabulation assertion. data, there was no significant link between learner's increased scores and moving up and down the text while questioning ( $\chi$ 2 value of 10.319, df=9, &  $\rho$ -value =0.325). Findings from teachers' questionnaires further revealed that of 8 teachers, 1 (12.5%) valued obtaining clarification on parts of passage already read, while 3 (37.5%) teachers agreed strongly. However, 3 (37.5%) teachers objected severely to switching back and forth the text asking questions, while 1 (12.5%) opposed strongly. This implied that only one half of the teachers were in favour of reading backwards and forwards alternately seeking of clarification concepts for greater comprehension capabilities.

During lessons, experimental and control groups were observed moving back and forth while posing questions in aid of learning. However, more learners in experimental than control groups were encouraged to travel back and forth the text asking questions for ease of understanding Oluoch, Odundo and Kahiga (2023) argued that drawing on prior

ISSN: 2708-261X, Vol 4. No.3 (2023) pp 116-128

knowledge enhances connection of concepts for increased understanding of passages. The finding implied that checking concepts while reading text helps monitor knowledge of subjects for better learning outcomes.

The study sought to ascertain effect of learner generated questions as a component of development of reading abilities for raised grades. The independent variable was learner generated questions comprising asking questions before reading, confirming answers to questions, and moving back and for text, while dependent variable was achievement in reading comprehension as presented in Table 3.

Learne	er Generated					
Questi	ons					
Resp		Un	stan	Stan	t	S
onse		dar	dize	dardi		i
Grou		d		zed		g
ping			effic	Coef		
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			d.			
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-	(C + 1)	1	ror		-	
Expe	(Constant)	1.	.3		3.	
rime		2	13		86 4	0
ntal		1			4	0
	I11£		0	.104	1	U
	I ask myself	.1	.0 84	.104	1. 49	
	questions about what the text will be	2	84		7	1 3
	about.	O			/	6
	I confirm answers to	.2	.0	.182	2.	0
	the questions as I	1	80	.102	68	0
	read the text.	4	00		9	0
	read the text.					8
	Going back and	.1	.0	.140	2.	
	forth asking	5	75		04	0
	questions.	3			4	4
	•					2
Cont	(Constant)	2.	.3		8.	
rol		5	07		16	0
		0			7	0
		5				0
	I ask myself	.0	.0	.044	.6	
	questions about	5	87		17	5
	what the text will be	4				3
	about.					8
	I confirm answers to	.0	.0	.037	.5	
	the questions as I	4	83		20	6

read the text.	3				0
					4
Going back and	-	.0	139	-	
forth asking	.1	78		1.	0
questions.	4			91	5
_	9			1	7

Results Table 3 indicated that experimental group represented by the intercept (1.211), was statistically significant (t = 3.864, p < 0.001), indicating meaningful achievement even without predictor variables. While asking questions about the text content does not significantly influence achievement (B = 0.126, Beta = 0.104, t = 1.497, p = 0.136), confirming answers through reading (B = 0.214, Beta = 0.182, t =2.689, p = 0.008) and going back and forth asking questions (B = 0.153, Beta = 0.140, t = 2.044, p = 0.042) both show statistically significant positive effects on learner achievement. The findings uphold potential efficacy of confirming answers and dynamic question generation in enhancing reading comprehension within the experimental context.

On one hand representing the control group represented by the intercept (2.505), was statistically significant (t=8.167, p<0.001), serving as a reference point for comparison with the experimental group. Asking questions about the text content (B=0.054, Beta = 0.044, t=0.617, p=0.538) did not significantly influence learner achievement. Similarly, confirming answers through reading (B=0.043, Beta = 0.037, t=0.520, p=0.604) was not a statistically significant predictor of achievement in the control

group. However, going back and forth asking questions (B = -0.149, Beta = -0.139, t = -1.911, p = 0.057) exhibited a marginally significant negative influence on learner achievement. The findings suggested that specific learner-generated question strategies may not significantly influence achievement within control context, with a potential indication of a minor negative effect associated with dynamic question generation.

By implication, findings underscore contextdependent nature of influence of learnergenerated questions reading on achievement. While comprehension confirming answers and dynamic question generation show promise in enhancing comprehension within experimental setting, the lack of significant effect in control group suggests that efficacy of strategies may vary based on instructional context and learner characteristics. Notably, outcomes suggested that encouraging students to confirm answers and employ dynamic question generation strategies may be effective in enhancing reading comprehension within experimental context only. Consequently, differences in influence of learner-generated questions between experimental and control groups underscore effectiveness of potential experimental intervention in enhancing achievement in reading comprehension.

### CONCLUSION

Based on the results, conclusion was drawn that learners in experimental group outscored those in control class in achievement in reading comprehension. There was significant correlation between asking questions before reading, confirming answers while reading and achievement in reading comprehension. Going back and forth text strategy caused the greatest effect in achievement in reading comprehension in experimental and control groups. However, the effect was stronger in experimental group. This was attributed to training provided to teachers.

## RECOMMENDATIONS

This study recommended reorientation of innovations in teacher preparation programs for effective teaching of question creation competencies. Increased teacher participation in conferences, workshops and refresher training sessions may increase teacher capacity in implementing question generation for sustained learning. The study suggested further research on interventions on learner crafted questions in reading comprehension.

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