

TEACHING AND LEARNING

Edited:
E. T. Ehiametalor
E. Ojeme
Mon. Nwadiani

NIGERIA EDUCATIONAL RESEARCH ASSOCIATION

CHAPTER TEN

A STUDY OF SELECTED CRITICAL DECODING BEHAVIOURS AMONG UNDERGRADUATE TEACHER TRAINEES

M. E. INYANG-ABIA

FACULTY OF EDUCATION
UNIVERSITY OF CALABAR
CALABAR - NIGERIA.

INTRODUCTION

The ability and capacity to read meaningfully, listen attentively and follow direction accurately are critical to the success or otherwise of students in the school system. When related to teachers, deficiency in such critical decoding behaviours can be seriously detrimental to instructional effectiveness.

If these critical decoding behaviours are so important in an individual's life then one may wonder if the school has adequately directed its attention to them. And if so whether the students, particularly the teacher trainees do, in fact, adequately exhibit such critical decoding skills.

The Background

The decoding behaviours of interest are listening, reading and following direction. To decode means to translate into meaningful form. Decoding behaviour can be affected by a variety of factors prominent among which are individual differences, developmental age, cultural background, level of diction, attentiveness, experience, cognitive skills, and quality of the encoded information among others.

Essentially, no attention is given in formal education to listening as a decoding behaviour. That is why Heinich, Molenda and Russell (1982:141) protest that:

Listening is a skill, and like all skills
it can be improved with practice.

In support of this, Brown, Lewis and Harclerod (1977:20) after a series of reviews of research by Taylor (1964) emphasize that:

- 70% or more of the average adult's working day is spent in verbal communication - with 45% of that time used for listening.
- Nearly 60% of the time in elementary classrooms and 90% of the time in high schools and colleges, is likely to be spent in listening.
- Improving listening skills must be planned for and developed by thoughtful application and practice.

It is ironical that despite the much time spent for listening, formal instruction in schools hardly gives it the attention it deserves. This noncommittal attitude of the school to listening behaviour could actually result in poor listening skills - which could contribute to low level of academic performance. Related to this study, the critical listening ability of the teacher trainees is crucial.

Reading constitutes a major area of concentrated effort in formal education. Heilman (1977:5-6) defines it as "interacting with language that has been coded into prints". It involves "decoding prints into sounds and decoding a graphic representative of language into meaning". Reading, incidentally, is a singular pre-occupation of students and those connected with the teaching profession. Its importance as a major decoding behaviour is underlined by the emphasis it receives at all educational levels. This wellplaced emphasis on reading can be justified by its role in an adult's life. It is a major decoding behaviour which deficiency limits not only an individual's ability to communicate but, more importantly, the capability to effectively and critically use even the limited available information or data. Probably, it is this understanding that underlines the need for the Federal Military Government to re-design and re-emphasize the adult and non-formal education through its MAMSER programmes.

Despite the importance of reading to an individual it is questionable how well or critically people do read. Hoover (1972:226) emphasizes that:

Literally thousands of high school students ... are "academically crippled" as a result of reading deficiency ...

This situation can become debilitatingly crippling when such students are teacher trainees from whom high critical reading skills are often demanded in their daily functions. This is underscored by the fact that teachers' level of knowledge and currency in relevant developments in their various subject areas with their analytical ability depend, to a large extent, upon their critical reading ability.

The Problem

Educators are beginning to seriously doubt the critical decoding behaviour of the teacher trainees in particular, among other students. There are occasions in which they perform poorly in examination for the simple reason that simple instruction was not followed. Yet, critical decoding behaviours such as critical listening and reading ability as well as capability to follow instruction accurately are very essential qualities not only necessary for academic and professional proficiency but also for success as creative persons, parents and citizens of the modern society.

This paper contends that to improve upon the quality and performance of students with their functional existence in the society and thus enhance the creative ability of the society through the school.

There is a pressing need to improve upon the current level of critical decoding behaviours through formal instruction and relevant exercises. As an initial step towards such new dimension, three critical decoding behaviours (listening, reading, following direction) have been identified for preliminary investigation with the following questions:

- (a) How critical do undergraduate teacher trainees listen to or read simple materials?
- (b) How accurately do they follow simple instruction to carry out simple tasks?
- (c) Is there any significant relationship between scores on critical Decoding Behaviours (CDB'S) and academic performance of undergraduate teacher trainees?
- (d) Is there any significant sex differences in the CDB's test scores?
- (e) Do science and arts oriented students score significantly differently in the CDB's tests?

Research Hypotheses:

Based on the research questions posed above, the following hypotheses are proposed:

- (a) There is no significant relationship between scores on CDB's and academic performance.
- (b) There is no significant difference in the scores of male and female undergraduate teacher trainees in the CDB's.
- (c) The Arts and Science oriented students do not score significantly differently in the CDB's.

Sample:

A total of 107 second-year undergraduate education students were randomly sampled for the study at the end of their second semester. Ninety-four out of that were finally used, others were rejected for inadequate response and particularly incomplete identification data.

This sample consisted of students from diverse disciplines which enhanced its randomness. Moreover they have all undergone the undergraduate programme for at least two years. Their studies have consistently demanded critical listening to lectures, critical reading of textual materials and accuracy in following both simple and complex directions.

Instrument:

Two instruments: Critical Listening and Reading Ability Test (CLARAT) and Test of Accuracy to Follow Direction (TAFD) by Anderson (1978) were adapted for the study. The third instrument was the examination records from where the students' Grade Point Average

(GPA's) were computed for two years.

That the adapted instruments were verbally loaded is justified by the fact that all three critical behaviours of interest are verbal-oriented. Instrument validation through Spearman-Brown Prophecy Formula on the split-halves showed a very high ($r_{ii} = 0.94$) reliability value using the thirty (15 males and 15 females) third-year students of the same faculty who did not take part in the study.

Instrument one (CLARAT) was made up of sixteen items based on the critical reading or listening ability of the sample. The responses demanded mostly single words but not exceeding five for any single item. Generally, each item had at least one obvious flaw as a stimulus for the desired critical response. The maximum time allowed for responses was fifteen minutes.

Instrument two (TAFD) was made up of eighteen items framed with action verbs and some directions, most of which were made up of simple short sentences such as:

Read everything before doing anything.

Circle the word "Name" in sentence 2.

The items demanded observable responses to indicate the extent to which simple direction could or could not be followed. Such evidences were so programmed into the items that anyone who contravenes the direction cannot reverse the responses without adequate trace. Actually only five consecutive activities out of the eighteen listed were supposed to be responded to. Ten minutes was allowed for instrument two. The total scores from the two instruments constitute the score for the Critical Decoding Behaviours (CDB's).

Timing was introduced into the tests as a necessary anxiety generating measure so that the responses could assume examination complexion. This was necessary to replace the usual pressure under which critical listening or reading could be carried out in real life situation.

Procedure:

The instruments were personally administered by the investigator during one of the lecture periods. After the distribution and the necessary instruction the subjects responded first to instrument one before two. All the instruments were called back on due time under strict control so that every respondent stopped at the same time.

Data Analysis:

Each correctly responded item attracted one point. The total possible score for both instruments is twenty: 16 for instrument one and four for instrument two. The nature of instrument two was such that a respondent loses all points if the direction was contravened in anyway, scores all four points if all the four desired items were correctly, responded to, or scores less than four depending upon the

number of correct responses made without contravening the direction at all.

Results and Discussion

Available data show that undergraduate teacher trainees do not listen or read critically. Data also indicate an appalling inaccuracy in following simple instruction for simple tasks. Table 1 shows that 7.45% of the sample scored zero (0%) percent while 10.64% scored 35%, the highest in the sample. The mode of 15% was scored by 27.66% of the sample.

When critical reading and listening or ability to follow simple instruction are concerned, it may be believed that the science-oriented students should perform better. But available data show the surprising result that 6 out of 7 or 85.7% of those who scored zero percent are the science-oriented ones while only 30% of those who scored 35% came from science group too. One reason for this observation may be based on the verbal nature of the test which probably favoured the arts students.

TABLE 1

Sex and Course Distribution of CDB's Scores Among Respondents

F R E Q U E N C Y*													
SCORE		MALE		FEMALE		TOTAL		ARTS		SCIENCE		TOTAL	
Raw	%	N	%	N	%	N	%	N	%	N	%	N	%
0	0	4	4.26	3	3.19	7	7.45	1	1.06	6	6.38	7	7.45
1	5	1	1.06	1	1.06	2	2.13	2	2.13	0	0	2	1.13
2	10	9	9.57	5	5.32	14	14.89	9	9.57	5	5.32	14	14.89
3	15	12	12.77	14	14.89	26	27.66	11	11.70	15	15.96	26	27.66
4	20	10	10.64	7	7.45	17	18.09	5	5.32	12	12.77	17	18.09
5	25	6	6.38	3	3.19	9	9.57	5	5.32	4	4.26	9	9.57
6	30	4	4.26	5	5.32	9	9.57	8	8.51	1	1.06	9	9.57
7	35	4	4.26	6	6.38	10	10.64	7	7.45	3	3.19	10	10.64
		50	53.19	44	46.81	94	100.0	48	51.06	46	48.96	94	100.0

*The Maximum possible raw score is 20.

\bar{x} for Male = 3.54

\bar{x} for Science = 3.26

\bar{x} for Female = 3.82

\bar{x} for Arts = 4.06

TABLE 2

Pearson's Moment Correlation Coefficient (r_{xy}) Results With Transformed t-value for Critical Decoding Behaviours And Grade Point Averages.

Variable	N	\bar{x}	x^2	Y	Y^2	xy	r_{xy}
CDB's (x)	94	345	1603			1022.23	0.653
GPA (Y)				272.7	791.973		

$$t_{cal} = 8.315 \quad df = 93$$

$$t_{crit.} \quad 0.001 = 3.39$$

P 0.001 Significant.

Further analysis of the data in Table 2 shows a high positive correlation ($r_{xy} = 0.653$) between GPA's and CDB's of the students. The transformed t-value dictates the rejection of the null hypothesis ($t_{cal} = 8.315$; $t_{crit.} = 3.39$ $df = 93$; $P = 0.001$). This means that the relationship between the undergraduate teacher trainees' scores in CDB's and GPA's is significant.

The male and female respondents were observed in the independent t-ratio to score statistically the same in the CDB's test ($t_{cal} = 0.703$; $df = 92$; $t_{crit.} = 1.98$ $p = 0.05$). Available data however show that the females ($\bar{x} = 3.82$) scored slightly higher than the males ($\bar{x} = 3.54$) and also showed a slightly higher variability in favour of the females (See Table 1 and 3). Further analysis indicates that among those who scored the highest (35%), females constitute 60%. The slight difference in the mean score in favour of the females may be attributed to the verbal nature of the test to which they are generally accepted to be better disposed. This characteristic may have been counterbalanced by boys' predisposition for critical thinking ability giving rise to no significant difference.

TABLE 3

Independent t-ratio Results For Male and Female Performance in CDB' Test

Variable	N	\bar{x}	SD	df	t-cal.	t-crit.
Male	50	3.54	1.854	92	0.703	1.98
Female	44	3.82	1.968			

P 0.05; Insignificant.

TABLE 4

Independent t-ratio Results For Science And Arts Students
In CDB's Test.

Variable	N	\bar{x}	SD	df	$t_{cal.}$	$t_{crit.}$
A Art	48	4.063	1.961	92	2.082	1.98
Science	46	3.261	1.769			

P = 0.05, Significant

When the arts - and Science-oriented students' scores in the CDB's were compared, significant difference was observed: $t_{cal.} = 2.082$, $df = 92$, $t_{crit.} = 1.98$; $p = 0.05$ (See also tables 1 and 4) in favour of the Arts, contrary to expectation.

Table 1 shows that 28 (58.33%) arts-students as against 38 (82.61%) science-students score 20% and below in the CDB's tests'. Also, the arts students average ($\bar{x} = 4.063$) was markedly higher than that for the science students ($\bar{x} = 3.261$). These observations coupled with the fact that 6 out of 7 (85.7%) of those who scored zero percent are the science students call for some serious reflections especially with the current emphasis on Science and Technology. Although very common and apparently familiar examples were used as part of the test items it is shocking that not even one respondent scored up to 40%. The highest score was 35% and the sample mean 18.35% with a range of 35. The low scores in the study may be partly attributed to its novelty, high demand for analytical thinking, verbal-orinetation and strict complaine to simple instruction.

Another factor could be the lack of practice on the part of the respondents with respect to critical listening/reading and following direction. This deficiency supports Hoover's (1972) observation in students' reading or listening ability. Another likely factor which led to the low performance can be the in-built anxiety. Probably, if the test was made time-free adequate attention could have been paid to the items, particularly those that call for critical listening and reading ability. Psychologists Shaw (1976); McKeachie and Doyle (1972); Adeola (1987) agreed that high level-of test anxiety interfere with performance and that anxiety has incapacitating effects.

Conclusion

The findings of this study pointedly emphasize the need for evolving curriculum contents and teaching strategies which encourage

critical thinking. It more importantly re-emphasizes the need to make learning and teaching more integrative, using more of problem solving approaches while de-emphasizing rote learning which, unfortunately, seem to be very much the focus of teaching and learning.

Recommendations.

In this study three critical decoding behaviours have been found to be seriously lacking among teacher trainees. It is therefore suggested that:

- (a) Deliberate effort be made through the teacher education curriculum to emphasize critical listening skills, critical reading skills and competency in following direction accurately.
- (b) At the University level as well as other institutions of higher learning, the general studies courses should introduce those three critical decoding behaviours to, at least, sensitize the students to their importance in daily life.
- (c) Standard instruments for surveying the level of those critical decoding behaviours among the citizens be developed as an initial step to researching more vigorously into them. This could be a joint programme with individuals, organizations and institutions.
- (d) Since critical decoding behaviours are a product of abstraction, teachers and their trainers should endeavour to use more instructional materials and thereby indirectly promote abstraction and hence critical decoding behaviours.

REFERENCES

- Adeola, A. O. (1987) The Effectiveness of the Relaxation Procedure in Anxiety Management. Nigerian Journal of Educational Psychology 2 (1), 23 - 29.
- Anderson, A. L. (1978) Test Your Critical Thinking And Ability to Follow Direction. Unpublished Mimeograph.
- Brown, J. W., Lewis, R. B. and Harclerod, F. F. (1977) AV Instruction Technology, Media, and Methods. New York: McGraw Hill Book Company.
- Heilman, A. W. (1977) Principles and Practices of Teaching Reading. London: Charles E. Merrill Publishing Company.
- Heinich, R., Molenda, M., and Russell, J. D. (1982) Instructional Media and The New Technologies of Instruction. New York: John Wiley & Sons.
- Hoover, K. H. (1972) The Professional Teachers' Handbook: A Guide For Improving Instruction In Today's Middle and Secondary Schools. Boston: Allyn and Bacon, Inc.
- McKeachie, W. J. and Doyle, C. L. (1972) Psychology: The Short Course. California - Menlo Park: Addison-Wesley Publishing Co.
- Morris, P. (1977) Practical Strategies for Human Learning And Remembering. In M. J. A. Howe (Ed.) Adult Learning: Psychological Research And Application. New York: John Wiley & Sons.
- Federal Republic of Nigeria (1981) National Policy on Education Lagos: Federal Ministry of Education.
- Shaw, M. E. (1976) Group Dynamics: The Psychology of Small Group Behaviour. New York: McGraw-Hill Book Co.
- Taylor, S. E. (1964) Listening Quoted in N. W. Brown, R. B. Lewis, and F. F. Harclerod (1977) op. cit.