# ENHANCING QUALITY THROUGH RESEARCH: AN INVESTIGATION INTO TECHNICAL AND VOCATIONAL TEACHERS PERCEPTION AND LEVEL OF INVOLVEMENT IN EDUCATIONAL RESEARCH

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## Abstract
*This study investigated Technical, Vocational Education (TVE) Teachers' perception and level of involvement in educational research. Two research questions covering aspects of technical teachers' perception and involvement in educational research were formulated. The descriptive survey method of research was used. Purposely sampling technique was used to select two hundred Technical and Vocational teachers from 5 technical colleges in Kogi, Benue states and Plateau States took part in the study. The purposeful sampling technique was used to select the technical colleges from the states. Questionnaire was constructed by the researcher and subjected to content validity, and test-retest reliability was used. Coefficients of 0.83 and 0.84 were obtained respectively. Data were analyzed using percentages, means and standard deviations. The findings showed that while the technical teachers had good perception of educational research, they do not get involved, actively in the conduct of educational research. The study most importantly revealed that researchers do not carry technical teachers along, actively, in the conduct of researches in a education as it relates to technical and vocational education. This study established that the poor utility of technical and vocational education research in Nigeria is traceable to technical teachers' non-active involvement in the conduct of educational research. It was recommended among others that for Nigeria to achieve quality technical and vocational education that will make for technological and human capital development, researchers and technical teachers should form a strong partnership in the conduct of educational research as this will enhance research utility, and thus, national development.*

## Introduction
Technical and Vocational Education (TVE) as defined by United Nation Educational Scientific and Cultural Organization UNESCO (2001) as a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic and social life. Technical Education, all over the world, is seen as one of the greatest investments for the future. Consequently, there is always a general concern about the school systems, the methods of teaching, and the quality of technical teachers. However, due to the strong faith in science and technology as instruments for national and global development, there is a more growing concern geared towards providing the best of science and technology education. This quest for national development through science and technology has had overreaching effect on the teaching and learning of TVE in colleges. Of great importance is the increased research activity aimed at improving the teaching and learning of TVE

Technical and vocational educators, through research, have considerably advanced knowledge on how learners learn science, technical and vocational related subjects. By applying theories and methods of research from other disciplines (cognitive psychology, education, sociology, epistemology), that is by working in a top-down mode, technical and vocational educators are

leading the fields of Technical, Vocational Education and Training (TVET) education into maturity.

At the same time, the reverse process, a bottom-up procedure is taking place. By carrying out investigations on how students understand the concepts and problems associated with TVE, the position not only to suggest better methods of teaching and learning of the concepts associated with TVE, but also, we lay the foundation for new methodologies that can be applied to other school subjects, as well as to the whole educational process. The ultimate target, ultimate mission, is to reshape, to restructure not only technical education and science education, but also all education. If TVE teachers who are, in the main, charged with the responsibility of ensuring that results of researches in Technical and Vocational Education produce the desired effect, get involved in the business of conducting research, then some more fundamental change would be expected in the utility of research findings for improved delivery of technical and vocational education.

Teachers' involvement in the conduct of educational research has elicited various responses from experts. Taber (2000) suggested that there are largely two distinct groups of people researching the process of learning technical and vocational education. The two groups she identified are the researcher-practitioners or teacher researchers and the professional researchers, who she also referred to as the academics who are employed (at least in part) to carry out educational research. The teacher- researchers, according to Taber (2000) are teachers in schools, colleges and the educational contexts actively researching on the teaching and learning that takes place in their own classrooms.

Some authors (Kyle, W.C; Linn M.C; Bitner, B.L; Mitchener, C.P and Perry B. (1991) Taber, (2000); Costa N, Marques, L, and Kempa, R.F. (2000) identified three levels of teachers' involvement in the conduct of an educational research. These levels are: (i) when teachers are used as subjects of research by researches; (ii) when teachers actively carry out research by themselves; and (iii) when teachers collaborate with researchers in carrying out research i.e. teachers form partnership with researchers.

The poor take - up of research by policymakers and practitioners in education has been clearly identified by McGaw (1996). In his comments on the findings of reviews of educational research in Australia, McGaw noted that while educational research in Australia is seen to have much strength, there are a number of significant issues of concern. These issues of concern are:

(i) the links between research and policy and practice are weak;
(ii) a perception amongst educational practitioners and policy makers that educational research is largely irrelevant to practice. This perception has influenced a decline in support from governments for educational research;
(iii) the educational research community is seen to be too fragmented across associations and higher education institutions with only a limited amount of cross communication and networking; and
(iv) In vocational education, in particular, there is a dearth of worthwhile general or basic research and there tends to be a lack of any effective critique of training programs or policies.

McGaw suggested that practitioners and educational administrators in vocational education should be involved more as "sponsors" of research activities. He pointed out that such involvement leads to ownership of outcomes and a more receptive climate for the take up of research outcomes.

Scroufe (1997) provided a detailed description of why it is perceived that "educational research does not provide critical, trustworthy, policy-relevant information about problems of compelling interest to the general public." He suggested that there needs to be a greater involvement of policymakers and practitioners in the planning, conduct, dissemination and implementation of educational research. Similar to Okebukola (2003), he recommended the adoption of planning approaches that will yield more synthesis and convergence of educational research without compromising traditional values such as Independence, the cumulative nature of research, and the importance of shaping questions as well as answers.

Hancock, R. (1997) pointed out that technical teachers have always contributed to educational research, at least as subjects of the research; in this they may have entered a 'data extraction agreement'. It has been reported that this is the most common level of teachers' involvement in the conduct of research in education (Elliot, 1991; Wagner, 1997; Kempa, 2000). Teachers are widely used in completing of questionnaires, delivery of special instructional strategy, object of inquiry, etc. Taber (2000 suggested that the teachers at this level of involvement have no control over the research agenda, perhaps, no special interest in the research topic, and may well be encouraged not to change their normal way of doing things while the research is in progress. Taber further opined that in the process of research, it is, most at times deemed necessary to limit how much the teacher knows about the purpose of and focus of the research. Teachers' involvement here is more passive than active.

Findings from Hancock (1997) reviewed that most teachers are reluctant in participating in research even at the least level: This, he asserted, has led to the realization of wrong results from research activities especially when teachers are used as subjects of research. This agrees with the assertions made by Kempa (2000) that most teachers do always give 'idealized' information far from their actual practices thereby most research reports seem somewhat untrue.

From the foregoing, some key facts emerge: teachers are reluctant to contribute or participate in research; teachers do not give actual information about their practices; teachers' involvement in research as subjects of research only make them mere passive participants in the research; and teachers enter into a data extraction agreement with researchers when they are used as subjects of research.

Kempa, had recommended a number of actions which they believe would improve the links between researchers and practitioners and enhance the take up of educational research findings:

(i) strengthening and encouraging the use of action research approaches;
(ii) further development of research and development networks involving both researchers and practitioners using one-on-one contact; joint workshops and seminars; joint staff development activities; etc
(iii) development of best practice publications encouraging researcher/practitioner links;
(iv) disseminating research in practitioner/administrator focused publications; and
(v) publication of critical reviews of educational research from a practitioner perspective;

The theme of the 'importance of involving practitioners in research and its dissemination' is re-iterated in a paper by Bowe, Ball and Gold (1992). The paper describes the difficulties

experienced in the implementation of the "Technical and Vocational Education Initiative" (TVEI) in the United Kingdom.

In particular, Bowe et al, suggest that readers of research findings and associated policy innovations need to feel they are being invited to have an 'active' role in building upon the research findings by testing and applying them in the practical context. They contrasted this with the frequent current one-way narratives in which the 'practitioner reader' plays a 'passive' role and as a result, feels idle and redundant with no other function but to either accept or reject what is proposed. Bowe et al pointed out that practitioners do not confront policy/research texts as naive readers. They come with histories, experience, values and purposes of their own. They will have vested interests and will be quite naturally skeptical, fearful and suspicious of innovations and changes and the motives of those proposing them. They suggested that researchers and policy makers need to be close to the practitioners, involving them and gaining some understanding of their backgrounds and feelings. These need to be assessed and considered, not only at the time of dissemination and implementation, but even at the time of planning and conduct of the research.

It is noted that the consistent view presented by all of these commentators and researchers, is that if educational research is to count, deliberate action must be taken to engage policy makers, administrators and practitioners in all stages of research activities. Researchers themselves must also remain engaged beyond just the delivery of the research report.

Kempa (2000) however asserted that researchers and practitioners should form partnership not at the generation of research but primarily on the application of research. He further opined that partnership should be symbiotic in nature with the sole aim of bridging the traditional gulf between research in education and its application. To Taber (2000) such partnership should involve all stages- the generation and application of research. She maintained that where teachers share in the perception of the research problem, and the planning and analysis of research, they will feel they have ownership of the research, and it is likely to permanently affect their teaching behavior in a way that does not just happen by being the subject of research activity. By implication, collaboration between researchers and practitioners either at the generation of research or application will enhance the utility of, or access to, research findings on the side of practitioners. Following the foregoing, it is very pertinent to properly investigate the perception and level of involvement of Science, Technical and Vocational Teachers in educational research in Nigeria for improved utilization of educational research in our technical schools.

## Statement of problem

The emphases on the need for enhanced teaching and learning of Technical and Vocational (TVE) education in our colleges through research have grown over the years. However, the perception of TVE teachers in involving educational research for enhanced classroom teaching has remained mere expressions. The problem in this study was therefore an investigation into Technical and Vocational teacher' perception and level of involvement in research.

## Research Questions

Answers to the following questions were sought

1. What is the level of Technical and Vocational teachers in educational research?
2. What is Technical and Vocational teachers' perception of educational

research?

## Methodology

### Research Design
Survey research design employing questionnaires was adopted.

### Sample and sampling procedure
Five Public Technical Colleges from two states (Kogi and Benue) and Plateau were selected using purposeful sampling technique. Three technical colleges were selected from each of the two states while two technical and two technical science making a total of four were selected from Plateau, a total of 200 Technical and Vocational teachers of both sexes were involved in the study.

### Instrument
One instrument, Questionnaire on Teachers' Perception and Involvement in Research developed by the researcher was used for the study. The questionnaire is divided into three (3) sections A, and C. Section A sought information on Teachers background, a 4-point response grid namely; Often (4), Sometimes (3), rarely (2) and Never (1), focused on teachers involvement in research, while section C sought information on teachers' perception of research.

### Data Collection and Analysis
The researcher administered the instrument, with the assistance of the Heads of the various Departments (Technical and Vocational), to all the Technical and Vocational teachers in the five Colleges sampled for the study. Each teacher was given three (3) days to go through the questionnaire and complete it. The completed questionnaires were collected after the third day. Frequency counts, Percentages, Means and Standard deviations were used for data analysis.

## Results and Discussion
The results of the data analysis are presented in tab

Table 1: Frequency, percentage, weighted mean ratings and standard deviation of technical and vocational teachers level of involvement in educational research

| S/N | Statement | Often -4 | Some times -3 | Rarely - 2 | Never (1) | X | SD |
|---|---|---|---|---|---|---|---|
| 1 | I deliberately carry out research on my students in technical class. | | 36 (18.00) | 88 (44.0) | 54 (27.0) | 2.13 | 0.94 |
| 2 | Doing research is a difficult thing that in technical education, it cannot be done just by anyone | 18 (9.0) | 64 (32.0) | 50 (25.0) | 68 (34.0) | 2.16 | 0.99 |
| 3 | I have undertaken research in technical projects leading to the award of a certificate, Diploma or Degree in the last five (5) years. | 42 (21.9) | 44 (22.0) | 36 (18.0) | 78 (39.0) | 2.25 | 1.18 |
| 4 | I engage myself in solving specific problems confronting the school technical teaching | 28 (14.0) | 84 (42.0) | 34 (17.0) | 54 (27.0) | 2.43 | 1.03 |
| 5 | I present paper(s) in educational conference(s)/seminar(s) in technical areas. | 12 (6.0) | 26 (13.0) | 38 (19.0) | 124 (62.0) | 1.72 | 0.85 |
| 6 | I submit research article for publications in learned journals in technical and vocational education. | 4(2.0 | 40(20.0) | 52(26.0) | 104(52.0) | 1.96 | 1.04 |
| 7 | I carry out research in Technical/ Vocational education in conjunction with some researchers | 24 (12.0) | 32 (16.0) | 56 (28.0) | 88 (44.0) | 1.96 | 1.04 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 8 | I help researchers in administering their questionnaire to technical teachers and/ or students. | 38 (19.0) | 70 (35.0) | 54 (27.0) | 38 (19.0) | 2.54 | 1.01 |
| 9 | I assist technical researchers to teach during their experiments. | 14 (7.0) | 52 (26.0) | 78 (39.0) | 56 (28.0) | 2.12 | 0.9 |
| 10 | I assist technical researchers in carrying out classroom observations | 24 (12.0) | 52 (26.0) | 48 (24.0) | 76 (38.0) | 2.77 | 1.05 |
| 11 | Questionnaire on Issues relating to my Job as a science and technical teacher are administered to me. | 72 36.0) | 58 29.0) | 22 (11.0) | 48 (24.0) | 2.26 | 1.18 |
| 12 | Researchers observe my classroom teaching. | 18 (9.0) | 66 (33.0) | 54 (27.0) | 62 (31.0) | 2.38 | 0.98 |
| 13 | Researchers interview me as Technical/Vocational teacher | 38 (19.0) | 58 (29.0) | 46 (23.0) | 58 (23.0) | 2.59 | 1.1 |
| 14 | Questionnaire and tests for researcher purposes are administered to students in technical class with my involvement. | 32 (16.0) | 98 (49.0) | 26 (13.0) | 44 (22.0) | 2.59 | 1 |
| 15 | I should provide necessary information to researchers whenever they need it from me. | 58 (290) | 68 (34.0) | 20 (10.0) | 54 (27.0) | 2.65 | 1.16 |
| | Weighted Average | | | | | | |

*Values in parentheses represent percenta

The response profiles for the different statements indicate, as shown in the Table above, that there are some variations on how often technical/vocational teachers are involved in research. However, the mean values for the various response categories clearly point that science teacher involvement in research is a far-cry. The "Never" category attracted the highest percentage of all with a total of 33.5%. This is followed by the 'sometime' response category with 28.3%; the 'often' category attracted the least with only 16.7%. The 'rarely' category had a percentage of 23.4.

The weighted average of 2.47 indicates that teachers rarely get involved in research. Although the 'sometimes' response category attracted a reasonable percentage, it appears to have been inflated as a result of the relatively high ratings for the following statements.

Statement 4: I engage myself in solving specific problems confronting the school technical/vocational teaching.

Statement 8: I help researchers in administering their questionnaire to other technical teachers and/ or students.

Statement 14: Questionnaire and tests for research purpose are administered to students in technical class with my involvement.

Apart from statement 4, the other two do not show teachers active involvement in research. It rather indicates how often they are being used by researchers in completing and administering of questionnaires to other teachers or students. It is interesting to point out here that, a reasonable percentage (42.0) of teachers indicated that they, although not often, do engage themselves in solving specific problem confronting the school science/technical/vocational teaching. However, statements 1, 3, 5, and 6, which involves teachers active involvement in research disproportionately attracted the 'never' response category. The worst of these are statements 5 and 6.

Statement 5: I present paper(s) in educational conference(s)/seminars

Statement 6: I submit research article(s) for publication in learned Journal(s).

62% of the respondents indicated, as can be seen in Table 4, that they have never presented any article in educational conferences or seminars, if they ever attend such conferences/seminars. More than 50% responded that they have never submitted any article for publication in learned journals; out of the remaining 48%, 26% indicated rare submission of articles for publication in learned journals.

As could be seen from Table 1, the mean value (1.96) of item 7 (carry out researcher in science/technical/vocational education in conjunction with some researchers) indicates that science teachers rarely carry out research in conjunction with researchers. In fact, 44% indicate that they have never carried out any research in conjunction with researchers. 28% rarely have.

The findings reveal that the level of Technical/Vocational Teachers' involvement in research is not encouraging. This corroborates that of Hannan, Enright, and Ballrd (2000) that lack of teachers' involvement in research as researchers had impeded the dissemination and utilization of research results.

Table: Frequency, Percentage, Weighted mean Ratings and Standard Deviation of Technical and Vocational Teachers Perception of Educational Research

| S/N | Statement | Some times -3 | Rarely -2 | UN (1) | X | SD |
|---|---|---|---|---|---|---|
| 1 | Researchers in technical/vocational education are relevant to classroom practices | 168 (84.0) | 14 7(.0) | 18 (9.0) | 2.75 | 0.2 |
| 2 | I keep in touch with research findings in technical/vocational education and education generally. | 116 (58.0) | 54 (27.0) | 30 (15.0) | 2.43 | 0.7 |
| 3 | My classroom practices are reflections of research findings | 122 (61.0) | 30 ( 15.0) | 48 (24.0) | 2.37 | 0.9 |
| 4 | Classroom activities should be informed by research findings | 170 (85.0) | 12 (6.0) | 18 (9.0) | 2.76 | 0.6 |
| 5 | Research findings in Technical/Vocational education and education generally are applicable to class room setting. | 114 (57.0) | 44 (22.0) | 42 (21.0) | 2.36 | 0.8 |
| 6 | Research findings in education (science/technical/ vocational) are not practice-related. | 48 (24.0) | 110 (55.0) | 42 (21.0) | 2.03 | 0.7 |
| 7 | Innovations in technical/vocational teaching methods can be acquired through research reports. | 186 (93.0) | 6 (3.0) | 6 (4.0) | 2.89 | 0.4 |
| 8 | Research present new developments in education policies and issues | 180 (90.0) | 14 (7.0) | 6 (3.0) | 2.89 | 0.4 |
| 9 | Research reports identity important factors that affect students learning and performance | 180 (90.0) | 10 (5.0) | 10 (5.0) | 2.85 | 0.5 |
| 10 | Teachers' most potent resource is research reports. | 100 (50.0) | 40 (20.0) | 60 (30.0) | 2.2 | 0.9 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 11 | Technical/vocational teachers' skill will be improved if research reports are accessible to them. | 184(92.0) | 10 (5.0) | 6 (3.0) | 2.89 | 0.4 |
| 12 | I find it difficult to (or cannot) interpret research reports. | 16 (8.0) | 156 (78.0) | 28 (14.0) | 1.94 | 0.5 |
| 13 | I don't understand the 'language' of research reports | 18 (9.0) | 164 (82.0) | 18 (9.0) | 2 | 0.4 |
| 14 | Trends in the theory and practice of (technical/ vocational) education become clear with research reports. | 174(87.0) | 8 (4.0) | 18 (9.0) | 2.78 | 0.6 |
| 15 | I value my personal experience in teaching them findings from research | 80 (40.0) | 86 (43.0) | 34 (17.0) | 2.23 | 0.7 |
| 16 | Researchers fail to address major practical need of technical/vocational teaching and learning. | 54 (27.0) | 74 (37.0) | 72 (36.0) | 1.91 | 0.8 |
| 17 | There should be collaboration between teachers and researchers | 180 (90.0) | 6 (3.0) | 142 (7.0) | 2.83 | 0.5 |
| 18 | Research reports contain little information | 42 (21.0) | 106(53.0) | 52(26.0) | 1.95 | 0.7 |
| 19 | The time in reading research reports do not worth it | 24 (12.0) | 156 (78.0) | 20 (10.0) | 2.02 | 0.5 |
| 20 | I rather consult my mentors or colleagues than research reports. | 32 (16.0) | 138 (69.0) | 30 (15.0) | 2.01 | 0.6 |
| | WEIGHTED AVERAGE | | | | 2.4 | |

*Values in parentheses represent percentages

From Table 6, it is observed that, of all the various possible views about research reports in technical/vocational education, teachers' response indicates a positive instance, contrary to the findings of Shkedi (1998) that teachers perceived research to be irrelevant and unhelpful, too theoretical and 'language' too difficult to understand, the findings here show that science/technical/vocational teachers perceive research as relevant and helpful. This is shown by the 84% that affirmed the 'truism' of item I (researches in technical/vocational education are relevant to classroom practice; 92% in item II (technical/vocational teachers skill will be enhanced if research reports are accessible to them), and 87% approving item 14 (Trends in the theory and practice of technical/vocational education become clear with research reports). Teachers failed to agree that research reports are too theoretical and its 'language' difficult to understand. A look at items 13 and 18 in Table 2 confirms this, showing a contradiction to the findings of Shkedi (1998)

In spite of TVE teachers' positive perception of research, a reasonable percentage of 40 against 43 that disagreed indicated that they value their personal experience in teaching than findings from research. The remaining 17% fell under the 'uncertain' response category. The ' uncertain' response could be interpreted in two ways: either that these TVE teachers could not make a clear difference between their own personal experience and research reports, or that they lacked enough personal experience owing to the years of teaching so as to confidently rely on such. Suffice it therefore to say that, most technical/vocational teachers value their personal experience in teaching than research reports. This is in line with the finding of Costa, N, Marques, L, and Kempa, R.F (2000).

The 'uncertain' response of 36% against 37% for 'false' and 27% for 'true' in item

16 (researchers fail to address major practical needs of technical/vocational teaching and learning is significant. It clearly pointed out that the problems that researchers pay attention to most often cannot be readily adjudged major problems issues' in the teaching and learning of technical/vocational subjects.

This finding therefore establish the assertion made by Kempa (2002) that researchers tend to pay undue attention in researches on 'fashionable areas (e.g. pupils' misconceptions and alternative· frameworks) without adequate consideration of the practical usefulness of the findings.

## Conclusion

Technical and Vocational Educators, through research will considerable advance in knowledge on how learners learn technical and vocational by applying theories and practical methods of research thereby improve the productivity of the technical educators.

## Recommendations

Following the findings of the study the following recommendation are made:

*A link should be formed between polytechnic, technical colleges/research institutes and schools where the findings of educational research are discussed and ways of incorporating them into practical teaching.

*TVE teachers themselves should form local research teams that should solely be engaged in solving the local school problems bedevilling Technical and Vocational teaching. Such teams should also focus on bringing research finding to meet local conditions. This will require serious collaboration between teachers and researchers.

*TVE teachers should get involved in active research and, certain incentives should be provided for them as a way of encouraging and motivating them.

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