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Innovations In Teaching: Between Research And Classroom Practice.

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Abstract
There is an obvious shift of paradigm from the near unproductive method of teaching known as the traditional method that centers teaching around the teacher, to constructivism, which is a conglomerate of teaching methods that centers learning experiences on the learner. Constructivists believe that knowledge is not just handed down to the learner from the teacher, but, that knowledge is actively constructed by the learner. New information is consciously built into the cognitive structure of the learner for meaningful learning to take place. This contrasts markedly from rote learning that dwells so much on memorization and recall of facts otherwise known as rote learning. In this paper, research efforts at innovations are highlighted. However, the critical issue is whether or not these efforts have benefited the teaching service. The paper attempts to answer the question whether or not the teachers at the point of implementation are adequately aware of these innovations, and to find out if there is any mechanism in place for their enlightenment. A 10 item Research Awareness Questionnaire (RAQ) was used to elicit information from 300 teachers randomly selected from secondary schools in three Local Government Areas of Nasarawa State of Nigeria. Results show that a vast majority of secondary school teachers are out of contact with research efforts. A majority neither read research reports in journals nor engages in any form of research, and there is no formal link between researchers and teachers in the secondary schools. From the results obtained, suggestions and recommendations are made.
Keywords: research, learners, teachers, innovations.

1. Introduction

"The Federal Government of Nigeria has adopted education as an instrument par excellence for effective national development." (FGN 2004: 5)

The translation of the desire of the government to see a developed society will largely depend on what the teacher does with the students in the classroom. The success or otherwise of the teacher in carrying out this noble task will be a product of her/his knowledge of the underlying principles of how the learner learns; and by what method is he able to learn optimally.

The curriculums operated in Nigeria, like elsewhere, are drawn by experts in their own rites, and are supposed to provide students with necessary knowledge and skills. However, without the input of the teacher, they remain mere wishes.

The most prevalent method of instruction in our secondary schools is the traditional method where the teacher takes the central stage in teaching. The traditional passive method of teaching involves situations where the teacher delivers materials to students using a lecture based format (Carpenter 2006). The traditional method views teaching as a transmission of knowledge and relegates a passive status to the learner as the receiver of information (Roth 1994). The dominant modes of teaching in this transmission model lecturing and whole class interactive activity. In this situation, the teacher can only address a student at a time in a question – answer – evaluation mode. Student – student interaction are rare and students occupy themselves for most of the time by listening and watching another student often one of a small group of target students (Roth 1994).

To Zakaria and Iksan (2006), the traditional method has two pedagogical limitations.

a. it emphasized the passive acquisition of knowledge, which encourages rote learning. The method facilitates basic recall of knowledge.

b. the students rely on their teachers to decide what, when, and how to learn.

Instructions using the mode of the traditional method cannot foster conceptual understanding but rather for memorization and recalling of facts. This makes it difficult for students to learn at higher, conceptual level of thinking.

There has been in recent times, a sharp departure from the traditional methods of teaching that centers classroom activities on the teacher, to more active learning strategies that put the learner in the center of classroom activities. According to Darmofal, Soderholm and Brodeur (2002), unlike traditional lectures, these active learning strategies engage students with the conceptual material during class. When implemented properly, active learning improves conceptual understanding, encourages self-driven learning and clarifies common misconceptions. These active learning strategies are generally known as constructivism. The constructivist approach to teaching is based on a combination of a subject of research within cognitive psychology and a subset of research within social psychology. The constructivists believe that knowledge is actively constructed by the learner. This may require dialogue, exchange of ideas, negotiation and consensus. The teacher in this learning mode acts only as a guide.

Many researches have been conducted using the constructivists' model with tremendous success. However, the question remains; how much of these research findings have been implemented in the secondary schools which are the focus of the studies apart from serving as samples for the researcher?

This paper is an attempt to find out the strength of the link between research efforts and actual classroom practice.

1.1 Rationale for this paper

A lot of efforts are being made in terms of research at various quarters. This include; faculties of education of various universities, research institutes, and voluntary agencies worldwide. Results and the reports are wonderful, and such efforts must be commended. However the gain of research does not lie in the pages of paper. They must be tried out in practical terms to be useful. To the best of our knowledge, there is no visible network on the ground to ensure that research findings get to the 'active site'- the secondary schools. This paper therefore is an alarm being raised, that unless deliberate measures are taken to create a network or a feedback system, researchers would have sweated for nothing.

2. Research Questions

This paper sought to answer the following questions

1. Are teachers in the secondary schools adequately equipped with the modern teaching techniques?
2. Do secondary school teachers regularly update their knowledge through interacting with findings of research reports?
3. Do teachers in the secondary schools have any formal link to research reports?

3. Theoretical framework

Constructivism in its many forms has become a familiar view of learning among science educators. From Piaget's work, assimilation has become identified with constructivism and denotes the fitting of new experiences into existing mental schemes. (Suping, 2003).Teaching methods, being based on a careful consideration of constructivism in its epistemological and educational aspect, contrast with the traditional ones. Knowledge is not pilling the discovered facts, given to students as a liquid in a siphon from one vase to another, you gain knowledge learning it in a very personal and idiosyncratic way, even though this process is very much influenced by the social interaction of learners, where the teachers' teaching, as a social process as it is, becomes crucial (Soares & valadares, 2006).

In the view of constructivist, learning is a constructive process in which the learner is building an internal illustration of knowledge, a personal interpretation of experience. This representation is continually open to modification, its structure and linkages forming the ground to which other knowledge structures are attached. Learning is an active process in which meaning is accomplished on the basis of experience (Brunner, Vygotsky, n d). This view of knowledge does not necessarily reject the existence of the real world, and agrees that reality places constrains on the concepts that are, but contends that all we know of the world are human interpretations of our experiences of the world. According to Huitt, (2003), all advocates of constructivism agree that it is the individuals processing of stimuli from the environment and the resulting cognitive structures that produce adaptive behaviour. To Piaget (1977 in ford, 2007), the process of adaptation occurs through assimilation and accommodation. This dual nature of adaptation goes on continuously in all living organism. Assimilation is the taking in process of stimuli that bombard an organism from the environment, while accommodation has a balancing effect on what is experiences; that is, the new experiences built into already existing structures and this a state of equilibrium is attained. It is the search for this equilibrium that spurs a mind to higher levels of thought. Once an organism in a state of equilibrium is challenged by new experiences, the equilibrium is disturbed and

cognitive conflict results (Niaz 1995). This leads to a search of solution until an acceptable explanation is found and thus the consequent result on the growth of the cognitive structure.

4. Teaching methods under constructivism

There are many methods under constructivism that have received considerable attention in terms of research and documentation. However for the purpose of this paper, the following few are enumerated.

i. Cognitive conflict (Niaz, 1995)

ii. Concept mapping (Novak, 1977)

iii. Jigsaw method (Aronson, 2000)

iv. Structured text approach (Shaibu, 1998)
v. Analogies (Lagoke, Oyebanji & Jegede, 1999)
vi. Scaffolding (Lipscomb, Swanson & West 2004)
vii. Group instruction (Johnson, Johnson & Stane 2000)

5. Sample

Three Local government Areas were randomly selected out of 13 in Nasarawa State. A total of 300 secondary school teachers were selected randomly from the three selected Local Governments.

6. Procedure

A 10 item open ended Research Awareness Questionnaire (RAQ) was designed and administered to 300 respondents. The RAQ was administered by hand and collected immediately.

7. Results

Table 1: Responses and percentages of items on the RAQ

S/N	Item	Positive response	%	Negative response	%
1.	List the method(s) of teaching you use in order of the most frequently used.	34	11.3	266	88.7
2.	Do you belong to any professional body? Name them.	112	37.33	188	62.67
3.	How many professional conferences/workshops have you attended in the last three years? A. above 5 times b. 2- 3 times c. non at all.	49	16.33	251	83.67
4.	How many times has the authority you work for sponsored you to attend a conference in the last three years? A. above 5 times b. 2- 3 times c. non at all.	24	8.0	276	92.0
5.	Are you a subscriber to any professional journal? Name them.	7	2.33	253	97.67
6.	Have you published any academic article or research report in any journal?	8	2.66	252	97.34
7.	Do you read journal articles regularly? Name the last two you have read.	27	9.0	273	91.0
8.	Is there a functional library where you can access academic journals?	52	17.33	248	82.67
9.	Are you familiar with internet services?	137	45.66	163	54.3
10.	Do you have any website you rely on to get information on research report?	101	33.66	199	66.34

From table 1, the responses were analyzed and percentages calculated. Item 1 requires respondents to list methods of teaching they are used to. Responses are checked against a given list of teaching methods that is in line with constructivist approaches to teaching. A mention of any of the methods outlined is considered a positive response. Respondents who could not mention at least one of such methods is considered negative. Items 2-10 are dichotomous. It could either be positive or negative.

8. Discussion

Of the 300 sampled, only 34, representing 11.33% listed methods of teaching mentioned in this paper. This shows that 88.7% are not even aware that such methods exist.

91% of the respondents do not read journals. This shows that whatever discoveries that are made in the area of teaching methods are locked away from a vast majority of secondary school teachers in the sampled area.

Of the sample, only 2.33% subscribe to any journal. This is an indication that efforts made in research over time are not being used in the area where they are needed most.

In the last three years, only 16.33% of the teachers have attended any conference/workshop, while only 8% received any sponsorship to attend conferences/workshops.

Technology has increased in recent times, and though 45% of the sample admits that they are used to the internet, they have not maximized it for any intellectual exercise.

9. Conclusion

Though a lot of resources are used at various points to undertake research on how to improve learning and teaching, and though most of the researches use the secondary school as samples, yet the real practitioners who should use these findings for maximum benefit are not even aware that such innovations exist. These tremendous efforts end up in shelves in libraries of faculties of education in the various universities and other such institutions. Efforts are not made both by the teachers themselves and their employers to bridge the gap between research and practice. Today the internet makes accessibility to research materials easy, but many teachers have not exploited this asset.

10. Recommendations

Professionalism has been a call that teachers have made over the years. This led to the establishment of the Teacher Registration Council of which many teachers are members. However, the council has not articulated a programme that will encourage professional improvement of its members. It should specify how frequent a teacher needs to attend workshops/conferences, and such issues as publications, which seems restricted to institutions of higher learning. Why can't teachers in the secondary schools be promoted based on publications?

There should be a link between faculties of educations of universities, institutes of education, research institutes and the ministries of education. This will help to disseminate relevant issues of research and discoveries made that can improve learning and teaching.

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