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PAPER

THE FUTURE OF PROFESSIONALISM IN SCIENCE EDUCATION

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Abstract

This paper discusses the future of professionalism with respect to science Education, though it could be extended to other areas of Education. It is opined that to be qualified as professionals, science teachers should be properly trained and exposed to laboratory and other teaching/learning materials. A three – programme structure is proposed as 6 years for Senior School Certificate holders and 4 years for NCE holders and 2 years for postgraduate Diploma in Education. The structure and content of core Education and science programmes will also need modifications. Specifically, Education in HIV/AIDS, ICT Education as well as Teacher Attitude Education are proposed for incorporation into the core Education Courses.

Introduction

The concept of professionalisation when it relates to teachers and teaching, becomes ridiculously embarrassing. A professional is expected to be one that is not only knowledgeable and skillful but also of high moral standard and ethical values. To be accepted into a profession, there are usually certain criteria that individuals must meet. The screening exercise is expected to be tough and thorough. Such are the cases with medical, legal, engineering and other professions. In the teaching "profession", there is an open door. It is a-free-for-all affair. People seem to believe that any one with a degree can teach and so become a teacher without any relevant prerequisite training.

The present situation is so bad that deadlines are being given to those without teaching qualifications to obtain one or have their appointment determined. This threat may not solve the problem either. It could most likely result to a bunch of improperly baked teachers who for the fear of losing their job are forced to go through a postgraduate Diploma course in two semesters.

It is ridiculous to think that a professional could be made in two quick semesters. It is also worthy of note that the entire processes involved in the production of Science teachers in Nigeria today are incapable of producing the required results.

It is the aim of this paper, therefore to discuss the processes and procedures that are capable of producing Science teachers thereby enhancing the future of professionalism in Science teaching.

Some of the goals of teacher Education as stated in the National Policy on Education (1998) includes, to:

(i) Produce highly motivated, conscientious and efficient classroom teachers for all levels of our educational system;
(ii) Provide teachers with the intellectual and professional background adequate for their assignment and make them adaptable to changing situations; and
(iii) Enhance teachers' commitment to the teaching profession.

The State of the Art

It is pertinent to discuss what the situation is for now with respect to these goals before making a projection into the future. This is expected to include:

(i) Admission requirements
(ii) Availability of facilities;
(iii) Student – teachers and teachers attitude
(iv) Duration and quality of training

Admission Requirement

Although the admission requirement of 5 Credit passes in school Certificate Examination including English and Mathematics and other Science subjects is upheld, the cut-off point from JAMB scores seem always to be the lowest in the Faculty of Education. In fact most people rejected from other programme always find their ways into the Faculty of Education and are trained to become teachers.

Availability of Facilities

In spite of recent efforts at all levels of government and education, the facilities (infrastructural and teaching/ learning) are grossly inadequate in almost all institutions of learning. The few laboratories existing are either short-staffed, ill-equipped and/or misused (Ogunleye, 1985; Ogunniyi, 1986; Onwioduokit, 1992). It is common to see even postgraduate students stand to receive lectures and undergraduate students receive lectures under shades and write examinations while standing or squatting.

Some students in Science departments have graduated without undertaking some basic and essential Practical work because of lack of facilities. Science Education, and indeed, Education Students are mostly trained without enough teaching facilities and training is sometimes done by unprofessional and uncommitted lecturers. That is probably why the performances of students in external examinations remain deplorably low at the Secondary School which is the receiving end. A recent study carried out by Onwioduokit (2004) in Urue Offong/Oruko Local Government Area of Akwa Ibom State on the percentage of School Leavers meeting preJAMB requirements for admission into Universities revealed the data as shown in the table on page 4.

1999				2000				2001				2002				2003				2004				Grand Total
Admr	% pass	% failure	Tot	Admr	% pass	% failure	Tot	Admr	% pass	% failure	Tot	Admr	% pass	% failure	Tot	Admr	% pass	% failure	Tot	Admr	% pass	% failure	Tot	Admr
NIL	0.00	100.00	-	-	-	-	410	36	8.78	91.22	335	100	29.85	70.15	260	23	8.85	91.15	186	17	9.14	90.86	1.361	176
01	1.11	98.89	-	-	-	-	412	04	2.82	97.18	93	02	2.15	97.85	56	03	5.36	94.64	81	01	1.23	98.77	462	11
NIL	0.00	100.00	-	-	-	-	100	03	3.00	97.00	102	10	0.00	100.00	117	06	5.13	94.87	149	05	3.36	96.64	502	14
NIL	0.00	100.00	-	-	-	-	335	22	0.57	93.43	176	28	16.00	84.00	234	24	10.26	89.74	246	06	2.44	97.56	1085	80
NIL	0.00	100.00	-	-	-	-	249	25	10.04	89.96	237	22	9.28	90.72	175	14	8.00	92.00	157	10	6.37	93.63	945	71
01	1.11	98.81	-	-	-	-	1236	90	7.28	92.72	942	152	16.14	83.88	842	70	8.31	91.69	819	39	4.76	95.24	4355	352

Close observation of the table reveals the following.

That:

- In 1999, not even one out of 516 candidates who took the examination in all the schools in the area, qualified for University admission. By implication therefore in that year, no student from schools in Urue Offong/Oruko LGA entered into the University.
- In 2001, out of 1236 candidates who took the examination only about 7% obtained the basic University admissions requirement.
- While the situation got very slightly improved in 2002 when the percentage of those who met the admission requirement increased to 16% there was retrogression the following year, 2003 and worse still in 2004.
- Based on the 5-year data obtained for all the Secondary schools in Urue Offong/Oruko Local Government Area, the percentage of the total number of candidates that meet the University basic admission requirements is 8% (that is, 352 out of 4355).

Students-teachers' and Teachers' Attitude

It is worth noting here that the attitude exhibited by teachers and student-teachers in Schools and universities leaves much to be desired. This poor attitude is not peculiar to teachers. The entire work force in the country is equally plagued. But it is important to note that teachers have a crucial role in the moulding of the society. The problem created by other professionals may not last as long as those created by teachers.

It is necessary therefore to incorporate attitudinal training into teacher education programme for future professionalism. This is because according to Bloomer (1980) as cited by Obomanu (2002), one is not a professional if he does not have a deep sense of involvement in his duties.

Duration and Quality of Training

The present duration of training for teachers remain four (4) years after the Senior School Certificate examination, and three years after National Certificate in Education or its equivalent. Considering the requirements involved in the training of teachers and the need of the future generation, this period is considered inappropriate. The quality of training also is considered inappropriate. A situation where student-teachers are "hurried" out of the system to handle a serious job as teaching should be checked as it does not enhance the professional status of teachers.

The Future of Professionalism in Science Teaching

It will be of no use to brood over the past in lamentation and regret. The fact that life continues is encouraging. Irrespective of what had happened in the past, the future of Science teaching in Nigeria can be professionalised in the real sense of professionalism. In doing this, certain ideas need to be discussed and recommended.

Admission of Candidates into and the Duration of Science Teacher Education Programmes

If teaching and Science teaching inclusive must be professionalised, the mode of admission into the programme leading to teaching should be overhauled. Three categories of admission that should be considered are proposed.

(i) 6-year Degree Programme

This should accept holders of the Senior Secondary School Certificate with credit passes in English, Mathematics, Physics, Chemistry and Biology. Secondly, besides consideration of the cut-off point which should be adequately high, screening interview should be conducted. The essence of this will be to authenticate the JAMB scores as well as the performances at the SSCE in different science subjects.

Under this arrangement, science students being trained as teachers should be exposed to science courses in the same way as those in the Faculty of Natural and Applied Science for four (4) years after which they cansettle down for professional training.

At the end of the first 4 years, the students should be exposed to one year of professional courses in Education to include core courses in Education as well as methods of teaching science. The last one year of this training should be on internship in schools with reputable administrative set up. During this period both internal (within the practicing school) and external (from the Faculty of Education of the Student's University) assessors should be engaged.

The monitoring of student-teachers during the period of internship is very crucial. Attempts should be made to correct all observed and anticipated errors associated with the student-teacher in the course of teaching.

It should be emphasized that as applicable to members of other profession, a student-teacher on internship should be given an allowance to be maintained in the programme. Also staying for 6 years for a programme will understandingly mean that the successful products will be remunerated as Master's degree holders in other non professional programmes.

(ii) 4-year degree programme for holders of National Certificate in Education (NCE)

The practice of admitting graduates of polytechnic or school of Accountancy into a 3-year degree programme to be trained as teachers should be discontinued irrespective of the class of certificate. This should be replaced with a 4-year training programme.

Of the 4 required years, two years should be spent at the faculty of Natural and applied sciences for the teaching subjects as well as University core courses such as General Studies (GST). One year for core courses in Education and the last one for internship as in the previous case.

(iii) 2-year Postgraduate Diploma Programme

To be admitted for training to become a professional science teacher, a graduate of science with not less than a second class lower division should be considered. The training for such candidates will basically be on core Education courses as well as the internship as earlier specified.

Course Content for Professionalism in Science Teaching

As earlier mentioned, much is left to be desired in the present course content if professionalism is considered meaningfully. One characteristic role expected of a teacher is the involvement with the society through interaction with children, youth and adults. Besides strengthening the content of existing core courses in Education, the following courses should be incorporated:

(i) Education in HIV/AIDS;
(ii) ICT Education;
(iii) School proprietorship Education; and
(iv) Teacher Attitude Education.

The percentage of victims of HIV/AIDS is becoming increasingly embarrassing, in spite of the attempts by various bodies to educate the public. The best way to curb this menace could be to introduce this type of education into the School Curriculum in which case teachers must be aware and familiar with what it involves.

Information Communication Technology is the current emphasis in every sphere of endeavours. We now hear of e – government, e – banking, etc. Why should there not be e – education up to the grassroot? Teachers should be trained on the use of electronic gadgets in teaching. Every teacher should know how to use internet facilities in getting relevant information either for knowledge update or for teaching purposes.

As professionals to – be, student-teachers should also be given adequate education that should prepare them for proprietorship in their profession. In fact, private ownership of schools should be encouraged among the professions. Government and relevant Agencies should cease from giving approval to schools established by non-professionals.

The next course of study should be geared towards attitudinal change in teachers. The culture of honesty and hard work should be inculcated.

Provision of School and Teaching/Learning Facilities

The fact of insufficiency in facilities in teacher – training institution for Science Education is not contestable (Ogunleye, 1999; Onwioduokit and Ifut, 2000). The present attempt by government to fund direct teaching units in the Universities for the purchase of consumables is highly commendable. This should however be extended to physical and laboratory non consumable facilities.

The Departments of science Education as well as Educational Technology among other Departments in our Faculties of Education as well Colleges of Education should be well equipped for the production of professional Science teachers. Students in training institutions should be able to see, handle and make use of laboratory facilities in learning. It is only when they are familiar with them that they will be able to teach the school students effectively.

It is noted that some of the equipment needed for Senior Secondary School Science Curricula are not available at the Faculty of Natural and Applied Sciences in some Universities, partly because they are considered to be secondary. This is why science Education Department should have well equipped laboratory for proper training of the students. The inherent difficulties in students with respect to some

concepts in the school curricula should be resolved during the method Classes. Facilities should be there to do this.

Conclusion

The issues discussed in this paper can as well make for the future of professionalism of teaching generally, in most cases. For this profession to be seen as such and respected, definite changes internally and externally must occur. Some could be revolutionary as discussed. But in all, teacher trainers and those under training should have a change in attitude that will incorporate honesty and hard work. It is however worthy of note that professionalism cannot be attained in teaching without government assistance.

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