Towards Developing and Establishing a Regulatory Guideline for Accreditation of Forensic Education in Nigeria

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Article Information
Received date: Jul 14, 2017
Accepted date: Jul 21, 2017
Published date: Jul 27, 2017

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Abstract
Forensic education is yet to gain a foothold in the Nigerian educational system even though there are several well-trained practitioners plying their trade in the country. The near absence of forensic education emanates from low manpower in the academia, dearth of facilities, non-regulatory policy and lack of awareness amongst others. For such a rich discipline to gain its roots in our educational system and to make it standardized in conformity to global best practices, the need for a regulatory body to unveil and enforce well-coded guidelines for its practice cannot be over emphasized. In this paper, the authors propose a national forensic education accreditation body- the Forensic Education Programmes Accreditation Commission (FEPAC), which would be in charge of regulating the practice of forensic education in Nigeria. The body when fully operational would work with the National Universities Commission (NUC), the Forensic Research and Development Centre (FORDEC) and foreign-based forensic agencies for the overall functioning of forensic education in Nigeria. The different roles of the commission are spelt out alongside the numerous benefits of such a commission on the different stakeholders in the country.

Introduction
Forensic Education the training on the application of science to criminal and civil laws and is still relatively new with less than 10% of the entire Nigeria Universities offering courses directly at undergraduate, postgraduate, or even postdoctoral level. A regulatory framework containing best practices and guidelines for the practice of forensic science in Nigeria does not exist at present. Such framework ought to be in the custody of a regulatory body that would oversee the conduct and practice of forensic science and also serve as a clearing house for all practitioners within Nigeria. In this regards, we proposed the Forensic Education Programmes Accreditation Commission (FEPAC) which would work in partnership with the National Universities Commission (NUC), the Forensic Research and Development Centre (FORDEC) and foreign-based forensic agencies for the overall functioning of forensic education in Nigeria. The different roles of the commission are spelt out alongside the numerous benefits of such a commission on the different stakeholders in the country.

As a prelude to the eventual take-off of forensic education in Nigeria, the Forensic Research Group was established on 24th June 2014 in the University of Benin to promote education, research and services based on multidiscipline platform in any disciplines of forensic innovation. The group will also encourage the study, improve the practice, elevate the standards, and advance the cause of the forensic sciences; promote interdisciplinary communications; and plan, organize, and administer meetings, reports, and other projects for the stimulation and advancement of these and related purposes [3].

In order to reflect a national spread, the Forensic Research and Development Centre (FORDEC) was established and duly registered with the Corporate Affairs Commission, Abuja, Nigeria with the overall mandate of formulating and regulating guidelines for the practice of forensic education in Nigeria. The body has as part of her trustees, experienced members from the academia, industry and the government. The research group is purely the operational arm of FORDEC while the proposed accreditation commission would work with other stakeholders to ensure the smooth take-off and operations of forensic education in Nigeria.

Objectives of Proposed Forensic Standard and Guidelines
The general work of the FEPAC are as follows;

- Ensure that the forensic program meets international standard
- Save time of interested students in terms of graduation
- Provide adequate staffing and infrastructures for take-off
• Ensure graduates are able to meet up with societal expectation in all areas of forensic demands in questions

Accreditation is important to colleges and universities as the stamp of accreditation is seen as a measure of quality and a means of demonstrating that graduates of such programmes meet educational requirements associated with many jobs [4,5]. Several benefits of accreditation to different stakeholders are as follows:

To the public, the values of accreditation include:
1. an assurance of external evaluation of the institution or program, and a finding that there is conformity to general expectations in higher education or the professional field
2. an identification of institutions and programs which have voluntarily undertaken explicit activities directed at improving the quality of the institution and its professional programs, and are carrying them out successfully
3. an improvement in the professional services available to the public, as accredited programs modify their requirements to reflect changes in knowledge and practice generally accepted in the field
4. a decreased need for intervention by public agencies in the operations of educational institutions, since their institutions through accreditation are providing privately for the maintenance and enhancement of educational quality and
5. acceptability generally and major attraction to send their wards to such institutions.

To students, accreditation provides:
1. an assurance that the educational activities of an accredited institution or program have been found to be satisfactory, and therefore meet the needs of students
2. assistance in the transfer of credits between institutions, or in the admission of students to advanced degrees through the general acceptance of credits among accredited institutions when the performance of the student has been satisfactory and the credits to be transferred are appropriate to the receiving institution
3. a prerequisite in many cases for entering a profession
4. Institutions of higher education benefit from accreditation through:
5. the stimulus provided for self-evaluation and self-directed institutional and program improvement

Scope of accreditation

FEPAC accredits forensic science education programs that lead to a Bachelor’s or Master’s degree in any forensic related program or in a natural science with a forensic science concentration. An eligible forensic program must be located in an accredited institution of higher education. Only programs in Nigeria are eligible for accreditation. Forensic program must be located in an accredited institution of higher education or the professional field.

To ensure the accreditation requirements are valid and relevant indicators of the quality of education, FEPAC will review its Accreditation Standards and Policies & Procedures on a regular schedule comparable with standards that are obtained globally. In addition, FEPAC commissioners and on-site evaluators are trained on the various aspects of the accreditation process as a measure to promote reliability in application of the standards. The evaluators would have also undergone training in relevant subject areas to make them eligible to accredit institutions. Education programs are also monitored through annual reports to ensure continuous compliance with quality measures.

Structure and Requirements

At the head of the accreditation process is the Forensic Research and Development Centre (FORDEC), a research body registered with the Nigerian Corporate Affairs Commission to liaise with other relevant agencies for the regulation of forensic education in Nigeria. The research body has an active research group known as the Forensic Research Group, which started in June 2014 at the University of Benin and has gained a foothold into other universities and the Nigerian Police Force. By holding regular meetings with various stakeholders, the research group seeks to identify grey areas inhibiting the full practice of forensic science in Nigeria.

The Forensic Science Education Programs Accreditation Commission is the body being proposed to fully take charge of the regulation and accreditation of forensic education in our universities, research agencies and other government agencies offering training in forensic education. The body when fully operational will jointly work with the National Universities Commission whose mandate is to regulate the operations of degree-awarding institutions in the country. While FEPAC will define the course structure and modules alongside the operational manpower requirements, NUC would ensure the existence of state-of-the-art facilities and the provision of qualified and competent faculty members. These two bodies must work together for the success of any proposed accreditation programme. Playing a useful but distant function is our foreign partners and agencies like the American College of Forensic Examiners Institute or American Academy of Forensic Science whose function would be to train the initial faculty members and supply the global standardized forensic education syllabi which would be adapted to our own local contents to improve effectiveness and standardization. These agencies would also be there to advice FORDEC from time to time on any breakthrough in forensic science and on any other educationally-related issues.

While no single university offers any degree programme in forensic education in Nigeria, it is hoped that at least one university per geopolitical zone in Nigeria would serve as a pilot institution for the eventual take-off of the programme while specialized agencies like the Nigeria Police Force whose officers are presently trained outside the country would also be admitted into the training programme.

The different disciplines of forensic education from medical, pharmacy, science, digital forensics, accounting, sociology and law, amongst others would be adequately captured in our training manual alongside the requisite qualifications of proposed faculty members who would also serve as examiners. Figure 1 explains the relationship between the various stakeholders.
There exists a smooth correspondence amongst the various bodies such that the function of each is strictly defined for smooth operations. The job of FEPAC is to serve as a clearing house and regulator for forensic education and practice in conformity with global practice and standards. FEPAC considers distance learning to be one of several acceptable forms of instructional methodology acceptable in Nigeria. Therefore, be adequate for the size and scope of the program. Instructional and support services for the program shall also be adequate.

Student support services

The program shall provide adequate student support services including mentoring, academic advising, and career and placement services. The program shall also provide an environment and culture that are congruent with professional standards and behaviors.

Recruiting and admissions practices, academic calendars, catalogs, publications, grading and advertising

The program shall have policies and procedures for student recruitment and admissions that locate and select qualified individuals who have the educational prerequisites and the interest and motivation to pursue careers in forensic science. These policies and procedures shall identify the scientific background necessary and clearly define the expectations for admission to, continuation in, and completion of the program. All statements made about the program in any promotional advertising, catalogs, or other institutional publications shall be accurate. In addition, the student shall be advised of the typical suitability requirements particular to employment in the field. Specifically, students should be advised that background checks similar to those required for law enforcement officers are likely to be a condition of employment.

If pursuing a career as a forensic DNA analyst, nine cumulative hours of course work in biochemistry, molecular biology, and genetics is required; course work in population genetics is desirable. Employers will require documentation, such as a syllabus, for course work with other titles.

The program shall ensure that all students receive timely and accurate information about the academic calendar, required coursework and degree requirements, grading policies and satisfactory academic progress, and other relevant academic policies.

All application, admission, and degree-granting requirements and regulations shall be applied equitably to individuals regardless of age, sex, race, disability, religion or national origin. The program shall have theoretical and internship components that will enhance community interaction especially with relevant state bodies.

Record of student complaints

The program shall have a procedure for handling student complaints. At a minimum, this procedure shall include informing students of their right to file a complaint with the college or university and providing students with the institution’s procedures for filing such a complaint.

The program shall maintain a record of all complaints it receives, as well as the resolution of those complaints. The program shall make this record available to members of the on-site evaluation team during the on-site visit.

Distance learning and other alternative delivery mechanisms

FEPAC considers distance learning to be one of several acceptable forms of instructional methodology acceptable in Nigeria. Therefore,
FEPAC does not maintain separate standards for distance learning or other alternative delivery mechanisms and expects all programs to meet the same standards for accreditation, regardless of the instructional methodology used.

FEPAC acknowledges that laboratory-based instruction is integral to any science-based discipline such as forensic science. Therefore, any program that offers at least some instruction via distance learning shall demonstrate that it includes an appropriate laboratory experience for all students. In conclusion, both virtual and physical learning will be encouraged.

**Undergraduate Program Standards**

An undergraduate forensic science program shall provide a basic foundation in the scientific and laboratory problem-solving skills necessary for success in a modern forensic laboratory. Such a program shall combine rigorous scientific and laboratory training with exposure to the breadth of forensic science disciplines, including forensic science practice, law enforcement and ethics.

**Mission, goals, and objectives**

The undergraduate forensic science program shall have a clearly formulated mission with well-defined supporting goals and educational objectives. The mission shall be appropriate to the institution and consistent with the goals and objectives of the forensic science community to produce a technically skilled and educated workforce. The goals and objectives shall be clearly specified, consistent with the mission and appropriate in light of the degree(s) awarded.

The undergraduate forensic science degree should not necessarily be viewed as a terminal degree but as a preparation for a variety of graduate and professional degrees including clinical and analytical chemistry, medicine, law, and biomedical research and advanced degrees in forensic science.

**Undergraduate admission requirements**

At a minimum, a high school Certificate or WASC or GCE shall be required for admission into a forensic science undergraduate program. Additionally, a program shall be in place to assist and advise entering students to ensure that they have the requisite background in science and mathematics for success in the degree.

**Curriculum**

No course may be used to satisfy more than one of the standards.

**General curricular requirements:** The undergraduate program in forensic science shall offer a coherent curriculum that reflects the mission and goals of the program and provides the student with the appropriate skills requisite for the bachelor’s degree.

The curriculum shall, at a minimum, ensure that each student obtains a thorough grounding in the natural sciences; build upon this background by taking a series of more advanced science classes and develop an appreciation of issues specific to forensic science through course work and laboratory-based instruction.

The program shall have clear procedures for assessing and documenting each student’s progress toward fulfillment of these objectives.

**Specific curricular requirements:** The specific curricular requirements that follow are based on the fact that most forensic scientists work in areas such as drug analysis, trace analysis, firearms and tool marks and forensic biology. Students seeking to work in alternative areas of forensic science, such as computer analysis or forensic documents examiners, latent print recovery and comparison, or crime scene reconstruction, will require other curricula or further training.

Because certain forensic science disciplines require more rigorous coursework than the minimum described below, in particular, more biology and chemistry, the program shall ensure that its curriculum is adequate to prepare students for specialization in sub disciplines of forensic science such as forensic biology, forensic chemistry, toxicology, or pattern evidence examination.

The curriculum shall include the following minimum components:

**Natural science core courses**

- **Biology:** at least one course, which includes an associated laboratory, in biology for science majors (4 semester hours).
- **Physics:** at least two courses, each of which includes an associated laboratory, in physics for science majors (8 semester hours). Note: Calculus-based physics is preferred but not required.
- **Chemistry:** at least four courses, each of which includes an associated laboratory. Two of the courses shall be in general chemistry for science majors (8 semester hours), and two shall be in organic chemistry for science majors (8 semester hours).
- **Mathematics:** at least one course in differential and integral calculus (3 semester hours) and at least one course in statistics (3 semester hours).

**Specialized science courses**

A minimum of 12 additional semester hours in more advanced coursework in chemistry or biology. Note: These classes shall be consistent with the degree program and shall meet the needs of students specializing in sub disciplines of forensic science. At least two of the classes shall include laboratory training.

Specialized science courses from any of the following (minimum 12 credit hours; includes minimum of 2 laboratory courses):

- Biochemistry, Molecular biology, Genetics, Population genetics, Inorganic chemistry, Analytical/quantitative chemistry, Physical chemistry, Instrumental analysis, Cell biology, Pharmacology, Calculus II, Microbiology

For programs offering a track in forensic biology/DNA, the curriculum must satisfy the minimum educational requirements for an analyst as specified in international Quality Assurance Standards for Forensic DNA Testing Laboratories. Required courses must cover the subject areas of biochemistry, genetics, and molecular biology. Those subject areas must be an integral part of the courses, cover the underlying scientific principles, and total a minimum of nine cumulative semester hours (or equivalent). Course work with titles other than biochemistry, genetics, and molecular biology shall demonstrate compliance with this standard through the course syllabi or other documentation. In addition, course work in population genetics is desirable.
Forensic science courses: A minimum of 15 semester hours in forensic science coursework that covers the following topics: courtroom testimony; introduction to law; quality assurance; ethics, professional practice, background; evidence identification, collection, processing; and a survey of forensic science.

Of these 15 hours, 9 semester hours shall involve classes in forensic chemistry, forensic biology, physical methods, or microscopy and contain a laboratory component. Forensic science internships or independent study/research may be used to fulfill up to 6 hours of this requirement.

Additional courses: A minimum of 19 additional semester hours of advanced (upper level) courses that provide greater depth in the student’s area of specialization beyond an introductory level in the program are required. Students can use these additional courses to begin to specialize along a forensic science discipline track.

Program director

The program director shall be a full-time employee of the academic institution, appropriately qualified, and provide leadership in forensic science education, research, and scholarly activities so that students are adequately prepared for forensic science practice.

Faculty

The faculty shall be able to support fully the program’s mission, goals, and objectives. Specifically, faculty members and other instructional personnel shall be appropriately qualified, by education and experience, and adequate in number to implement the instructional program. In addition, the number of faculty members shall be sufficient to ensure the offering, on a regular basis, of the full range of courses needed for the degree program.

At least 50 percent of the full-time science faculty teaching in the undergraduate forensic science program shall have an appropriate doctoral degree; faculty members with working experience in a forensic science laboratory are preferred. The scientific and educational capabilities of the faculty should be distributed over the major areas of the program.

Full-time faculty members shall oversee all coursework and ensure its applicability to the program’s mission, goals, and objectives.

The program shall have well-defined policies and procedures to recruit, appoint, and promote qualified faculty, to evaluate the competence and performance of faculty, and to support the professional development and advancement of faculty.

Success with respect to student achievement

The program shall demonstrate that its graduates have a basic foundation in the scientific and laboratory problem-solving skills necessary for success in a modern crime laboratory. The program may do this through the use of a formal, objective tool, such as the American Academy of Forensic Science (AAFS)-or her affiliates pre-certification process, or through other appropriate pre-graduation assessment measurements.

The program shall also document its record of student performance, as measured by degree completion rates, job placement rates, employer satisfaction, and any additional outcome measures the program may use to assess student progress and achievement. These records shall be maintained for at least five years after student graduation.

Professional involvement

The program shall provide service to the forensic science profession and to the community through some combination of communication, collaboration, consultation, technical assistance, continuing education programs, and any other means it may have for sharing the program’s professional knowledge and competence. An Industrial Attachment (IT) to relevant agencies shall be performing in the first semester of the 3rd year for at least four months for purpose of skill acquisition. The purpose of this involvement is to provide opportunities for faculty and students to contribute to the advancement of the field of forensic science, and to maintain program currency and credibility with practitioners and forensic science laboratory administrators. The program shall demonstrate formal, regular interaction with at least one operational forensic science laboratory. The program shall demonstrate formal, regular interaction with at least one professional forensic science organization.

Graduate Program Standards

A graduate forensic science program shall provide advanced education in the scientific and laboratory problem-solving skills necessary for success in a modern forensic laboratory. Such a program shall combine rigorous scientific and laboratory training with exposure to the breadth of forensic science disciplines, including forensic science practice, law enforcement, and ethics.

Mission, goals and objectives

The graduate forensic science program shall have a clearly formulated mission with well-defined supporting goals and educational objectives. The mission shall be appropriate to the institution and shall include teaching and learning, research, and service. The goals and educational objectives of the program shall be clearly specified, consistent with the mission, and appropriate in light of the degree(s) awarded.

Graduate admission requirements

A bachelor’s degree in a forensic or natural science (or its equivalent coursework in a relevant field) shall be required for entrance into a graduate forensic science program.

Curriculum

The graduate program in forensic science shall offer a coherent curriculum that reflects the mission and goals of the program.

General curricular requirements: The curriculum shall, at a minimum, ensure that each student: develop an understanding of the areas of knowledge that are essential to forensic science; acquire skills and experience in the application of basic forensic science concepts and of specialty knowledge to problem solving; be oriented in professional values, concepts and ethics; and,

Demonstrate integration of knowledge and skills through a capstone experience, such as a formal, objective tool, (e.g., the American Board of Criminalistics Forensic Science Aptitude Test), or other comprehensive examination, thesis, and/or research projects.
The program shall define clear learning objectives for each discrete component of the curriculum. The program shall have clear procedures for assessing and documenting each student’s progress toward the fulfillment of these learning objectives and toward readiness for forensic science practice.

The program shall provide students with opportunities to practice in testimonial experiences, e.g., mock trials and moot court.

Specific topic requirements within the curriculum: The curriculum shall include the topics described in standards 6.3.1, 6.3.2, 6.5.1, and 6.5.2.

Core forensic science topics

The follow topics must be part of the curriculum:

- Crime scene investigation
- Physical evidence concepts
- Law/science interface
- Ethics and professional responsibilities
- Quality assurance
- Analytical chemistry and instrumental methods of analysis
- Drug chemistry/toxicology
- Microscopy and materials analysis
- Forensic biology
- Pattern evidence

Courses in specialized areas

The curriculum must include graduate-level science courses appropriate to the specialization, track(s) and/or concentration(s) offered by that institution. For example, courses covering the topics of molecular biology and population genetics, advanced analytical chemistry, toxicology, and materials analysis may be appropriate.

For a program offering a track in forensic biology/DNA, the program must ensure that graduates satisfy the minimum educational requirements for a technical leader as specified in developed settings such as the FBI Quality Assurance Standards for Forensic DNA Testing Laboratories. Graduates must have successfully completed required courses covering the subject areas of biochemistry, genetics, molecular biology, and statistics or population genetics; those subject areas must be an integral part of the courses, cover the underlying scientific principles, and total a minimum of 12 semester hours (or equivalent). The 12 semester hours may be from a combination of undergraduate and graduate course work; at least 3 semester hours must be at the graduate level. Course work with titles other than biochemistry, genetics, molecular biology, and statistics or population genetics shall demonstrate compliance with this standard through the course syllabi or other documentation.

Graduate seminar: A seminar presented by experts and students on original research and other relevant topics must be offered.

Research: Each student is required to complete an independent research project. The research project shall culminate in a thesis, or written report. In addition, the results of the work shall be presented orally in a public forum for evaluation.

The research shall be conducted in an environment conducive to research and scholarly inquiry, and shall provide the opportunity for faculty and students to contribute to the knowledge base of forensic science, including research directed at improving the practice of forensic science.

Program director

The program director shall be a full-time employee of the academic institution, appropriately qualified, and provide leadership in forensic science education, research and scholarly activities so that students are adequately prepared for professional forensic science practice.

Faculty

The faculty shall be able to fully support the program’s mission, goals, and objectives. Specifically, faculty members and other instructional personnel shall be appropriately qualified, by education and experience, and adequate in number to implement the instructional program. In addition, the number of faculty members shall be sufficient to ensure the offering, on a regular basis, of the full range of courses needed for the degree program.

All full-time science faculty teaching forensic science courses in the forensic science program must have at least a Master’s degree; at least 50% of the full-time faculty teaching forensic science courses in the forensic science program must have an appropriate doctoral degree. The scientific and educational capabilities of the faculty should be distributed over the major areas of the program.

Full-time faculty members shall oversee all coursework and ensure its applicability to the program’s mission, goals, and objectives.

The program shall have well-defined policies and procedures to recruit, appoint, and promote qualified faculty, to evaluate the competence and performance of faculty, and to support the professional development and advancement of faculty.

Success with respect to student achievement

The program shall demonstrate that its graduates have an advanced education in the scientific and laboratory problem solving skills necessary for success in a modern crime laboratory. The program may do this through the use of a formal, objective tool, such as the ABC-Affiliate pre-certification process, or other appropriate pre-graduation assessment measurements.

The program shall also document its record of student performance, as measured by degree completion rates, job placement rates, employer satisfaction, and any additional outcome measures the program may use to assess student progress and achievement. These records shall be maintained for at least five years after student graduation.

Professional involvement

The program shall provide service to the forensic science profession and to the community through some combination of communication, collaboration, consultation, technical assistance, continuing education programs, and any other means it may have for sharing the program’s professional knowledge and competence. The purpose of this involvement is to provide opportunities for
faculty and students to contribute to the advancement of the field of forensic science, and to maintain program currency and credibility with practitioners and forensic science laboratory administrators. The program shall demonstrate formal, regular interaction with at least one operational forensic science laboratory. The program shall demonstrate formal, regular interaction with at least one professional forensic science organization.

**Conclusion**

Criminal activities abound in our society and forensic sciences contain tools necessary to help solve any such activity with ease. The introduction of forensic education in our educational curriculum would help sustain the interest of forensic science, increase the availability of qualified professionals and help law enforcement agencies perform their duties with ease. With the help of FEPAC, the NUC and FORDEC, monitoring, regulation and accreditation would help make forensic education be in line with global best practices thereby increasing the value of graduates of such programmes within and outside the country.

**References**

3. FORDEC. FORDEC Aims and Objectives. 2015.