



CHAPTER 28

CONTRIBUTIONS OF MEASUREMENT AND EVALUATION TO SPECIAL NEEDS EDUCATION

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Introduction

Special needs education, formerly known as Special Education, is the education that is rendered in school, home and hospital settings for persons with special needs with the underlying principle of their total inclusion in the different settings. It is defined as the education given to individuals who differ socially, mentally, or physically from the average person to an extent that they need modifications in the regular school practices (Britannica Online encyclopedia, 2013). UNESCO Institute of Statistics (2022) refers to special needs education as one designed to facilitate learning of special needs persons, who require additional support and adaptive pedagogical methods to enable them participate and achieve learning objectives in an educational programme. Special needs education therefore requires special arrangements for education of persons with disabilities and special needs. Other concepts associated with special needs education are inclusive education and mainstreaming.

Inclusive education is a 21st century terminology in education, which is conceptualized by Oboegbulem (2013) as full integration of learners with or without special needs into the same classrooms and school where they are exposed to the same learning experiences. The goal of inclusiveness or mainstreaming is to include learners with disabilities in the traditional classrooms and giving the same opportunities as other learners to access instruction, acquire knowledge, grow as individuals, and participate in the academic and social environments provided by the school. Persons with special needs is a concept used for describing individuals with different forms of disabilities who need learning support and resource teachers, as well as care support from special needs assistants. Special needs persons (SNPs) include those with different forms of exceptionalities such as visual impairment, mental retardation, physical and health impairment, behavioural disorders, communication and speech impairment, learning disabilities, multiple disabilities, at risk children, autism, and albinism, gifted and talented, among others (Federal Ministry of Education [FME], 2015). Disability refers to a condition that is judged to be significantly impaired relative to the usual standard of an individual or group (Disabled World, 2022). Identification and classification of special needs persons cannot be possible without measurement and evaluation.



Conceptually, measurement is the process of quantifying data obtained through the use of a variety of instruments such as tests, rating scale, checklist, questionnaire, and interview, among others. Succinctly put, measurement is undertaken to quantify the level of knowledge or skills or behaviour acquired by a learner (Adom, Adu-Mensah, & Dake, 2020; Ugodulunwa, 2020). Measurement takes place when teachers mark their students' answer scripts or rate their behaviour or performance. Simply put, evaluation is the process of making judgment of merit or determining worth of a thing sometime based on measurement data collected using valid instruments (Ugodulunwa, 2020).

The purpose of measurement and evaluation in education is for making valid and reliable decisions about educational planning, identifying learners' growth in acquiring knowledge, skills, attitudes, and societal values (Singh 2018, as cited in Odon, Adu-Mensah, & Dake, 2020; Ugodulunwa, 2020). Acquisition of basic knowledge and skills in measurement and evaluation by teachers is therefore meant to complement the specialized skills which different programmes in education are statutorily established to accomplish (Ugodulunwa, 1995). The peculiar nature of special needs persons requires that teachers in the regular and special school settings are exposed to different components of measurement and evaluation as well as how to adapt different forms of assessment to prevent unfair discrimination against learners with different forms of disabilities. The import of measurement and evaluation in education in general and special needs education in particular cannot therefore be overemphasized.

In this chapter, provision of special needs education in Nigeria is examined. Effort is made to present the contributions of measurement and evaluation in special needs education in the areas of curriculum development and implementation, pedagogy, programme monitoring and evaluation, teacher competence, instrumentation and adaptation, and research. Finally, challenges that limit the benefits of educational measurement and evaluation and some strategic options for addressing them are presented.

Practice of Special Needs Education

Globally, special needs education is provided in regular schools or special classes in the regular schools, and also in special schools (FME, 2015; Ministry of Education, Culture, Sports, Science and Technology Japan [MEXT], n.d). In the regular schools' help is provided for special needs persons (SNPs) from learning support, resource teachers, and special needs assistants (SNAs). Efforts are also made in regular classes to provide instruction to individuals in small groups. Team teaching and grouping of individuals according to different levels of achievement are also adopted to cater for the needs of SNPs. Special classes in regular schools are small and are meant for mild disabilities and can also be established as a branch class in a hospital for sick children (MEXT, n.d); while special schools cater for severe disabilities and are established separately for particular types of disabilities and special needs.



In Nigeria, the National Policy on Education 1977 edition has a section devoted to issues relating to special needs education. The implementation of this policy between 1978 and 2013 has been subjected to different interventions in the areas of teacher development, institutional development framework, establishment of special schools, curriculum reviews and other initiatives by government and non-governmental organizations. Research findings at different levels have also necessitated policy review to ensure best practices in the field of special needs education that is based on the principles of creating least restrictive environment, zero rejection, total inclusion of persons with special needs within the society, and diversification of services beyond the school setting.

In line with global best practice, National Policy on Special Needs Education and the implementation guidelines are now in place to guide the practice of special needs education in Nigeria. The objectives of the Policy are to ensure total service delivery of the physical, mental, and emotional disabilities of the Nigerian child, irrespective of setting; to provide adequate and qualitative education to all persons with special needs; and to ensure that they develop at a pace commensurate with their abilities and contribute to the nation's socio-economic and technological development (FME, 2015). The philosophy hinges on Nigeria's national goals that education has to be geared towards self-realization, better human relationship, individual and national efficiency, effective citizenship, national consciousness, national unity, and attainment of social, cultural, economic, political, scientific and technological progress.

Although special needs education is being implemented in Nigeria, a number of shortcomings have been identified in literature. These include the fact that the programme is limited to school setting and accurate data on the incidence and prevalence of special needs persons are not available for service delivery (FME, 2015) as well as failure of government to provide resources for inclusive education in some schools. Other shortcomings include issues of legal mandate, placement, assessment, least restrictive environment, identification and referral, unbiased assessment, and instructional programming (Eskay & Oboegbulem, 2013). Ozoji (2018) also identifies a dearth of research in the areas of pedagogy, curriculum, classroom programming, assistive technology, accommodation, universal design environment, and information technology as problems that inhibit effective implementation of special needs education in Nigeria. Furthermore, efforts to diversify special needs education to include home and the hospital, as practiced globally, is yet to be fully actualized in Nigeria.

Contributions of Educational Measurement and Evaluation in Special Needs Education

Evaluation is central in ascertaining effectiveness and efficiency of programme delivery in special needs education as well as other disciplines. Evaluation is usually based on measurement and assessment data. Without valid and reliable data generated through measurement, evaluation will be highly



subjective and cannot contribute to the growth and development of any field of endeavor. The contributions of measurement and evaluation in the field of special needs education are similar to that of education in general except that modifications and adaptations are required to meet the individual needs of the special needs persons. The contributions of measurement and evaluation to special needs education are presented in this section under curriculum development and implementation, pedagogy, programme monitoring and evaluation, teacher competence, instrumentation and adaptation, and research.

Curriculum Development and Implementation

Curriculum is concerned with what to teach, materials and methods, as well as assessment in the classroom, while curriculum implementation deals with how teachers deliver instruction and assessment through the use of specified resources provided in a curriculum. The curriculum of special needs persons (SNPs) is unique because it requires accommodation of their unique needs. The needs of the SNPs are addressed in regular and unique curricula (Ozaji, 2018). Measurement and evaluation principles should play major roles in the establishment of these unique curricula in order to ensure that they meet the needs of SNPs.

Measurement and evaluation are required to determine extent of adaptation of the curriculum, curriculum-needs match, availability of requisite human and material resources, and extent of achievement of the purposes and achievement of special needs, as well as barriers to implementation. The data collected with valid and reliable measurement instruments such as tests, observation checklists and rating scales, anecdotal records, portfolios, questionnaires, documents, as well as structured and unstructured interviews will help determine short-term and long-term outcomes of curriculum implementation. The data will also provide insights necessary for considering special needs education reform to meet global challenges and international best practices. Failure to base decisions about curriculum development, implementation and reform on objective measurement data will lead to programme failure.

Pedagogy

Pedagogy is the art and science of teaching, which deals with how learning occurs. It is science because it involves knowledge of theories of learning and instructional strategies for teaching. It is also an art because it involves putting theories into practice and building up teaching experience. Good pedagogy is about eliciting responses that demonstrate understanding from learners. Among the modern pedagogical approaches are; constructivist, reflective, collaborative, integrative, and inquiry-based. These approaches are learner-centred, where the teacher's roles include creating a learning environment that is encouraging and engaging, immersing the senses in on-going learning. What is required in this age of globalization is active learning pedagogies that can encourage students to think more deeply about learning materials in a setting where they can easily question or communicate their understanding, and give teachers immediate feedback on the



level of class achievement. It therefore means that students learn better and retain more knowledge when active learning approaches are employed in teaching. The question is: How do measurement and evaluation contribute to special needs education in terms of pedagogy?

Measurement and evaluation are integral and indispensable components of the teaching-learning process because they provide the mechanism for monitoring, regulating and assuring quality of inputs, process and products of education in general and special needs education in particular. Their application in successful operation of all aspects of special needs education, decision making about the individual special needs persons, curriculum and instruction, programmes, policies, and achievement of national goals is considered fundamental and critical. Measurement and evaluation are therefore veritable tools for decision making about the extent of achievement of instructional goals, diagnosis of learning problems, classification, placement, promotion, certification, curriculum planning and improvement, academic, career and socio-personal guidance of persons with disabilities.

Programme monitoring and evaluation

There is increased emphasis on monitoring and evaluation of programmes and projects as a basic donor requirement and management tool. Monitoring is a systematic and continuous assessment of programme process, outputs and outcomes. It involves continuous tracking of activities, review of flow of services and activities provided by a programme, and compliance with implementation guidelines. It also involves establishing indicators of efficiency, effectiveness and impact of a programme or project, designing procedures for collecting data relating to the indicators, data collection and analysis, and using the results to inform management of the programme or project. Formative and summative evaluation of special needs education programmes are required for regular feedback on what works, what did not work, barriers to successful implementation, and suggestions from stakeholders on the way forward. Special needs education, therefore, will benefit immensely from application of tools, methods, and strategies of programme evaluation in assessing its contexts, inputs, process, and products.

Teacher Competence

Developing teacher competence in their content area and measurement and evaluation is required for effectiveness and efficiency in teaching and enhancing student learning. Assessment for learning is critical in students' mastery of 21st century competencies such as learning how to learn, thinking about their own learning, knowing how to plan and evaluate thinking and understanding. Effectiveness of formative assessment depends on the opportunities given to students and teachers to receive and act on feedback (Sadler, 2010). Feedback obtained can enhance short-term or long-term learning. Providing students opportunities to work on the feedback received immediately after the feedback



promotes short-term learning; while students' engagement in assessment practices such as self- and peer-assessment promotes long-term learning (Tan, 2013).

The central role of assessment in the school system for improvement of teaching and learning demands that teachers should be conversant with classroom assessment methods that promote student learning. Classroom assessments are made and used by teachers for formative and summative purposes. They serve formative purposes when the results are used to monitor teaching and learning progress and summative purposes when the results are used for grading, promotion and certification.

The emergence of technology and emphasis on collaborative learning have brought about a shift from traditional assessment practices to new methods of assessing skills, knowledge and attitudes that are important for our changing global and competitive world. The need to measure these essential learning outcomes and provide necessary feedback to students, teachers, parents, administrators and policymakers in order to improve learning and support reforms in education has been stressed (CISCO, Intel and Microsoft: Partners in Education Transformation, 2011). Given that effective assessment is at the heart of the teaching learning process, a good teacher needs to design an assessment plan which specifies assessment methods that are aligned with learning outcomes to teaching methods and activities.

The value attached to assessment and evaluation for transformation and achievement of national goals requires that teachers' assessment competence needs to be built during their training programmes in Universities and Colleges of Education and through seminars and workshops in the areas of screening, diagnosis, formative and summative assessment, and placement in special and inclusive settings. Courses in measurement and evaluation are therefore meant to complement the specialized skills which special needs education and regular teachers require for exploiting the benefits of the course in achieving the expected learning goals and outcomes for special needs persons.

Instrumentation and Adaptation

Instrumentation refers to the process of collecting data, which involves design or selection of measurement instruments and the conditions under which the instruments are administered (Awotunde & Ugodulunwa, 2004). Examples of assessment instruments and methods in special needs education include behaviour rating scales, informal and formal assessments, achievement tests, intelligence tests, formative and summative assessment, and alternative assessment methods (Study.Com, n.d). The need for the use of informal assessment formats for measuring learning achievement of children with disabilities and adaptation of available foreign based instruments has been stressed (Ozaji, 2018). In assessing persons with disabilities, adjustments are made to accommodate special needs persons during low- and high-stake assessments, such as school-based formative and summative assessment, and public examinations, respectively.



The goals of assessment in special needs education are similar to those of assessment in regular education except that there are differences in the techniques of achieving them. This is where adaptation of instruments and assessment accommodation come into play in assessment of persons with varying disabilities. Adapting instruments is all about making necessary modifications in the items of the instruments (e.g., language, format, length, materials, and procedure for administration), which is very important in the assessment of persons with disabilities. It requires adding items, removing items, changing language, and content of each item, among others. Adaptation of instruments requires description and reporting of changes made and the reason(s) as well as revalidation of the instruments. This is where measurement and evaluation make a major contribution to assessment of special needs persons.

Assessment accommodations are referred to as changes or modifications that are made to an assessment procedure, scheduling, setting, presentation and response format or content to remove obstacles that are presented by an individual's disability, without lowering the validity of the assessment results (Public Service Commission of Canada, 2007). Assessment accommodation involves adapting assessment instruments, and providing support and services to help the learners demonstrate learning. The support and services are in the form of provision of additional time to complete assignments/tests, use of alternate formats for printed assessment materials such as braille, and reading out questions in the resource room for the visually impaired persons (Melisa 2015, as cited in Ozoji, 2018) among others. For instance, the Joint Admissions and Matriculation Board (JAMB) provided 383 visually impaired candidates who sat for Unified Tertiary Matriculation Examination (UTME) option to take their examinations using braille, computer, or typewriter in 11 selected centres in Nigeria in 2022 (Iliyasu, 2022). This is an example of accommodation which JAMB was able to achieve through constituting a committee known as JAMB Equal Opportunity Group (JEOG) comprising senior academics and special needs education experts to conduct examinations for candidates with special needs. The JAMB example is evidence of equal access and inclusiveness in educational assessment in Nigeria. The place of measurement and evaluation in designing of assessment instruments and assurance of quality in terms of validity, reliability, fairness and credibility was critical to the success that was achieved.

Research

Research is another area where measurement and evaluation make significant contributions to special needs education. Being a relatively new branch of education, research is needed in the area of curriculum, pedagogy, assessment, accommodation, assistive technology, design of products and environment, information and communication technology (Ozoji, 2018), as well as special and inclusive classroom settings, and programme evaluation. Research needed in the identified areas of special needs education is critical to the growth and



development of the field. Research in these areas requires the use of different measurement and evaluation theories, instruments and techniques for data collection and analysis.

The Challenges

Some challenges that limit achieving the benefits of measurement and evaluation in special needs education include inadequate capacity, threat of examination malpractice, and inadequate funding. These challenges limit the benefits of measurement and evaluation in the field of special needs education.

Inadequate Capacity

Effective teaching takes place when the teacher has mastery of his/her subject-matter and possesses personal qualities and pedagogical skills that will enable him/her to facilitate learning. According to Imogie (1993), adequate learning can only take place where a learning system exists. For a learning system to exist there should be an organized combination of people, materials, facilities and equipment, and procedures, which interact to achieve a goal. Imogie also maintains that it is only through a learning system that a systematic planning, implementation and evaluation of instruction can be guaranteed. When teachers in higher institutions are not effective in teaching measurement and evaluation courses and students lack interest in learning, the consequence is poor teaching and learning. Furthermore, teachers who are unable to cover the relevant curriculum contents due to incessant strike action of Academic Staff Union of Universities may base their assessment on what they were able to teach. Such an assessment may be based on trivial aspects of the curriculum and any decision taken on the basis of that assessment will therefore be defective and lack predictive validity. Thus, the products of an inefficient system possess inadequate knowledge and skills, and cannot effectively exploit the huge benefits of measurement and evaluation in the field of special needs education when employed because of their assessment incompetence.

Funding

Managing teaching and learning in higher institutions of learning require adequate funding for provision of requisite infrastructural facilities and materials as well as prompt and adequate remuneration of staff. The level of funding of tertiary institutions in Nigeria is poor hence the prolonged and incessant strike actions by Academic Staff Union of Universities (ASUU) in order to press their demand for improved funding. Inadequate lecture halls, epileptic power supply, poor internet facilities, non-subscription to relevant e-resources, poorly equipped assessment and computer laboratories make it extremely difficult to engage in practical work in different disciplines, including measurement and evaluation. Hence, the production of teachers who are ill-equipped to use modern technologies and facilities required for teaching and assessment of persons with disabilities.



Threat of Examination Malpractice

Examination malpractice is a serious problem that seems to defy solutions in Nigeria. It is prevalent and getting more sophisticated at all levels of education with the emergence of information and communication technologies (ICTs). Unfortunately, some stakeholders including teachers, students and parents are involved in perpetrating examination malpractice (Ugodulunwa, 2001). There is malpractice in the continuous assessment and examinations by some students. There are also corrupt practices in evaluation by some course teachers in the form of 'sorting' and 'blocking'. Consequently, there is a lack of credibility and validity of results issued and obtained by the perpetrators of examination malpractice, which are reflected in teachers' inadequate knowledge of the subject-matter, pedagogy, assessment accommodation, and teaching ineffectiveness, among others.

The Way Forward

This section discusses how to overcome the challenges of utilizing the contributions of measurement and evaluation in strengthening teaching-learning and assessment in special and inclusive classrooms. The admission policy of different higher education institutions should aim at getting students with good academic backgrounds. Attention should be paid to the quality of special needs education teacher training and recruitment. Continuous professional development of teachers should be given requisite attention. Capacity building in assessment and evaluation at all levels should be a priority. The capacity building efforts should be directed to developing special needs education teachers' capacity to assess students' learning and the use of feedback for improvement of the learning processes; improving data organization and analysis skills; and sharpening their reporting skills and understanding of ethical issues in assessment and evaluation.

In order to reduce the threat of examination malpractice, examination regulations of the institutions should be made available to students in the student handbook. Awareness should also be created during orientations and by their staff advisers from time to time to time for them to know the different forms of malpractices and the sanctions that follow. Examination malpractice in higher education institutions in Nigeria can be reduced by examining issues that border on how to make teaching and learning effective, use of alternative assessment techniques, and how to balance assessment of learning and for learning in classroom instruction.

Another action to be taken is to develop standards for teacher competence in student assessment by professional special needs education associations for realization of educational benefits of student assessment. The standards should serve as a guide for special needs educators in designing and approving teacher education programmes, identifying assessment needs of students, and designing workshops for in-service teachers' professional development.



Other issues that need attention for effective and efficient measurement, assessment and evaluation identified by Ugodulunwa and Mustapha (2005) include provision of adequate and prompt remuneration for teachers, improved funding of schools by government to enable provision of adequate facilities and equipment, and eliminate corrupt practices. It is helpful if students' assessment of teachers forms part of the criteria for promotion. The government should settle all industrial disputes promptly to prevent incessant strike actions that disrupt academic calendar. Programme and institutional accreditation should be further enhanced by ensuring that the recommendations of the accreditation teams are implemented fully.

Summary

This chapter discussed the importance of measurement and evaluation in special needs education. In special needs education, measurement and evaluation should be applied in curriculum development and implementation, pedagogy, programme monitoring and evaluation, teacher preparation, assessment adaptation, and research so as to ensure that the expected outcomes are achieved. Challenges that may limit the benefits of educational measurement and evaluation are presented and strategic options for addressing them are proffered. It is stressed that growth and development of special needs education in Nigeria require adequate funding, improved teacher competence in assessment, overcoming threats of examination malpractice in teacher preparation, among others. These are critical to achieving the benefits of measurement and evaluation in enhancing teaching, learning, and performance of persons with disabilities. Finally, it is concluded that the mission of special needs education in Nigeria cannot be fully achieved without adoption of effective measurement and evaluation principles, tools and strategies in the curriculum development and implementation, teacher preparation, pedagogy, programme monitoring and evaluation, assessment and research.

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