

# ASSESSING NON-COGNITIVE CONSTRUCTS IN EDUCATION: IMPLICATIONS FOR INCLUSIVE LEARNING IN THE NIGERIAN SCHOOL SYSTEM AND SOCIETY

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## Abstract

*The assessment of non-cognitive constructs in schools has continued to be a global issue in the past decades. Perhaps, the reason for this, as some scholars claim, is the complex nature of constructs or the fact that assessment programmes are yet to be developed adequately in these critical areas, compared to the known traditional assessment of educational objectives in the cognitive learning domain. This problem may account for the sole reliance on cognitive measures in the rating of learning competences in our school systems. The formal school curriculum at all levels of learning in Nigeria has no provision for the learning and assessment of affective skills. So that, a learner who excels on the basis of cognitive rating is presumptively deemed fit in learning and character. This is so, even when he or she may be grossly lacking in critical affective values such as grit, tenacity, self-control, curiosity, persistence, confidence, tolerance and the like, whose utility transcend to life after school. This paper explored the fact that assessment of non-cognitive constructs in schools would make for inclusive learning which would be of benefit to the learner and society as a whole.*

**Keywords:** Assessment, cognitive learning outcomes, non-cognitive constructs, inclusive learning.

## INTRODUCTION

Education remains a critical tool for building very safe and powerful societies. Traditionally, it had been viewed by policy makers, practitioners and other stakeholders as a concept, that had to do, exclusively, with the assessment of learners' intelligence and academic abilities. However, recent scholars see this conceptual approach as grossly deficient in portraying what education entails. For instance, Gracia (2014) reported that multiple traits represent a broad perspective of the meaning of education. He acknowledged that, to be educated, one needs to have some good knowledge of a given school subject, along with being theoretically rooted and abreast with facts from a host of disciplines. He, however, noted that the term 'educated' had a lot do with the full

development of an individual, which meant, for instance, that people develop abilities (such as critical thinking abilities, problem solving abilities, social skills, persistence, creativity, and self-control) with which one can add meaningful value to society and be successful in public life, workplace, home, and other societal contexts. In generic sense, according to him, these skills are usually called non-cognitive skills.

Educational and social science researchers believe that these non-cognitive features and skills play very critical roles in school achievement and success in education, generally (Stankov & Lee, 2014). Khine and Areepattamannil (2016) stated that non-cognitive characteristics are often termed as skills, abilities, variables, factors, predictors, outcomes and attributes. In addition to these, they included such features as grit, tenacity, curiosity, attitudes, self-concept, self-efficacy, anxiety, coping strategies, motivation, perseverance, and confidence. Borghans *et al.* (2008), broadly defined non-cognitive skills “patterns of thought, feelings and behaviours” Kafka (2016) described non-cognitive constructs in school settings as skills and attributes that have been found to be quite essential for students' success. However, he noted that such features and skills were difficult to define and measure. In corroborating this, Conley (2010) maintained that developing these abilities will help students to reason logically about what they hear, use their time prudently, put up well with friends and teachers, cope with challenges, and go through various demands of learner, both curricular and extracurricular, from college entry point to graduation.

### **How to Measure Non-Cognitive Constructs**

As noted by Kafka (2016), non-cognitive abilities are not easily defined or measured. Consequently, the testing research and industry have been almost exclusively concerned with cognitive testing for quite some time. Fortunately enough the situation has improved markedly as the developments in technology and more sophisticated measurement approaches promise to improve non-cognitive skills measurement so that it can be trusted in the same way as we trust cognitive skills measurement in order to make educational policy makers place the results gained from non-cognitive skills measurement on equal footing with the results obtained from cognitive skills measurement. Therefore, the need for building and assessing affective values has given rise to the evolution of tools used to measure learners' abilities in these areas. Some tools deployed in the measurement of non-cognitive constructs as expounded by Conley (2010) are discussed in this study.

### **Self-Rating scale**

A common self-rating asks the respondent to rate him/herself on a 5-point rating scale (for example Likert-type scale) with respect to a construct such as teamwork (as in

“Indicate your level of agreement with the following statement; “I work well with others”). The response options would be something like 'strongly disagree', 'disagree', 'neutral', 'agree' or 'strongly agree'. There are many factors to consider when writing such items. They include the wording of statements, format of the response options or labels for the rating categories (for instance, frequency versus agreement), the optimal number of rating categories (for example, 4, 5, 6), whether to include a neutral middle point and so forth. Among the many best practice suggestions for self-rating items and surveys, more general ones put forward by Thayer–Hart *et al* (2010) are: give clear instructions; avoid jargon, loaded words, negatives and abbreviations; keep the question structure simple; use the same word for the same concept; only one question is needed per time, ensure the structure is the same for all questions; prior to asking any questions let terms be well defined; be very clear about the period of time being asked about; ensure that response categories are complete and mutually exclusive; identify response categories with words and not numbers; ask for frequency of occurrences rather than often, seldom or never; and save personal and demographic questions for the end of the survey.

### **Anchoring Vignette Tool**

One promising method for addressing distorted response styles is the use of anchoring vignettes. Anchoring vignettes describe hypothetical persons or situations. The respondent rates the vignettes using the same rating scale used for the self-rating (for example, a 5-point agreement scale, strongly disagree to strongly agree). A nonparametric scoring procedure recodes the self-rating into a new score that indicates whether the respondent rated him/herself lower than the lowest rated vignette, at the level of the rated vignettes or above the highest rated vignette. The new score is the one used for further analysis. Kyllonen and Bertling (2013) describes the rationale for how anchoring vignettes address response bias problems and show data from PISA that indicate that scores recoded using anchoring vignettes builds within-country validity and cross-country score comparability. Below are examples from PISA 2012 in which respondents were asked to read descriptions of hypothetical teachers and rate them:

Ms. Anderson gives mathematics assignment every other day. She always provides the answers to students before examinations. Ms. Anderson shows interest in her students' studies (strongly agree, agree, disagree, strongly disagree). Ms. Dalton gives mathematics homework once a week. She never furnishes the students with answers before examinations. Ms. Anderson is interested in her students' learning (strongly agree, agree, disagree, strongly disagree).

### **Forced-Choice Response Format**

The forced-choice response format was designed to address the faking problem. The forced-choice (or preference, or ranking) format asks respondents to choose between two (or more) statements as to the one that better describes them. A recent meta-analysis (Salgado and Táuriz, 2014) showed that forced-choice assessment had higher predictions with workforce and educational outcomes ( $r = .42$ ) compared to rating scale assessments- $r =$  (Salgado, 2004). Forced-choice also seems to increase cross-national comparability (Bartram, 2013). One reason is that forced-choice responding avoids response style effects (at least acquiescence, midpoint and extreme response style) because there is no rating scale.

### **Passive Self-Report Tool**

The growth in the use of social media and online résumé databases creates new opportunities to gather bio data through the use of advanced technology, such as web crawlers, automatic scanning and data mining. The attempt is to collect behavioural data as indicators of non-cognitive skills. For instance, Novarese and Di Giovinazzo (2013) used the time taken between being informed of acceptance and registering as an indicator of procrastination, which was found to predict school performance.

### **Importance of Non-cognitive Constructs in Education and Society**

The importance of non-cognitive constructs or factors to humanity, generally, cannot be overstressed. In line with this, Gracia (2014) asserted that, non-cognitive constructs have both direct and indirect essence to individuals and society.

**Direct importance:** In expounding the direct benefits of non-cognitive constructs, Gracia (2014) relayed, for instance, that such skills like self-confidence, respect for others, ability to build consensus, willingness to tolerate alternative view points, which are classified as emotional, social and democratic skills were indisputably of immense importance. In addition, Rothstein *et al.* (2008) averred that, building these abilities is indeed an indirect or unwritten (sometimes clearly expressed) goal of public education. From the context of schools, such characteristics as ability to persevere, ability to communicate, sense of creativity, and teamwork, and so on, should be seen as crucial in themselves. Therefore, giving them prominence should be a major thrust of the school system. Based on the foregoing, the importance of these skills cannot be overstressed.

**Indirect importance:** Almlund *et al.* (2011) asserted that, another way to really appreciate the importance of non-cognitive skills is to examine their relationship with other outcomes that are both individual and societal, ranging from level of education attained and economic earnings by adults to civic participation, and so on (Almlund *et al.*, 2011). According to Levin (2012), these dimensions are critical in forming healthy

character and contributing to productive relations in the work-place, community, family, and politics. Gracia (2014), however, noted the dearth in investigations linking non-cognitive constructs with educational outcomes. But that research in this area was on the rise. Existing research reports consistently indicate positive correlation between non-cognitive skills and other forms of abilities or skills (Farrington *et al*, 2012; Olson, 2012;).

### **Problems and Challenges Associated with the Assessment of Non-cognitive Constructs**

The assessment of cognitive outcomes has had a long history of development and widespread application globally. As noted earlier, non-cognitive skills, which are only beginning to gain recognition in recent years, are relatively more difficult to assess. A few problems and challenges associated with their assessment are discussed.

- (i) Self-rating biases:** Most non-cognitive skills involve subjects rating themselves on a self-reporting scale, thus, allowing for possible biases in response patterns. West (2016) noted that vital questions have been asked about the validity of existing measures of affective characteristics, a large number of which have to do with students being asked to assess themselves regarding such competences, for purposes of accountability. The major issues include the chances of students giving false information as could often be the case with students' self-reports; students may misrepresent their self-ratings by inflating or exaggerating their worth or values, especially where stakes are involved.
- (ii) Assessment of non-cognitive constructs still evolving:** Unlike the assessment of cognitive outcomes that has developed over time, systematic assessment of other personality traits, according to Levin (2013), which could equally determine both economic productivity and academic attainment is largely less developed in educational assessments.
- (iii) Complex nature of non-cognitive constructs:** Non-cognitive constructs, which define social and behavioural traits or personality features, referred commonly as non-cognitive measures, have been found to be more difficult to understand in terms of their underlying definitions, structure and measurement. This is, more so, as there are several more of these dimensions explored in literature – making them a lot more challenging to measure as in the conventional approach—applicable in the measurement of cognitive abilities. In fact, to make matters worse, their terminologies are widely varied among disciplines and authors. Some authors prefer to identify them as non-cognitive, others affective, social, behavioural or emotional and so on (Levin, 2013).

**(iv) Lack of government and institutional commitment:** Provisions are often being made, in principle, for the adoption and full implementation of the varied dimensions of the assessment of affective values of learners in some school systems but the operators or managers of the schools still rely solely on cognitive approaches of assessments. The government, on her part, in most cases, may not track compliance by relevant school bodies or institutions.

### **Implications for Inclusive Learning in the Nigerian School System and Society**

Assessment in Nigerian schools, as evident the world over, in the past decades, had centered mostly on cognitive outcomes at the expense of critical affective values that learners need to even enhance their cognition and add value to life out-of-school and society as a whole. Learning that only revolves around what is gained intellectually and academic ability is by far short of holistic learning. According to West (2016), an increasing body of empirical evidence has confirmed that student abilities not assessed directly by tests of academic achievement and ability determine, to a very large extent, academic attainment and other life outcomes, even where there are differences in cognitive abilities. He added that, both intra-personal skills (such as the ability to keep one's behavior in check and exercise perseverance toward goals) and inter-personal skills (such as the ability to work in collaboration with others) are very complementary in the attainment of academic goals and determining students' success.

The Nigerian society is currently plagued with a distorted value system that may not be unconnected with a system of education that is only obsessed with the attainment of cognitive values just for workplace and societal relevance. Skills like emotional fitness, social awareness, resilience, broadmindedness and such other affective characteristics are not being factored into school assessment processes to guarantee total and inclusive learning for a better and wholesome society. Little wonder that, school learners, not armed with the needed non-cognitive values become easily prone to failure academically and some who scale the learning hurdles, transit to the world of work and politics, lacking grossly in character.

### **Conclusion**

Education that serves the learner and impacts the society positively must be inclusive. Cognitive learning outcomes do not really produce the total learner. School certificates that merely bear records or measures of intellectual fitness may still leave much to be desired in terms of character. Non-cognitive learning outcomes would naturally enhance intellectual learning and personality fitness for the good of the learner and society at large. This paper explored the fact that cognitive and non-cognitive learning outcomes are complementary and should be assessed together to achieve inclusive learning.

### **Recommendations**

- (i) Government should institutionalise and decisively enforce the inclusion of non-cognitive constructs in school assessments at all levels of learning.
- (ii) Experts in educational assessment and psychology should be consulted to evolve very germane non-cognitive constructs for incorporation into the overall school assessment programme.
- (iii) Government and other proprietors of schools should recruit trained teachers with biases in the needed non-cognitive or personality development skills.
- (iv) School administrators should ensure that very valid and reliable scales are developed for measuring non-cognitive constructs of learners in their schools.
- (v) Government should ensure that its inspectorate agencies are working hard to monitor and track compliance by schools regarding the implementation of the assessment of non-cognitive skills.
- (vi) Workshops and other capacity enhancement programmes should be organized regularly for school administrators and teachers to expand and sustain their knowledge base in the assessment of non-cognitive skills.

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