

Is Terminology the real Problem in Failure to Implement STEM Education in African Languages? Translanguaging as an Intervention Strategy

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Abstract

English has remained as the sole language of instruction for science, technology, engineering and mathematics (STEM) subjects in Anglophone African countries. The use of English as the only medium in the teaching and learning of STEM subjects has been based on the fact that African languages lack requisite terminology. The paper seeks to answer the questions:

- To what extent are the inadequacies in African languages terminology hindering the teaching of STEM subjects in these languages?*
- Is lack or inadequacy in terminology, the real reason for excluding African languages in the teaching and learning of STEM subjects?*
- What options can be adopted to achieve the inclusion of African languages in the teaching of STEM subjects?*

To answer these questions, the study took a phenomenological qualitative research design which was complemented by textual analysis to interrogate the exclusion of African languages in the teaching of STEM subjects. Semi-structured interviews with 20 teachers of STEM subjects were conducted in Bulawayo, Zimbabwe. The results of the study revealed that while teachers and linguists are aware that the inclusion of the learners' first languages in the teaching of STEM subjects have cognitive benefits, perceived inadequacy in African languages terminologies and fear of isolation remain as hindrances. The study reflected that if African languages in STEM education are included through translanguaging the fears of isolation and misconceptions of inadequacies in terminologies would be conquered. The paper concludes that lack or inadequacy in terminologies in African languages is not a problem but what is the problem is that the inclusion of African languages in the teaching of STEM subjects has been interpreted as a move to totally dislodge English language. African languages and English can be used together in the teaching of STEM subjects through translanguaging.

1. Introduction

To date, many debates have been centred on the use of African languages in the teaching of science and mathematics in schools. These debates have been characterised by varying opinions with some supporting the inclusion of these African languages while other are against their use. Those that have advocated for their use have been trying to fight the marginalisation of African languages and for their recognition since they are the first languages of the majority of learners in Africa. Those that have opposed their use in the teaching of science and mathematics have been basing their arguments on the underdevelopment of terminologies of these African languages and their multiplicity. The paper argues for the inclusion of African languages in teaching and learning of science, technology, engineering and mathematics (STEM) subjects. The arguments advanced in this paper are unique in that we argue for the inclusion of African languages and not for their exclusive. The ideas are premised on the notion of using all available languages in a multilingual classroom in the teaching of STEM subjects and not relegating or excluding any that is available within a multilingual classroom. The paper argues for a harmonious linguistic functionality in multilingual STEM classrooms. On the question of the unavailability of adequate terminology in African languages, we demonstrate that wherever communication is required terms that allow functionality can always be created when strict avoidance of prescriptivism and purism is thoroughly emphasised. Terminology has been identified as a hindrance to the inclusion of African languages in the teaching and learning of STEM subjects yet the approaches where lots of efforts have been invested are the ones that are unrealistic. The paper will also make a critical appraisal of terms for STEM subjects that have so far been suggested by other researchers such as Dlodlo (1999). The idea will be to check on the flaws and strengths of such terms through focusing on cases of purism and prescriptivism that results in awkwardness in such terms.