

## **Opportunities and Factors Affecting adoption of STEM Education: The Case of Gweru Polytechnic First Year Commerce Students.**

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**Abstract** *The current study sought to explore the factors affecting adoption of STEM education by first year students at Gweru Polytechnic. The study aimed to solicit various ideas, opinions, perceptions and attitudes on factors that affect adoption of STEM education despite opportunities abound this education reform. Data were collected through face to face interviews, focus group discussions and open ended questionnaires. A randomly stratified sample was used to select 8 lecturers and 30 first year students in the Commerce division respectively. Themes emerged from the in-depth individual interviews were discussed. The data was organised and presented in figures and statistics in line with quantitative and qualitative approaches. The study used a case study design. STEM education has been hailed for empowering the students to develop scientific knowledge needed in every aspect of life. STEM workers earn significantly more and experience lower unemployment rates than in other fields. The study revealed that lack of knowledge; skills, positive attitudes and poor motivation for STEM were prevalent factors that affect adoption among students. It also emerged that there is acute shortage of teaching staff at secondary level and subjects like engineering and Technology do not feature in the secondary curriculum. Some of these factors attributed to stem-phobia resulting in students lacking interest and shun STEM subjects. The study recommends that STEM be taught to students from secondary schools by well-qualified and highly effective and motivated teachers. Furthermore, there is need for education to empower the parents, teachers and students for support of the innovation. Finally, the study recommends further research on a wider scale to be conducted by employing different methods to come up with generalisable results.*

**Keywords:** - engineering, innovation, opportunities, STEM, technology.

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### **I INTRODUCTION**

On Zimbabwe independence the high levels of illiteracy was met by great social demand for education across the nation. As a new independent country education development was central to the investment in educating the population. Prominent education policies were pronounced and enrolments shot in both primary and secondary schools. To this effect teacher/pupil ratio rose up to 1/60 and acute shortage of teachers, classrooms and resources spurred and compromised quality education. Krueger (2003) warns that small classroom size significantly improves students' academic achievement. The level of literacy rose up to as high as 80% however, all this happened to the exclusion of STEM education to date. STEM education as a new phenomenon is receiving extensive publicity to heighten its adoption from primary level to university education. Nyerere (1968: 274) affirms that, "Education must impart knowledge and skills needed for family life and for participation in the development and maintenance of the community" The STEM education is tied around the subjects namely Science, Technology, Engineering and Mathematics. While Science and Mathematics were being taught with less inclination to the purpose and meaning it is attached today in different learning spheres. Most of the post secondary graduates have made entries into colleges and universities with little or no idea of opportunities, benefits and importance of STEM education in line with career choices. This oblique background to STEM education has somehow deliberately lost support from students who rally behind commercial subjects in polytechnic colleges. Generally, the structures left by the colonial masters used divide and rule, this is where the resource landscapes were designed specifically for men and women automatically marginalised and discriminated against.

On a contemporary note, STEM education has become an interesting topical phenomenon at local and international arena. The emphasis thrust being made in both Secondary and Primary Education Ministry as well