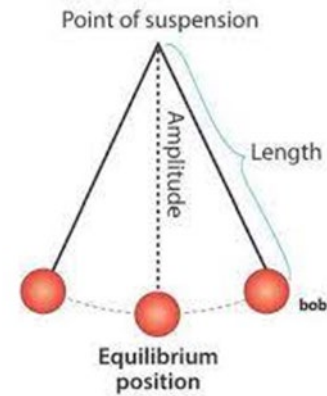
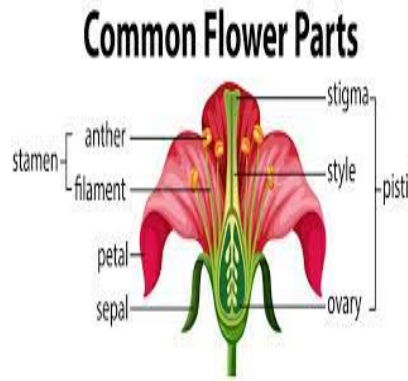


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Call for Papers

Special Issue April 2024

Rethinking the teaching of Science, Technology, Engineering and Mathematics (STEM) subjects through arts-based and participatory methodologies

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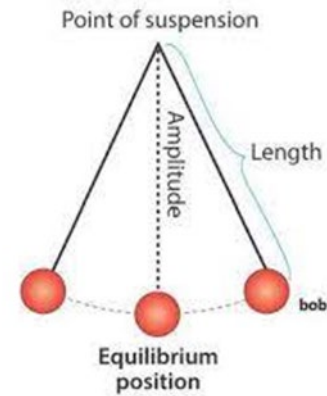
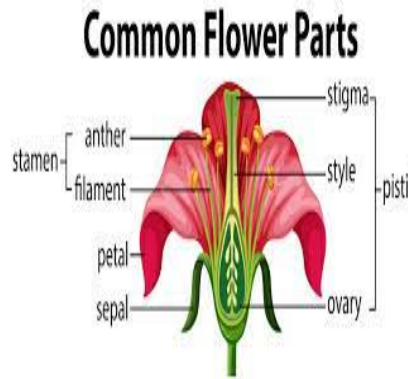
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Research has consistently reported poor performance in STEM (Science, Technology, Engineering and Mathematics) subjects when compared to other subjects (Case, Marshall and Grayson, 2013). This consistent poor performance has resulted in learners and people in general, perceiving STEM subjects as being difficult to learn. One reason for this perceived difficulty is the poor epistemological access which is mostly linked to a variety of classroom-based factors including pedagogical approaches that alienate learners from the subject (Tikly, Joubert, et al, 2018). This perceived difficulty of the subjects causes fear among learners to enrol for them at high school and consequently at university. This perception created a trend which has led to scarcity of people studying STEM subjects in general. Further, the perception has led to a comparably lower enrolment of females in STEM subjects across all levels of education (Anayaa, Stafford, and Zamarroa, 2021). Ultimately, each academic year, South Africa and other African countries bemoan the poor performance of matric and secondary school students in STEM subjects and the scarcity of a skilled workforce in STEM specialisations (Case, Marshall and Grayson, 2013).

At tertiary level, teacher educators have the task of preparing pre-service teachers to teach STEM subjects in a manner that makes them interesting and fun for learners such that there is improvement in their performance and consequent increased uptake of STEM specialisations. Arts-based, participatory, and humanistic methodologies in addition to integrating the subjects into STEM, have potential to facilitate better

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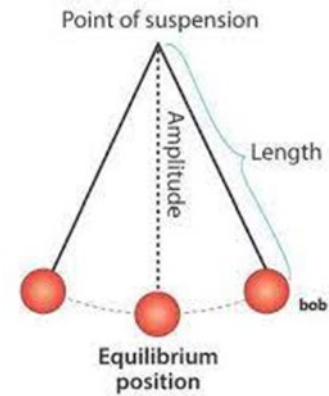
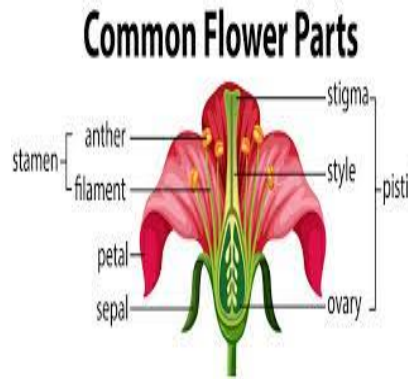


epistemological access (Chemi and Du, 2018). It has also been argued that integrating arts subjects to STEM subjects to form STEAM, has the potential to enable epistemological access (Huser, et al (2020). Arts-based methodologies entail use of arts subjects and methodologies for teaching (Carter, et al., 2021). Thus, this issue explores the use of arts-based and participatory methodologies and integrative approaches in the teaching of STEM and STEAM subjects. This perspective has potential to generate conditions of possibility for capabilities and competences that enable new, deeper, meaningful as well as humanistic learning experiences. This perspective to educational experiences is particularly key in the face of the ever-changing environmental and contextual human, social, economic, and technological conditions. Human knowledge in current conditions is inseparable from the technological advances that are inherently part of the living conditions and particularly as human life transition from the 4th to the 5th Industrial Revolution.

Suggested topics include and are not limited to the following:

- The integration of STEM subjects with arts subjects and technologies to achieve STEM / STEAM for ‘commoning’ and humanizing STEAM knowledge.
- Reimagining the use of arts-based approaches and methodologies to teach STEM / STEAM subjects for ‘commoning’ and humanizing STEAM education
- The impact of arts-based methodologies and emerging technologies on student STEM/ STEAM learning outcomes and requisite skills/ competences/ capabilities
- Opportunities and shortfalls of arts-based methodologies and technologies as well as arts integration in STEM and STEAM education
- STEM / STEAM education and emerging issues: gender, quality education, decolonization, and diversity; as conditions and outcomes for arts-based methodologies
- Teacher professional development for the use of arts-based technologies and methodologies as well integration of STEM / STEAM education
- Assessment of integration of STEM and STEAM for, and of, learning
- Evaluating the integration of arts-based methodologies and educational technologies in STEM and STEAM education.
- Researching arts-based STEM and STEAM for ‘commoning’ and humanizing STEAM knowledge

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Extended Abstracts (1500-2000 words) that are submitted as an **Ms Word** email attachment to edjournal@mandela.ac.za should be structured to show:

- The article title, author names and contact details
- Introduction and background
- Literature review
- Theoretical framework
- Research methods and Data analysis
- Findings

Article submissions should align to the scope of the **Educational Research for Social Change** (ERSC) *Journal* (<http://ersc.nmmu.ac.za/>) through focussing on how qualitative research is bringing about transformation in higher education, be it research in teaching, curriculum, assessment, administration, or management pertaining to STEM subjects.

Please note that the ERSC does not accept articles that merely report on issues, where researchers harvest data from participants and interpret it to develop recommendations for change - the research itself must lead to some form of change in at least one of the following areas; change in the researcher, change in the participants, change in the situation.

Educators, STEM and STEAM practitioners are invited to submit empirically generated abstracts. Extended Abstracts, together with the article title, author names and contact details, should be submitted as an email attachment to: edjournal@mandela.ac.za

Important dates:

Extended Abstracts (2 - 4 pages, incl. references.)	15th September 2023
Invitations to selected authors	7th Oct 2023
Full manuscript submission	1st December 2023
Feedback on reviewed manuscripts	15th January 2024
Submission of reworked papers	15th February 2024
Publication date	April 2024

Please take note that only one paper will be published by an author per year. Potential authors should consult the **Educational Research for Social Change** information for authors for style guide information.