Reviewer's report on M N Khwanda and P Molefe's paper entitled

"An evaluation of the impact of scientific explanation model on pre-service teachers' understanding of basic concepts in electricity"

M N Khwanda and P Molefe present a paper on evaluation of misconceptions pre-service teachers have with regard to the understanding of basic concepts in electricity. This is a very important study in the broader science education field since it seeks to identify and clarify common misunderstandings of basic scientific concepts, which are the building blocks of conceptual understanding in any scientific discipline.

Questions/comments relating to the paper.

- **Introduction and background** - Briefly list previously identified misconceptions and state the sources from literature and the link them to the current study.
- A statement that present a "fact" should be backed by evidence or source, e.g. references etc. The authors have made statements stating them as facts without at least providing a source or reference. (see annotated copy)
- All abbreviations should first be written in full e.g. Direct Current (DC) circuit.
- The **abstract** does not present all key study details (e.g. use of CER as an instructional strategy, findings, etc.)
- The authors should cite the literature that they used to back up their argument.
- Where is the rubric? The authors should include the rubric and cite it appropriately ih the document.
- Be consistent with the tense when reporting your results. You used present tense in one section and past tense in the other sections. Check all.

Summary of assessment

The paper represents a very important and fundamental aspect of learning physics and problem solving, namely conceptual understanding. The structure of the paper follows the understanding of science education research. The aims and motivation of the study are clearly outlined. The proposed methodology is adequate to achieve the aims of the study. The results shows high prevalence of misconceptions amongst physics students. However, I still feel that the intervention procedure using the CER was not satisfactorily outlined and explained in the methodology section. The results of the study will contribute to our knowledge about effective approaches to teaching scientific concepts and to improve conceptual understanding.

There are numerous typographical/grammatical corrections that the authors need to make. I have pointed out some typographical/grammatical errors on an annotated copy of the paper.

Subject to the above mentioned corrections being effected as indicated in the copy, the paper provides adequate evidence for publication.