

**INVESTIGATING LESOTHO JUNIOR SECONDARY SCIENCE TEACHERS'  
PERCEPTIONS AND USE OF LABORATORY WORK**

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**A research report submitted to the**

**Faculty of Science  
of the**

**University of the Witwatersrand, Johannesburg**

**In partial fulfillment of the requirements for the degree of**

**Master of Science in Science Education.**

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## **DECLARATION**

I declare that, apart from the sources acknowledged, this research report is my own unaided work. It is being submitted in partial fulfillment for the degree of Master of Science in Science Education to the University of the Witwatersrand, Johannesburg, and has not been previously submitted for any degree or examination at any other university.

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**Monare Thulo Julius**

**15th day of September 2010**

## **DEDICATION**

This work is dedicated to my mother, 'Mapuleng Monare and my late father Lefurutse Monare for their sacrifice to give me education, and for inspiring in me courage for further learning.

## **ACKNOWLEDGEMENTS**

I sincerely extend my gratitude to my supervisor Dr. Elaosi Vhurumuku for his tireless, invaluable professional guidance without which this study could not have been successful.

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## **LIST OF ACRONYMS**

<b>CU:</b>	Conceptual understanding
<b>IM:</b>	Interest and motivation
<b>MIS:</b>	Make science interesting
<b>NOS:</b>	Nature of science
<b>PST:</b>	Process skills and techniques
<b>SI:</b>	Scientific inquiry
<b>TIP:</b>	Teachers' instructional practices
<b>TPALW:</b>	Teachers' perceptions of the aims of laboratory work
<b>UT:</b>	Understanding of theory

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## **Investigating Lesotho Junior Secondary Science Teachers' Perceptions and Use of Laboratory Work**

### ***Abstract***

This study investigated Lesotho junior secondary science teachers' perceptions and use of laboratory work in teaching. Teaching is described as engagement in a relationship between a person called a teacher and another person called a student with the purpose of facilitating the student's acquisition of content which the student previously lacked (Fenstermacher, 1986). Using the constructs of scientific inquiry and inquiry-based instruction and constructivism as theoretical lenses the study empirically explored the Junior School Science teachers' perceptions of the aims of laboratory work and how the teachers used laboratory work in their teaching. At the centre, the investigation sought to understand whether there was any relationship between teachers' perceptions of the aims of laboratory work and their use of laboratory work. The sample of the study consisted of fifty science teachers (n=50) conveniently selected from 12 schools in the Butha-Buthe district of Lesotho. Data were collected through closed and open ended questionnaires (n=50), semi-structured interviews (n=5), and laboratory lesson observations (n=2). Data were analyzed quantitatively using descriptive statistics and qualitatively using a combination of typological and interpretational analysis. The results show that as a group the sampled teachers held the view that the most important aim of laboratory work was to promote conceptual understanding. In their teaching, most of the sampled teachers use laboratory work to verify theory through largely verificationist, expository and non-inquiry laboratory instructional practices and strategies. The following barriers were reported by the teachers as limiting their use of inquiry oriented and student centered teaching strategies: limitations of resources; time constraints; large classes; pressure to complete the prescribed curriculum; safety issues; and preparations for external examinations. The results also suggest that the teachers' seeing laboratory work as important for developing conceptual understanding is associated with their use of verificationistic teaching approaches. It is recommended that; Lesotho science curriculum be reviewed, and that teachers should participate in curriculum development to enhance successful implementation of inquiry instruction, professional development programmes be established, and the enactment of inquiry instruction be systematically monitored and evaluated. It is recommended that curriculum developers facilitate teachers' transformation from expository to inquiry instruction.

### **Key words**

Laboratory work, scientific inquiry, constructivism, teachers' perceptions, instructional practices, assessment, inquiry teaching, conceptual understanding.