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Exploring Grade 10 rural physical science teachers' perceptions and usage of everyday words in Acornhoek science classrooms, Mpumalanga Province

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ABSTRACT

Science is a specialized language on its own and literature has revealed that science learners face conceptual challenges when learning about science concepts and words which are used in both everyday and science classroom with different meanings according to context of use. Science as a language is composed of scientific concepts (technical words) and ordinary words (non-technical words), of which the latter is the focus of this study because of its importance in ensuring sound comprehension of the technical words for effective teaching and learning of science. As such, teachers also need to mediate the non-technical words, especially Everyday Words when used in Science (EWS) classroom context, because they serve as conveyor belts of meanings inside the classroom and if explicitly mediated it can help enhance the teaching and learning of science.

The purpose of this study was to explore Grade 10 rural physical science teachers' perceptions and usage of everyday words in science context during teaching. The study also sought to understand teachers' level of awareness with EWS difficulties in learning science, while it also critically analysed factors shaping physical science teachers' perceptions and usage of EWS. To unearth rural teachers' language practices, this study used a case study design and qualitative research approach drawing from Vygotsky's concept of mediation, Scott, Mortimer and Ametler's concept of pedagogical link-making; and Mortimer and Scott's concept of social language of science as conceptual framework. Research data was collected through ten classroom observations of Grade 10 physical science lessons and individual interviews with the participant teachers from rural settings of Acornhoek, Mpumalanga Province.

The main findings of this study illustrates that greater percentage of classroom talk was teacher talk. In their talk, teachers were explicit in explaining the technical words while either ignoring or implicitly addressing the non-technical words, especially EWS. Additionally, teachers' perceptions of the value of addressing non-technical words in their teaching varied. The study also established that the teachers' language practices were to some extent influenced by the rural contextual social realities, teacher content knowledge, teacher knowledge of EWS and the importance of science language, and other several personal and contextual constraints. The findings also shown that rural Acornhoek physical science teachers were not aware of the learners' difficulties instigated by the use of EWS, and more disturbingly is that some teachers also lack knowledge of the contextual meanings of EWS.

The paucity of physical science education research in rural schools has not been able to offer account of teachers' perceptions and usage of EWS during teaching in rural schools. Hence, this study as

introductory for other science education researchers in researching teaching and learning physical science in rural schools, more specifically the understanding of STL, influence LOLT and the LOLTS. The findings of this study demonstrates that teachers are often oblivious of the functional value of EWS due to their negative perceptions hence their lack of explicit explanation of EWS when encountered during teaching and such practice is influenced by various factors. Therefore, this study recommends research intervention intending to equip teachers with skills in noting and dealing with language demands in their classrooms.

Keywords: *Science Teachers" Language (STL), Technical words, Non-technical words, Language of Learning and Teaching (LOLT), Everyday Words used in Science context (EWS), rural, teaching physical science, and perceptions.*