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THE ALIGNMENT OF THE GRADE 12 PHYSICS EXAMINATION AND THE CAPS CURRICULUM: (NOVEMBER 2014 – MARCH 2018)

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In order for the South African education system to compete globally, the best practices of the global education leaders must be adopted to achieve success in STEM education. Policy changes in the education system and Government investment on STEM education must be realised. The Department of Basic Education (DBE) has associated the poor pass rate in the National Senior Certificate (NSC) Physical Sciences to the learners' lack of practical work and the inability to solve problems by integrating their knowledge from different topics in Physical Sciences. The CAPS (Curriculum and Assessment Policy Statement) is central to the planning, organising and teaching of Physical Sciences. The NSC Physical Sciences Examination Diagnostic Report 2017, refers to the CAPS on only one occasion. The reference was made to the learners' lack of knowledge of Physical Sciences definitions. Considering that definitions in the NSC Physical Sciences: Physics (P1) November 2017 weighed only 11%, and more than a third of the learners achieved below 30% in the examination there seems to be a lack of references to CAPS. It was also suspected that the poor performance could possibly be due to a disjointed alignment between the CAPS and the P1. There have been no previous studies investigating the alignment between the CAPS and the P1, this study aims to fill that gap. A case study research strategy was used in this study. A purposive sampling procedure included the CAPS Grades 10–12 Physical Sciences document; the Physical Sciences Examination Guidelines Grade 12 documents and the final and supplementary P1 examinations for the period starting November 2014 to March 2018. A summative content analysis research technique was conducted using the Surveys of Enacted Curriculum (SEC) research method. The SEC method employed the use of the four topics of Physics and the four non-hierarchical levels of cognitive demand as described in the modified version of Bloom's taxonomy. This study found that there was a 100% of categorical coherence, a 67.3% balance of representation, a 79.6% cognitive complexity and a Porter's alignment index of 0.76 between the CAPS and the P1. The overall inter-rater Kappa for all the documents analysed was 0.88. The results of this study indicated that the CAPS over-emphasized the "Mechanics" topic content and the P1 over-utilised the "Applications and Analysis" cognitive demand based questions. The highest level of cognitive demand, "Synthesis and Evaluation" was not used in the CAPS or the P1. An interpretation of this is the CAPS and the P1 foster an environment of lower order thinking. In order to foster higher order thinking and increase the alignment between the CAPS and the P1 it is a recommendation of this study that firstly, the CAPS decreases "Mechanics" content. Secondly, the CAPS and the P1 increase the cognitive demand of "Synthesis and Evaluation" at the expense of "Recall". Thirdly, the CAPS must include the concepts, content and skills of the school based Physics practical assessments whilst decreasing the focus on Physics definitions.

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