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### Symposia

#### TITLE:

#### **Interventions to optimize cognitive abilities**

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**(North-West University:Vaal Triangle**

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In this symposium four Higher Education lecturers will discuss their individual and collective efforts that form part of a research project at the North-West University (NWU) (Vaal Triangle, South Africa) to establish and optimize cognitive abilities at school and higher education level.

#### **Abstract**

Increased economic competition demands that education and training, no matter in what discipline or what level ought to enable learners to think “smarter” than was the case in the past. “Smarter” thinking implies that learners need to be curious, critical, analytic and reflective thinkers and problem solvers. We now find ourselves in a time where learners are inundated by information but have limited skills to decipher, question, validate and reason through the validity of information. Teaching for thinking thus becomes a necessity for all learners. As cognitive ability refers to an intellectually disciplined process of actively and skilfully conceptualizing, applying, analyzing, synthesizing and or evaluating information gathered from or generated by observation, experience, reflection, reasoning or communication, good language ability is crucial. Language, thinking and learning are therefore intimately tied together. The findings of a pilot study indicated deficiencies with regard to the cognitive and language abilities of students at Higher Education level and learners at school level which raised the question as to how these abilities can be optimized.

The discussion will comprise four presentations that will report on ongoing true experimental research conducted with prospective teachers at Higher Education level and learners at school level in order to optimize their cognitive functioning and language abilities.

The linked purposes of this discussion are:

- to report on the Watson Glaser Critical Thinking Appraisal pre-test results for the critical thinking abilities of a cohort (n =89) of first year BEd-students at the NWU:Vaal Triangle as well as the pre-test results obtained for the Test for Academic Literacy for the language abilities of the same cohort of first year BEd- students;
- to elaborate on a language enrichment programme to improve the language abilities of the cohort of first year BEd-students;

- to report on the DAT-L pre-test and post-test results for the cognitive abilities of a group of second year BEd-students (n = 24) at the NWU:Vaal Triangle prior to and after intervention with the Feuerstein Instrumental Enrichment Programme; and
- to report on the PPG pre-test and post-test results for the cognitive abilities of a group of Grade 3 learners (n = 60) at a primary school in Gauteng, South Africa, prior to and after intervention with a cooperative teaching and learning programme;

In this discussion, which will focus on a critical account of the theoretical and empirical findings of the research, the significant correlations between the academic literacy and cognitive abilities of the cohort of first year BEd-students will be highlighted. Furthermore, improvements in cognitive abilities that were obtained with the Feuerstein Instrumental Enrichment Programme as well as the cooperative teaching and learning programme, will be discussed. It will be argued that intervention research might reflect the merits to optimize cognitive and language abilities.