DEFENCE INNOVATION NETWORK

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Defence Innovation Network Grant Scheme: Pilot Project

SOLDIER COGNITIVE PERFORMANCE

PROBLEM

The Australian Defence Force (ADF) need a cognitive assessment tool that reflects the current dynamic and complex environment of modern warfare. For example, a key trait required in many specialised roles within ADF Personnel is problem solving. Currently the problem solving skills of ADF personnel in these roles are assessed through traditional cognitive tests, such as the 3 jugs test. The concern about these traditional tests is that they may not adequately assess the fluid intelligence utilised during problem solving in complex and dynamic environments. Measuring an individual's ability to problem solve in such an environment is not reliably measured using multiple choice questionnaires (Shute, 2011).

In recent times, there has been considerable research in designing problem solving assessments that combine proven cognitive assessment methods with gaming technology. An advantage of this approach is that the assessment can be integrated into the learning process, avoiding potential issues that can arise when there is clear delineation between learning and assessment. Additionally, gaming paradigms can increase the engagement of participants (Santhanam, De Liu, & Shen, 2016). Using gaming technology may improve the construct validity of cognitive assessments. More research is necessary to assess the utility of gaming approaches in the ADF selection and assessment context.

NEED AND RELEVANCE TO DEFENCE

The identification and subsequent training of ADF personnel for specialised roles is expensive and time consuming. Despite incremental changes and continuous improvement across the current selection and training continuum, there is still a high failure rate in some highly specialised areas. The ability to better identify appropriate cognitive traits, of which problem solving is a key one, would improve training outcomes for Defence and increase Defence capability.

RESEARCH QUESTION

What dynamic assessments for key cognitive traits (e.g. problem solving and fluid intelligence) based around gaming constructs and technology may be applied to the selection of personnel for performance in a dynamic and complex military environment?

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EXPECTED OUTCOME

The expected outcome for Defence is an understanding of whether the gamification of dynamic cognitive assessments is likely to improve the identification of personnel with appropriate cognitive skills for specialist roles.

REFERENCES

Santhanam, R., De Liu, W.-C., & Shen, M. (2016). Research note - gamification of technology-mediated training: not all competitions are the same. Information Systems Research, 27(2), 453-65.

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