

# emCETT Blended Learning Action Research Project

Evaluate the effectiveness of a revised initial assessment tool which is contextualised to the Engineering Sector

## Who are we?

**Valkyrie Support Services Ltd** is a provider of Apprenticeships and Work Based Training Programmes specialising in lean business improvements, backed by four major UK educational institutions and quality accredited by two UK National Skills Academies.

## Rationale

As a training provider we are currently using initial assessments which identify the levels of maths, English and ICT of apprentices on our Level 2 Engineering courses.

We are aware that this is not sufficient to identify the support which may be needed to ensure that apprentices are sufficiently supported and skilled to meet the needs of the workplace.

The research will enable us to produce a more effective initial assessment tool which is contextualised for the engineering sector. This will initially be piloted to the engineering tutors within our organisation for feedback and possible amendments. A pilot scheme will then be introduced to a selection of engineering employers and learners.

We will use the feedback and lessons learnt to inform the development of a tool for initial assessment of Mechanical Engineering and see if the principles can be applied to other areas of engineering such as Electrical Aptitude. Refer to Gantt chart (1a) in the Appendices.

## Background

An overview of a contextualised initial assessment tool was presented by Valkyrie to employers in the Northampton area which included Mercedes Benz, SCA Products, Cummins etc. In addition, SEMTA and other Further Education Colleges were represented.

After the dissemination event, all present were asked to complete an evaluation form in which honest and constructive feedback was given. Refer to qualitative feedback (2) in the Appendices. The feedback identified that module tests would be very useful but overall they would prefer a computer based/ on-line assessment tool rather than a paper-based version.

## Method

As a result of the feedback from the dissemination event and discussions with key personnel at Valkyrie, we changed the approach and plans for the contextualised initial assessment tool. Refer to Gantt chart (1b) in the Appendices. A new action plan was created which highlighted the direction of the research activities for, '**Design and pilot a mechanical aptitude initial assessment which is contextualised to the engineering sector**'.

However, even though a computer-based/ on-line assessment tool was preferred rather than a paper-based version, in order to achieve that we still needed to produce the pilot in the paper-based format first. Refer to first pilot draft (3) in the Appendices. Recommendations were drawn from research data and reviews of literature as secondary data to provide further supporting evidence.

A contextualised initial assessment engineering tool was produced for Mechanical Aptitude, which is one of the engineering disciplines. Three engineering tutors were asked to provide feedback on the assessment using paper-based questionnaires using the Likert Scale. Refer to questionnaire (4) in the Appendices. The results were disseminated into qualitative and quantitative data analysis.

From the analysis, the pilot was amended, taking into consideration the feedback from the tutors. Refer to second pilot draft (5) in the Appendices. In addition, it was established that a calculator could not be used in the initial assessment as it is not used in the functional maths assessment. Furthermore, only engineering tutors would mark the learners engineering assessment, as they can interpret the results and allocate the level they reached. The results would then determine whether the learner is able to go straight onto the engineering course or if they would need additional support beforehand.

Employer and learner paper-based questionnaires were produced, again using the Likert Scale and distributed with the Mechanical Aptitude initial assessment to 6 employers and 6 new learners. These were completed by 3 employers and 3 new learners: a 50% response rate in both groups. Refer to questionnaires (6) and (7) in the Appendices.

## Results

As time was very limited only 3 employers and 3 learners gave their feedback. The results therefore are inconclusive as not enough of the questionnaires were returned in time to make a conclusive judgement. However, 100% of learners either agreed or strongly agreed that:

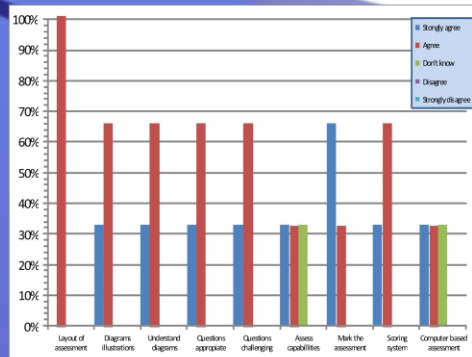
- \*The instructions explaining how to use the initial assessment were clear.
- \*They understand what is being asked of them in each question.
- \*The diagrams and illustrations helped them to answer the questions.
- \*They felt confident they could answer the questions to the best of their ability.

67% of learners did not know whether the examples used in the question were relevant to their role or workplace, and 33% felt the examples were not relevant. In addition, 67% of learners felt a computerised version of the initial assessment would not be better than the paper-based version, and 33% were undecided.

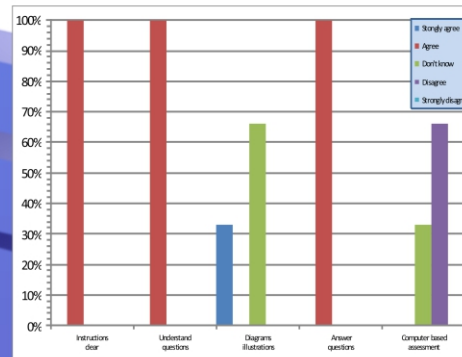
100% of employers either agreed or strongly agreed that the layout of the initial assessment is appropriate and fit for purpose, that diagrams/illustrations are correctly presented, ensuring learners will understand the diagrams, and questions are appropriate and challenging but not too difficult for prospective apprentices. They all agreed or strongly agreed they could easily mark/score the assessment, and that the scoring system is appropriate.

In addition, 67% of employers agreed that the tool will assess initial capabilities well and 33% did not know how effective it would be in assessing initial capabilities of prospective apprentices. Furthermore 67% of employers agreed that a computerised version of the initial assessment would be appropriate and provide reliable results, and 33% did not know.

Feedback from employers



Feedback from learners



## Conclusion and Recommendations

The pilot of an engineering initial assessment was a useful exercise even though the results were inconclusive due to the small sample size. Nevertheless, the results suggest that both learners and employers found the design and content of the IA tool for Mechanical Engineering fit for purpose, and additionally the employers said they could mark/ score the assessment. This suggests Valkyrie has the expertise to further develop tools in other Engineering contexts/ disciplines, which are fully endorsed by employers and learners.

2/3 of employers agreed that a computerised version of the tool would be appropriate whereas 2/3 of learners thought that it would not be better than a paper-based version and 1/3 were undecided. This suggests that there is a need for both a computerised version and paper-based and these should be offered to meet the individual needs of the learners.

As a provider that strives to continuously improve the provision we supply, we will pursue the initial assessment into a modularised computer based and paper-based initial assessment which is contextualised for the engineering sector.

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## References

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