


Model of LLN Support to Engineering Students – Barossa Valley Campus

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LLN Problems and Solutions for Engineering Students

Problem identified by VET lecturer



Low LLN levels affecting course outcomes



LLN staff to provide LLN support in conjunction with the Engineering units to enhance students' learning capabilities in their choice of vocation



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Why it
works..

Why it works


By working in conjunction with the program area rather than solo it allows students to gain the literacy/numeracy skills they need relevant to their chosen vocation and allows LLN to have a relevant work context

Working together – how does it work?

For the Cert I in Engineering Multi-trades students it was identified that **Numeracy** was the main area of concern



Tutor is employed for 4 hours a week to provide the relevant numeracy skills to support their learning in the workshop and for a trade vocation



Working together –
how does it work?

Working together – how does it work?


After initial assessment I work with students in small groups or one-on-one (where required) to identify gaps

A large blue arrow pointing downwards, connecting the first step to the second.

Students continue with their normal workshop/classroom duties while I work with those most requiring help

A large blue arrow pointing downwards, connecting the second step to the third.

This could be 3 people for 45 mins, then 1 person for 30 mins, another 2-3 people for an hour etc



Units of Competency

Units of Competency

The main focus has been on numeracy and therefore have been supporting the unit Perform Computations (MEM 12.24A)



The learning outcomes for the unit were broken down into smaller areas to work on week by week in preparation for their main assessment

Units of Competency

(Learning Outcomes for MEM 12.24A)

Required skills

Look for evidence that confirms skills in:

- Performing calculations involving whole numbers using all four basic rules
- Performing calculations involving length, perimeter, area and volume
- Checking calculated answers for accuracy
- Rounding off estimated answers
- Expressing information presented in fractional or decimal format as a percentage

Units of Competency

(Learning Outcomes for MEM 12.24A)

- Selecting appropriate formulae for the given application
- Substituting the correct values for each term in the relevant formulae
- Using appropriate mathematical operations
- Performing calculations involving ratios or proportions
- Determining required information from appropriate charts or graphs
- Producing simple charts or graphs from given information or observations made
- Selecting appropriate scales and using them in the production of charts and graphs



Assessment

Assessment

Engineering program assessment was reviewed by LLN tutor



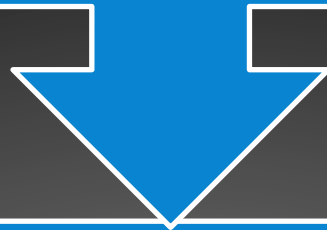
Some of the areas in the assessment were weighted too heavily for what students really needed to know



Others had questions that could be worded better or different numbers used to assess their ability to perform the computation rather than testing if they knew their 9x tables

Assessment

Not major changes, but enough to make it a more **applicable** assessment for the level of students at the Barossa and thus achieve success rather than failure.



This assessment was taken to QAG for verification.



Methodology

Methodology

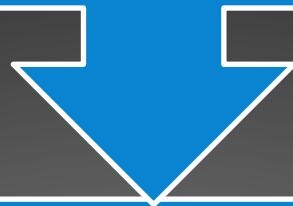
The methodology used has been to work initially 1 on 1 to gain rapport with the student and assess individual strength and weakness areas



I then group the students so I can work with 2-3 at a time at a certain level or on a certain topic area covered in the assessment

Methodology

Some students still required 1 on 1 as their level was very low and the amount of individual assistance required for retention was greater



I found this worked well and the students also seemed to appreciate being able to ask questions without “peer pressure”







Resources

Resources used

I found Edhelper.com a very useful resource as you can build worksheets on particular topic areas



For those who like to use the computer and to get extra practice in a group situation I have used www.aaamaths.com



I have various photocopies from Maths workbook to use as practice questions.



Most of these resources, along with my own questions that I have developed are being compiled into a workbook



Outcomes

Outcomes

In the first year, only 1 student passed the assessment upon first sitting it.



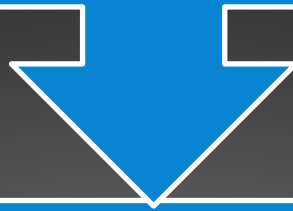
After working closely with 7 students all 7 passed the assessment upon the second attempt.



This year (2009) 8 students sat the assessment (regular attendees). None of them passed at the first attempt. (Numeracy entry levels have been a lot lower this year)

Outcomes

Again, after intense assistance at least 6 out of the 8 this year will pass the assessment (which has an 80% pass mark.)




These outcomes are important because without passing the Perform Computations assessment they are unable to gain the full Certificate I

Outcomes


If students leave because they have gained an apprenticeship then they leave with a higher level of numeracy skills to assist them through their apprenticeship and career than they started with, as a result of studying at TAFE

Outcomes – Comments from Graeme Pound (Engineering Lecturer BV)

“A specialist LLN is firstly an expert in the field with obvious advantages but also has a greater opportunity to work in a more targeted manner. Basically doing what they do best but with direct links to the practical applications and the students personal motivators.”



“A student who is told about needing to work out cut lengths, tool speeds or mixing ratios is still not necessarily going to participate in a maths class, especially if they have already convinced themselves they can't do it.”



“But if the training is occurs side by side with the practical training not only is there a direct link but the student has the opportunity to put principals into practice.”



Conclusion

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After working with this model for the past 2 years I have found the following benefits for students



Increased level of numeracy skills at the completion of the course



The students have the ability to perform computations that are **RELEVANT** to their area of work



Increased confidence in their own abilities in the workshop by having more knowledge in the one area that primarily let them down

Conclusion

After working with this model for the past 2 years I have found the following benefits for lecturers

As a result of working together the Engineering lecturers can focus on teaching the areas that they are most skilled in (hands-on in the workshop)

LLN lecturers can assist the overall success of the program by teaching the literacy and numeracy skills needed

This combination provides the students with “the best of both worlds” and means TAFE are providing a high quality service that yields results.