

# Development of a Benchmarking Tool for Pharmacy Students Using Threshold Learning Outcomes

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## Introduction

The Australian Pharmacy Council *Accreditation Standards for Pharmacy Programs in Australia and New Zealand* require that pharmacy programs have a “demonstrable and continuous quality improvement program”, stating that “a focus on the quality improvement cycle (including benchmarking activities) is essential for sustaining a quality program”.<sup>1</sup>

Challenges to benchmarking include the points of difference between different pharmacy programs, and the existence of four-year undergraduate Bachelor of Pharmacy (BPharm) and two-year postgraduate Master of Pharmacy (MPharm) programs at different institutions around Australia.

This project aimed to develop, refine and validate a tool based on the pharmacy threshold learning outcomes (TLOs) to facilitate benchmarking of students’ performances in verbal ‘capstone’ assessments in Australian pharmacy programs.

## Methods

- A pilot tool (Figure 1) was developed in collaboration between the University of Tasmania (UTAS), University of Newcastle (UoN) and James Cook University (JCU). The pilot tool was trialled by internal and external examiners during UTAS final verbal exams in October 2013.
- Usability and acceptability were assessed using a survey, and the tool was evaluated for validity and inter- and intra-rater reliability using Pearson correlation coefficients (R).
- The tool was refined using these results (Figure 2), and a validation exercise is planned for late 2014.

## Results

- 44 of the 60 students sitting the UTAS final verbal exams in October 2013 (73.3%) provided informed consent for use of their results. At least one UTAS examiner completed a benchmarking tool for 39 of these students; two were completed for 29 students.
- Good correlations were observed between the two UTAS examiners in assessment of the TLOs; and between the UTAS examiners and the external observers for all TLOs except TLO2 (refer Table 1).
- There were very good correlations between the allocated marks and assessment of the TLOs by UTAS examiners.

### Pharmacy Threshold Learning Outcomes<sup>2</sup>

- Demonstrate professional behaviour and accountability in the commitment to care for and about people*
- Retrieve, critically evaluate and apply evidence in professional practice*
- Demonstrate team and leadership skills to deliver safe and effective practice*
- Make, act on and take responsibility for clinically, ethically and scientifically sound decisions*
- Communicate in lay and professional language, choosing strategies appropriate for the context and diverse audiences*
- Reflect on current skills, knowledge, attitudes and practice; planning and implementing for ongoing personal and professional development*
- Apply pharmaceutical, medication and health knowledge and skills*
- Formulate, prepare and also supply medications and therapeutic products*

Variables	n	Pearson Correlation Coefficient (R)	p
<i>UTAS Examiners</i>			
TLO1	29	<b>0.878</b>	<b>&lt;0.001</b>
TLO2	29	<b>0.809</b>	<b>&lt;0.001</b>
TLO4	29	<b>0.844</b>	<b>&lt;0.001</b>
TLO5	29	<b>0.855</b>	<b>&lt;0.001</b>
TLO7	29	<b>0.728</b>	<b>&lt;0.001</b>
TLO8	29	<b>0.773</b>	<b>&lt;0.001</b>
<i>UTAS Examiners (average) vs. Observer</i>			
TLO1	12	<b>0.593</b>	<b>0.042</b>
TLO2	12	0.481	0.113
TLO4	12	<b>0.735</b>	<b>0.006</b>
TLO5	12	<b>0.685</b>	<b>0.014</b>
TLO7	12	<b>0.624</b>	<b>0.030</b>
TLO8	12	<b>0.694</b>	<b>0.012</b>
<i>UTAS Examiners’ Mark vs. TLO</i>			
TLO1	29	<b>0.619</b>	<b>&lt;0.001</b>
TLO2	29	<b>0.751</b>	<b>&lt;0.001</b>
TLO4	29	<b>0.738</b>	<b>&lt;0.001</b>
TLO5	29	<b>0.776</b>	<b>&lt;0.001</b>
TLO7	29	<b>0.830</b>	<b>&lt;0.001</b>
TLO8	29	<b>0.848</b>	<b>&lt;0.001</b>

Table 1: Correlations between student marks and assigned TLO scores for the draft benchmarking tool.

- Survey feedback was received from 11 of 14 examiners (response rate 78.6%).

### Recommendations were:

- Educate academics in the use of tool.**
- Ensure alignment of the TLOs with assessment questions.**
- Shorten the description of TLOs, and highlight only one or two highly relevant exemplars – aim for a one- page tool.**
- Review the scales.**
- Ensure adequate time for completion.**

## Conclusion

- Progress is underway towards the development of a relatively simple, flexible and validated benchmarking tool to facilitate high quality student outcomes across Australian pharmacy programs.
- Academic feedback has resulted in significant amendments to the original draft tool.
- Training in the use of the tool has been identified as a major enabler of its successful and consistent application, and a scenario-based training video is currently being produced.

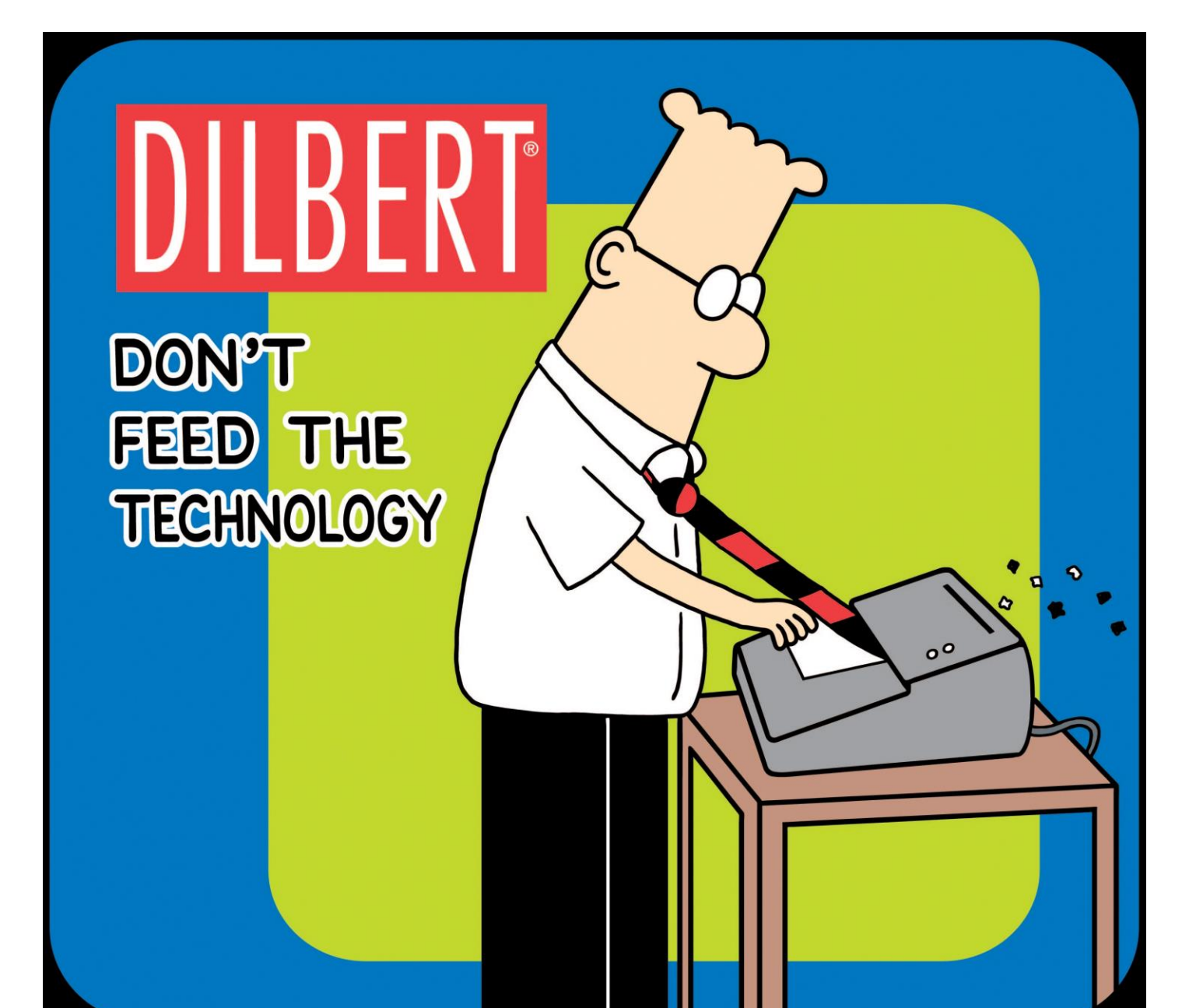


Figure 3: Screenshot of the training video in development.

References  
1. Australian Pharmacy Council Ltd. Accreditation Standards for Pharmacy Programs in Australia and New Zealand. Canberra: Australian Pharmacy Council Ltd; December 2012. 2. Stupans I, Krass I, March G, Hughes J, Clifford R, McAllister S, et al. Pharmacy Learning Resource Database: Learning Outcomes and Standards; 2013 [cited 2013 Sep 11]; Available from: <http://pharmacylearning.edu.au/node/163>.

CSA430 Verbal Examination Benchmarking Pilot Study 2013					
Student:			Examiner:		
<b>Threshold Learning Outcomes</b> Upon completion of their program of study, pharmacy graduates (at end of degree, prior to internship) will be able to:					
0 Not demonstrated at all	1 Attempts made however significant deficiency for the expected level of a pharmacy graduate	2 Attempts made however not clearly at the level expected of a pharmacy graduate	3 Has just demonstrated performance at the expected level of a pharmacy graduate	4 Has clearly demonstrated performance at the expected level of a pharmacy graduate	5 Is highly competent, well above the expected level of a pharmacy graduate
PHARMACY THRESHOLD LEARNING OUTCOME (and Exemplars)					SCALE
1. <i>Demonstrate professional behaviour and accountability in the commitment to care for and about people</i>					0 1 2 3 4 5
<ul style="list-style-type: none"> <li>Comply with relevant codes of conduct and legal requirements in professional practice and the provision of patient care</li> <li>Explain the legal framework within which pharmacists work</li> <li>Behave professionally and ethically</li> <li>Recognise own professional limitations and seek support if necessary</li> </ul>					
2. <i>Retrieve, critically evaluate and apply evidence in professional practice</i>					
<ul style="list-style-type: none"> <li>Find, evaluate and synthesise research findings and report as required</li> <li>Use a systematic approach to accessing and reviewing literature, integrating critical content and effectively formulate responses / recommendations to translate literature into practice.</li> <li>Apply multiple approaches for solving problems that apply within a specific context</li> </ul>					
4. <i>Make, act on and take responsibility for clinically, ethically and scientifically sound decisions</i>					
<ul style="list-style-type: none"> <li>Make ethically sound decisions incorporating principles of ethical reasoning, relevant codes of conduct and legislation, incorporating the patient perspective</li> <li>Apply sound scientific principles to support decision-making</li> <li>Access and critically evaluate evidence to support safe, rational and cost-effective use of medicines and other health care products</li> <li>Determine and facilitate patient preferences for treatment</li> </ul>					
5. <i>Communicate in lay and professional language, choosing strategies appropriate for the context and diverse audiences</i>					0 1 2 3 4 5
<ul style="list-style-type: none"> <li>Apply key principles of communication</li> <li>Use clear and unambiguous language targeted to the audience</li> <li>Listen actively</li> <li>Adapt communication to address challenging communication situations (e.g. conflict, disability, mental health, differences in culture and health literacy)</li> <li>Present information in a timely, professional and effective manner</li> </ul>					

Figure 1: First draft of the pilot benchmarking tool.

Verbal Examination Benchmarking Study Tool v8 - July 2014			
<b>Threshold Learning Outcomes</b> Upon completion of their program of study, pharmacy graduates (at end of degree, prior to internship) will be able to:			
Fail (F) - No attempt made	Not Competent (NC) - Attempt made however not clearly at the level expected of a pharmacy graduate	Competent (C) - demonstrates performance at the expected level of a pharmacy graduate	Outstanding (O) - level exceeding the expected level of a pharmacy graduate
PHARMACY THRESHOLD LEARNING OUTCOME (and Exemplars)		Sample 'tasks' within assessment	RATING
1. <i>Demonstrate professional behaviour and accountability in the commitment to care for and about people</i>		<ul style="list-style-type: none"> <li>Appearance – clean, professional uniform</li> <li>Greets client/patient and introduces self</li> <li>Refers client/patient to other health professional when outside scope of practice; appropriate reference made to tests and other resources when unsure of knowledge</li> <li>Contacts another health professional in a scenario (if appropriate)</li> </ul>	F   NC   C   O
2. <i>Retrieve, critically evaluate and apply evidence in professional practice</i>		<ul style="list-style-type: none"> <li>Provision of non-pharmacological management suggestions and lifestyle advice as well as advice regarding medical management; suggests multiple suitable treatment options (e.g. antibiotics, antihypertensives) where appropriate</li> </ul>	F   NC   C   O
3. <i>Demonstrate team and leadership skills to deliver safe and effective practice</i>		<ul style="list-style-type: none"> <li>Demonstrates clinical leadership (takes the lead/makes decisions/directs activities) in relation to medication-related issues (doesn't 'pass the buck')</li> </ul>	F   NC   C   O
4. <i>Make, act on and take responsibility for clinically, ethically and scientifically sound decisions</i>		<ul style="list-style-type: none"> <li>Makes evidence-based suggestions to address the given scenario, quoting literature evidence where appropriate</li> <li>Demonstrates a patient-centred approach - acknowledges the client's requests, provides options and engages the patient in the choice, respecting the patient's autonomy</li> </ul>	F   NC   C   O

Figure 2: Version 8 (current version) of the benchmarking tool.