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A Systematic Method for Facilitating Curriculum Renewal and Transformation: Two Case Studies

MONASH University

Facilitating curriculum transformation

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Overview - The whole story

Background: Evidence based process for curriculum mapping

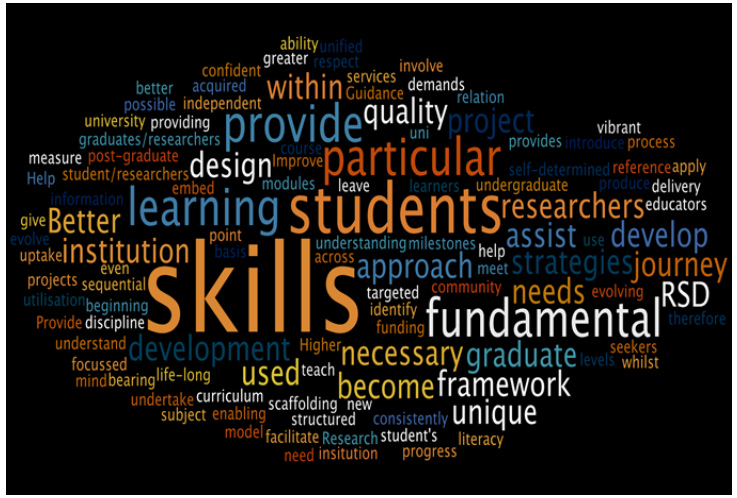
Aim: Present two case studies that apply elements of the RSD to inform an approach to map skills within curricula

Method: Used NVivo qualitative analysis software for mapping

Results:

Case study 1: A first year biology practical unit
- RSD for mapping students' research skills and autonomy

Case study 2: Master of Nursing Practice
- Using Bloom's taxonomy for the first mapping phase



Discussion & Conclusion (in brief):

Case study 1: Mismatch between the instructional autonomy in the curriculum document and the practical application

Case study 2: Mismatch between educational language v professional language

Case study 1:
Identifying students' research skill development in BIO1022

Mapping BIO1022

- Education Masters Research project, qualitative study

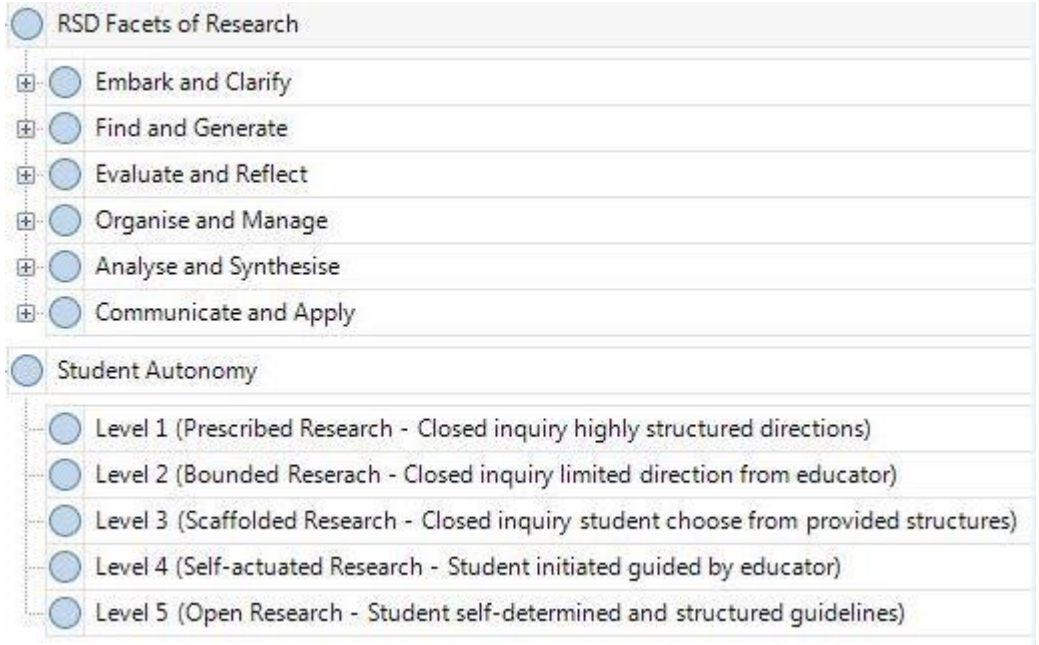
Guiding question:

With reference to the Research Skill Development (RSD) framework, which research skills and associated levels of autonomy, are students developing whilst undertaking practicals in BIO1022.

- 5 Practicals (3 recipe-driven and 1 IOL inspired over two sessions)
- Document analysis of BIO1022 laboratory handbook content
- Student observations in 5 consecutive practicals of the same 8 students
- Interpretive analysis of events and interactions between students and TA – coded in alignment with the RSD Facets and autonomy using NVivo qualitative analysis software

Making coding decisions in alignment with the RSD

Fig 1: RSD Coding categories in NVivo



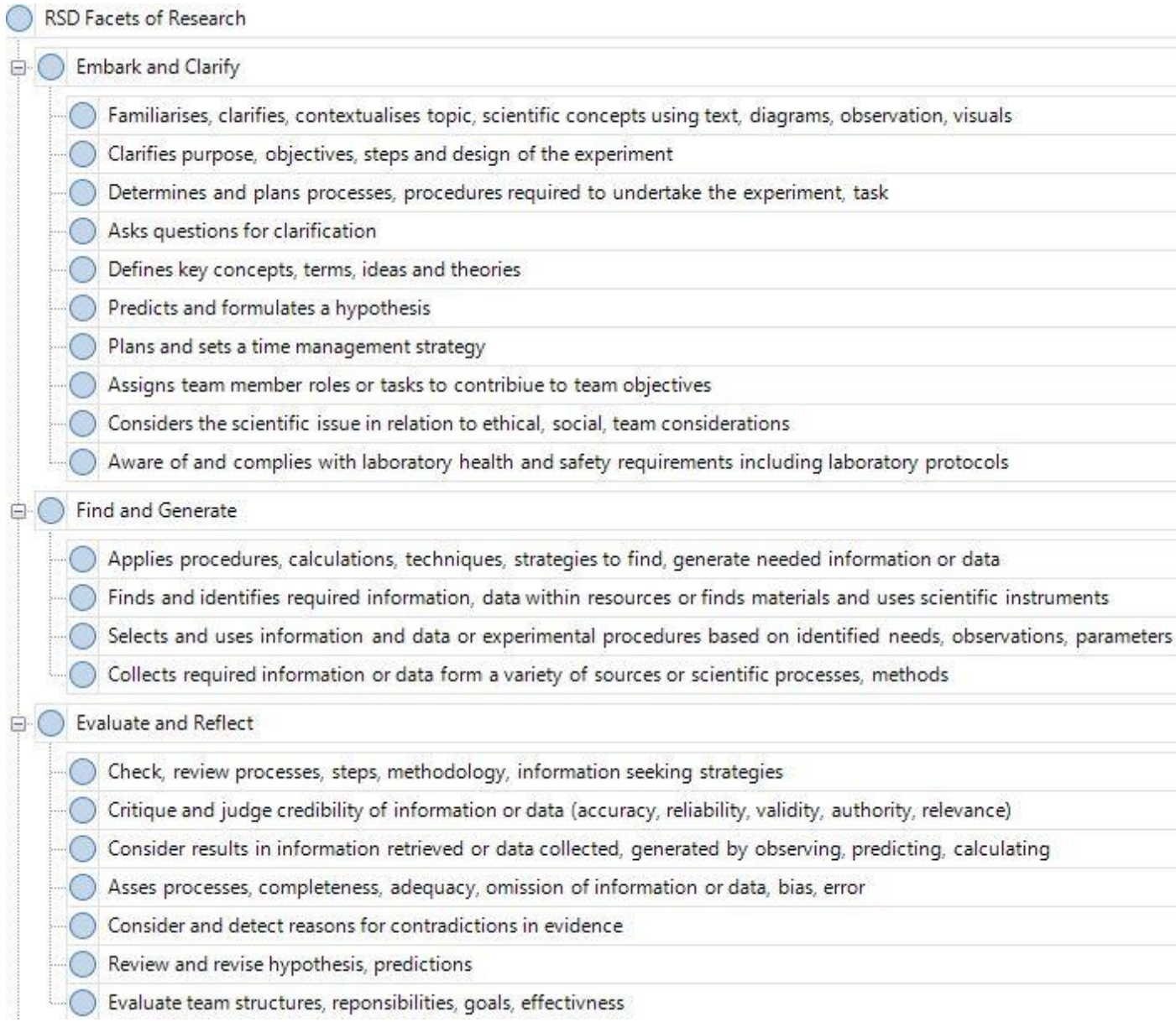


Fig 2: RSD Facets and sub-skills – emerged from the process of analysis

Results

BIO1022 Learning Aims

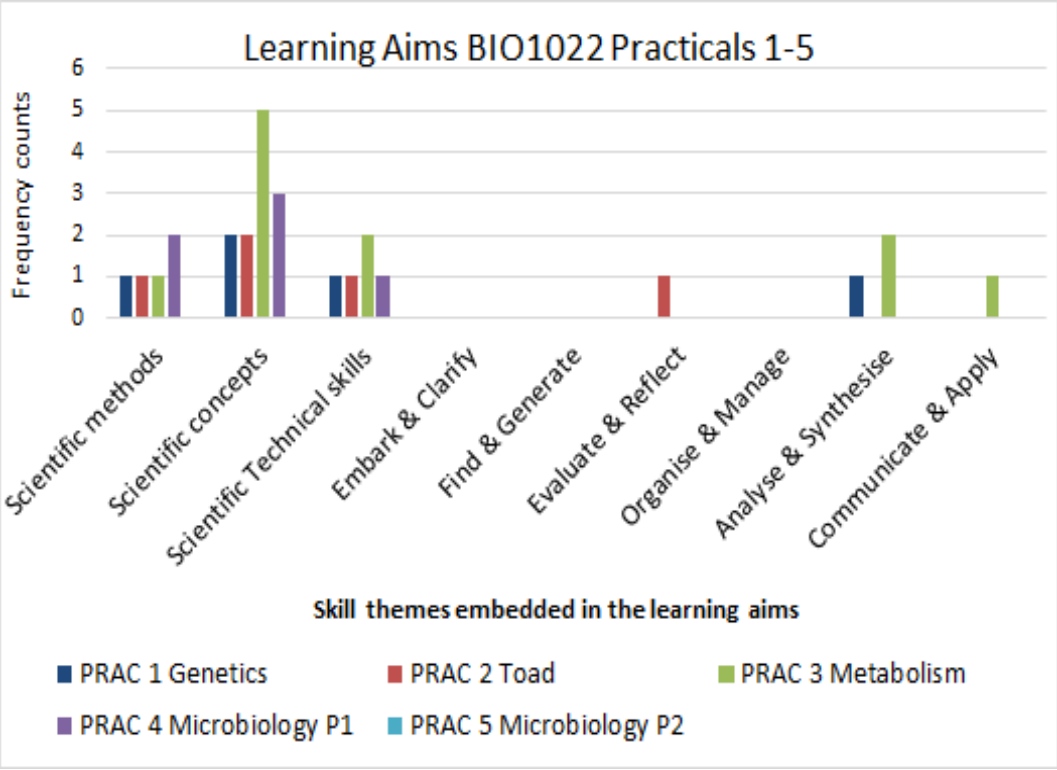


Fig 1: Analysis of BIO1022 learning aims in the BIO1022 Laboratory Handbook for each of the five practicals examined.

Results concur with the literature that: laboratory practicals tend to focus on students practicals skills and content knowledge rather than developing students cognitive skills for researching. (Trapani & Clarke, 2012)

Research skills have been largely overlooked as an outcome of learning in this unit. The IOL inspired IDEA Practicals also neglect research skills in the learning aims despite IDEA Practicals aiming to;

"..align with the fundamental principles of a tertiary science education, in which students build upon prior knowledge, refine skills and apply higher order learning such analysis, evaluation and synthesis to their critical thinking and problem-solving skills" (Rayner et. al., 2014., p. 8).

Results

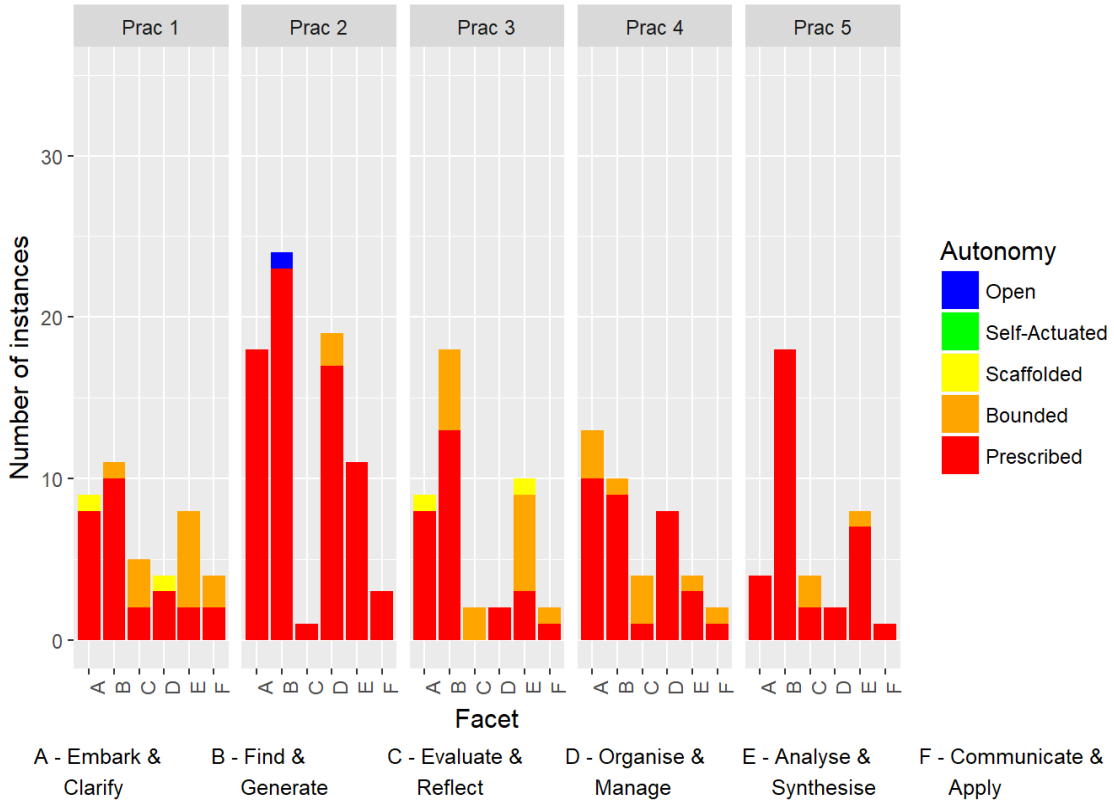


Fig. 4 Number of instances each Facet of Research and corresponding level of autonomy was noted in the laboratory handbook for Practicals 1 to 5.

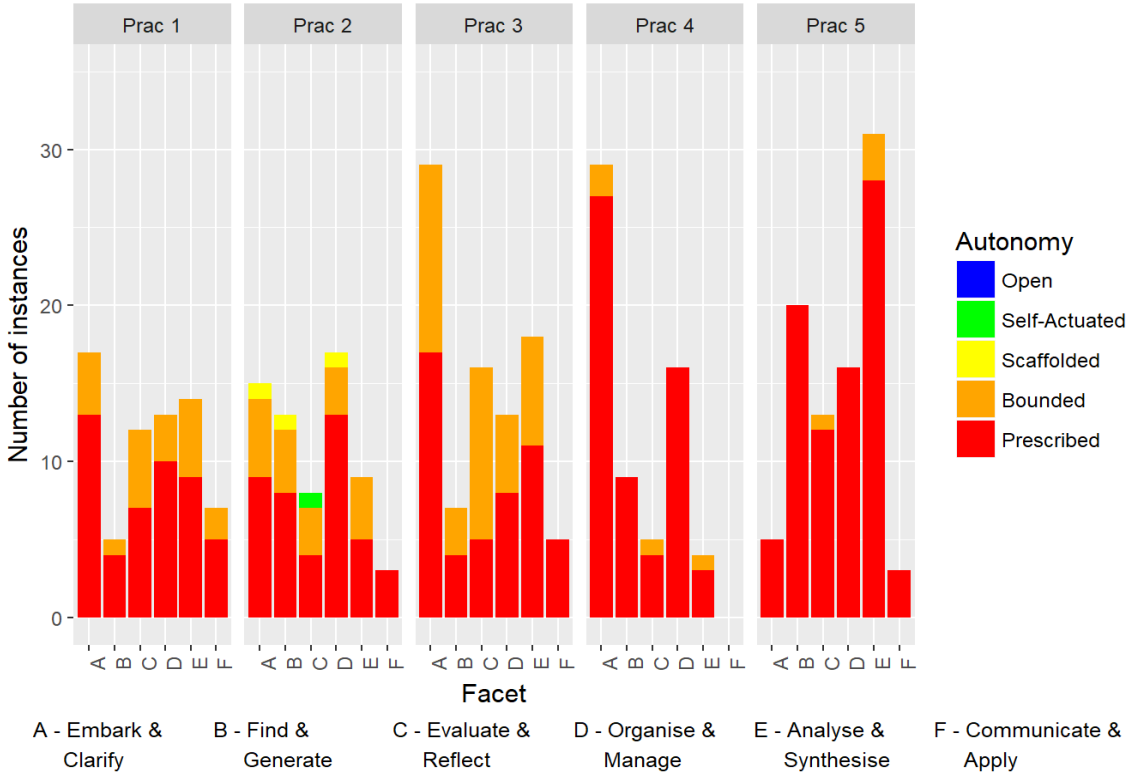


Fig. 5 Number of instances each Facet of Research and corresponding level of autonomy was observed in Practicals 1 to 5.

- Practicals 1 to 3 regular recipe-driven practicals – TA uses sophisticated questioning techniques
- Practicals 4 & 5 IOL inspired Practicals (IDEA-Design-Explore-Answer) – Highly guided teaching approach

Outcomes

Skills

- Facet B: Find and Generate highest occurring skills
- Facet E: Communicate and Apply least occurring (*products of assessment not included)

Autonomy

- Predominantly Prescribed autonomy in handbook and practical experience
- Instructions in the handbook that were at higher levels of autonomy needed more guidance in the lab

Curriculum design

- Research skills in BIO1022 is generally implied and haphazard rather than coherent
- The method applied suggests that the RSD provides a language to assist with enabling research skills

Teaching Practice and pedagogy

- TA training - questioning techniques using research skill vocabulary
- Quality teaching techniques are vital in moving students to increasing levels of autonomy
- Recipe-driven practicals are also able to enable students cognitive skills

"The TA keeps asking students questions at the fume cupboard while they wait in line. "What have you already added?" she asks. "What is the difference?" "Why? Why add different solutions? What are you looking at? Why? So what do you think?" The TA persists with questions. One student turns excitedly to her partner. "I know!" she says and explains to her partner what could happen when……."

Practical 3: Metabolism, Observations)

Case Study 2: Master of Nursing Practice

Problem

A New Curriculum bringing:

- Need for pedagogical evidence based decisions on curriculum design & development

That also considers:

- Requirements of a profession-based curriculum with multiple frameworks

Achieving a process for this has not been demonstrated in nursing curriculum

Research Questions

How do we meet the requirements of a pedagogically sound learning & teaching environment?

Whilst…

Meeting the requirements and expectation of the regulating professional body

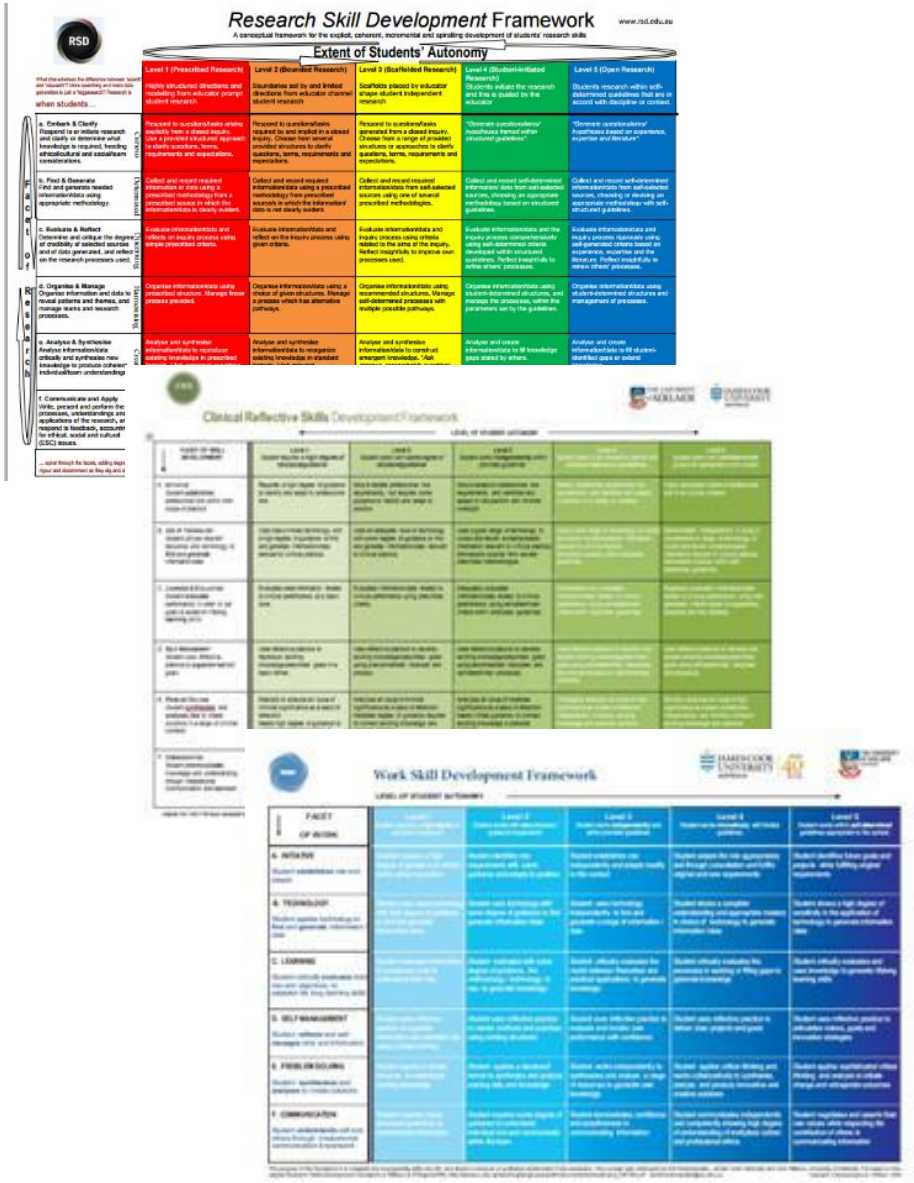
Achieving a process for this has not been demonstrated in nursing curriculum

Getting started

- Expertise sought from the Library - curriculum mapping experience using MELT frameworks

- 2015 - multi-professional project team established to collaboratively work on the problem

… but which pedagogical framework?



Exploring MELT- which framework?

Workshop facilitated by library staff using scenario-based exercises

We discovered:

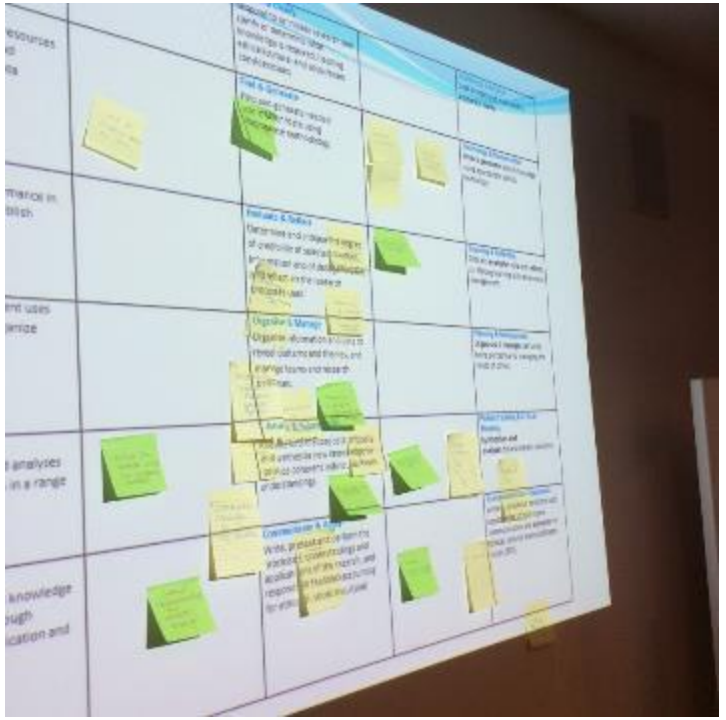
All 3 frameworks emphasized

different professional and learning domains and could contribute to inform a new curriculum.

RSD – Cognitive skills for research and learning

WSD - Professional and psychomotor skills

CRS - Reflective practice and critical thinking.



Back to basics

Mapped Bloom's Taxonomy to:

1. Professional standards of practice
2. Curriculum document

Triangulating the results

What resulted was a complicated map that did demonstrate alignment of the standards with the curriculum

Project phases

Phase 1

Using NVivo qualitative data software:

Map a pre registration Master nursing curriculum to the professional standards of practice

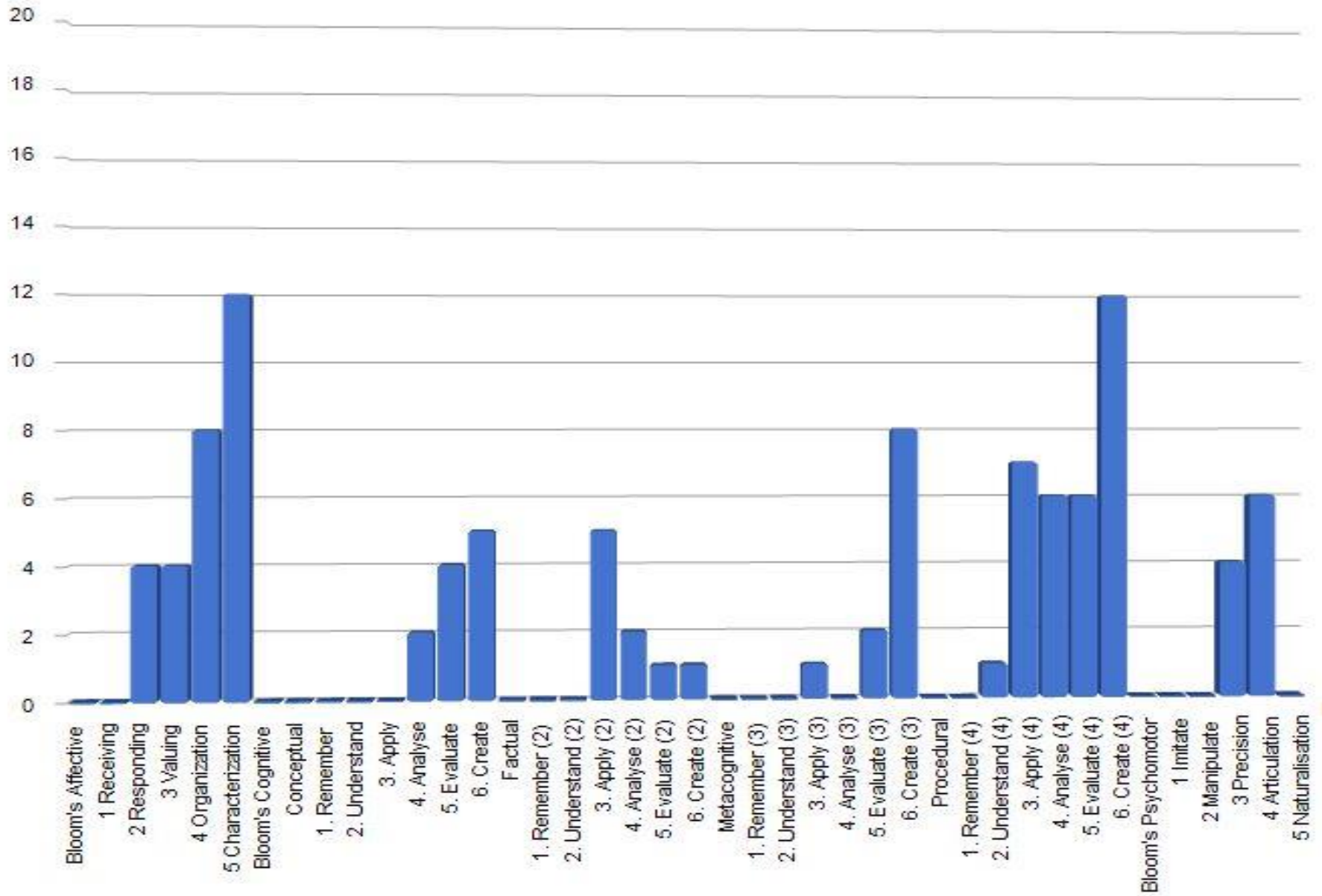
Phase 2

Map the curriculum to appropriate pedagogical frameworks

Phase 3

Identify if the Professional standards of practice in nursing can be mapped to pedagogical frameworks

Table 1: Professional Nursing Standards against Bloom's Taxonomy



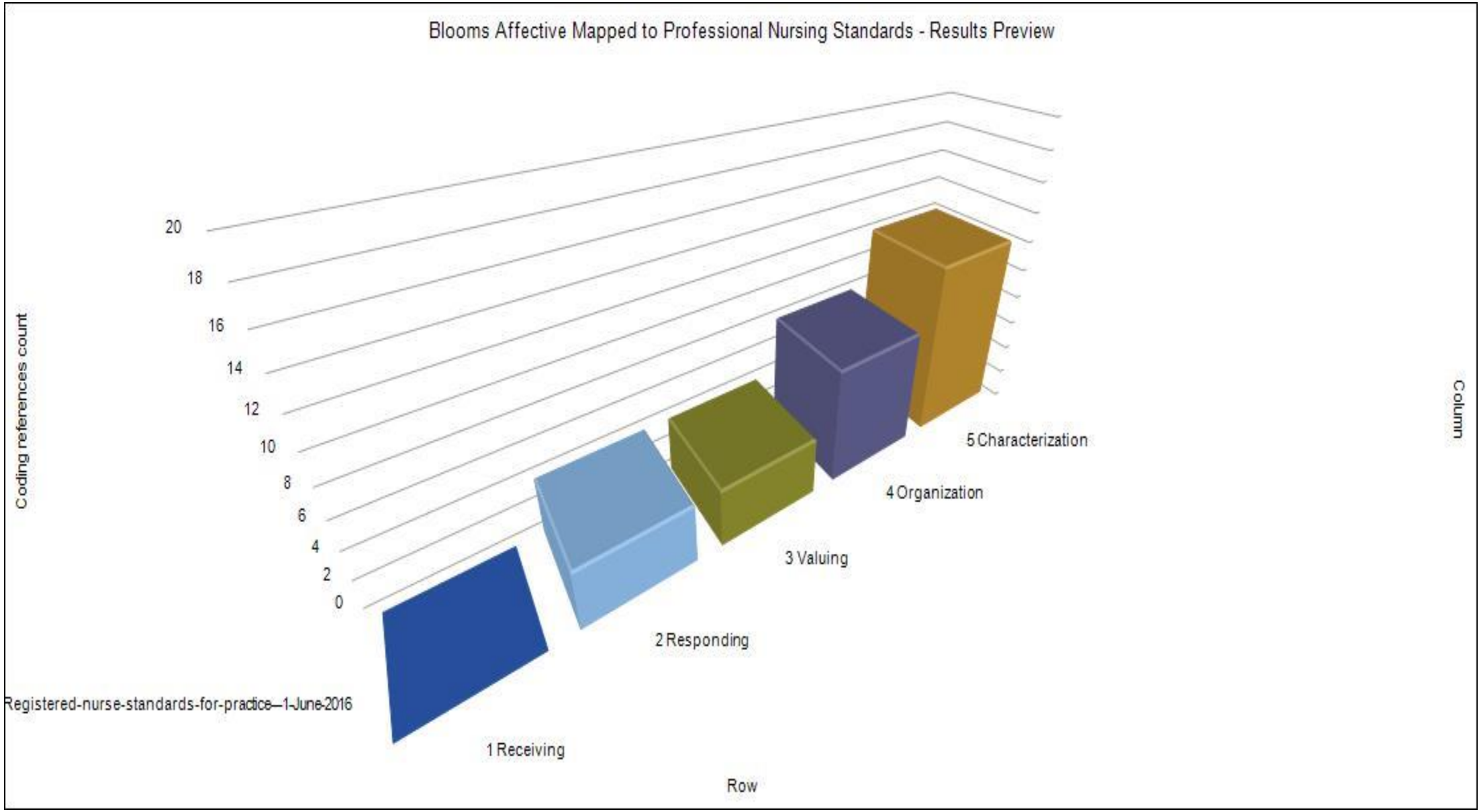
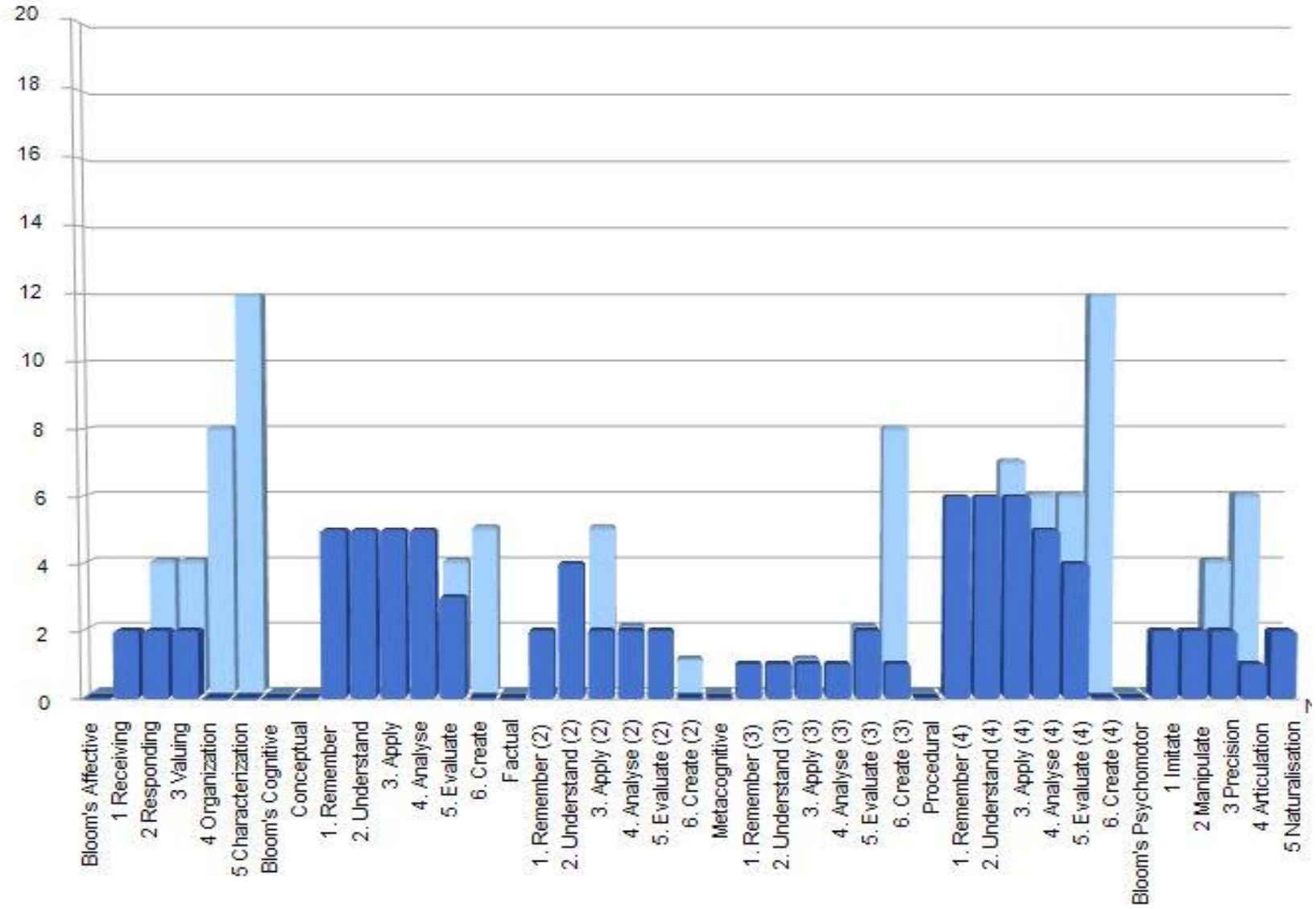

Blooms Affective Mapped to Professional Nursing Standards - Results Preview
Coding references count
20
18
16
14
12
10
8
6
4
2
0
1 Receiving
2 Responding
3 Valuing
4 Organization
5 Characterization
Registered-nurse-standards-for-practice—1-June-2016
Row
Column

Table 1: Professional Nursing Standards & Nursing Curriculum Document against Bloom's Taxonomy



Outcomes

- Identification of language mismatch between the education and professional spheres
- Developing an awareness of how to create a systematic process
- Potential for curriculum transformation… the next step

Where to from here

Case 1:

1. Consider the outcomes for informing professional development of TA's
2. How to better represent autonomy in the curriculum document.

Case 2

1. Overlay the MELT frameworks to the Nursing Curriculum

2. The MELT frameworks will ensure professional curriculums are underpinned by pedagogy and the development of students autonomy in the learning process

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Thank you

Questions?

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