

Work ready oriented GAs  
Communication Skills  
Professional Skills  
Life-long Learning

**Jurgen Schulte**  
**Neela Griffiths**



University of Technology Sydney  
Australia

# **PUTTING THE PROFESSIONAL INTO PRACTICE-BASED LEARNING**

Work ready oriented GAs  
Communication Skills  
Professional Skills  
Life-long Learning

# PUTTING THE PROFESSIONAL INTO PRACTICE-BASED LEARNING

UNIVERSITY OF  
TECHNOLOGY SYDNEY

3<sup>rd</sup> semester class

68412 Energy Science & Technology

Authentic assessment task

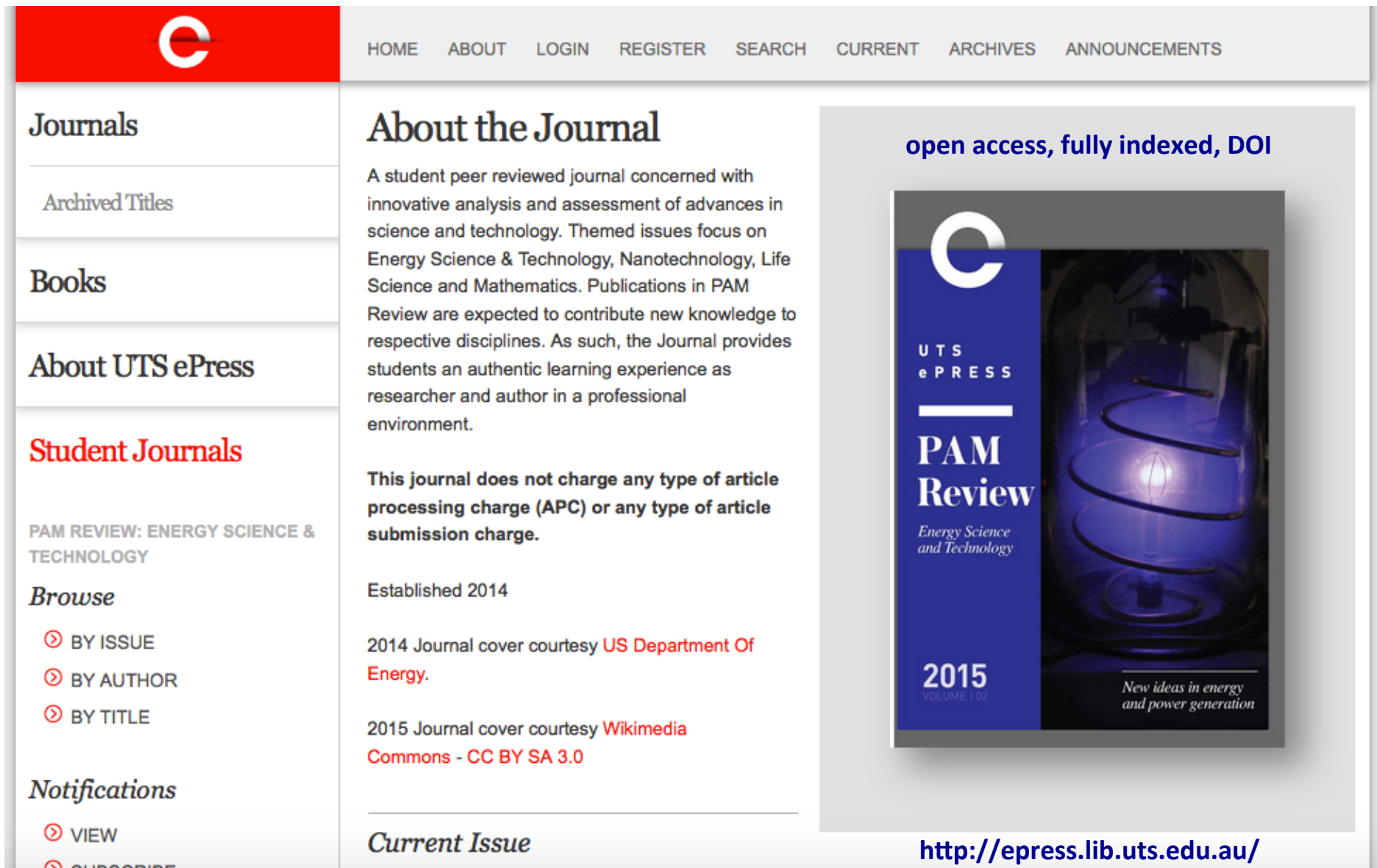
‘Flipped’ content

Student project



# PUTTING THE PROFESSIONAL INTO PRACTICE-BASED LEARNING

UNIVERSITY OF TECHNOLOGY SYDNEY



The screenshot shows the website for PAM Review, an open access journal. The header features a red navigation bar with a white 'e' logo and a menu with links: HOME, ABOUT, LOGIN, REGISTER, SEARCH, CURRENT, ARCHIVES, ANNOUNCEMENTS. The left sidebar contains navigation links for Journals, Archived Titles, Books, About UTS ePress, Student Journals, and Notifications. The main content area is titled 'About the Journal' and describes the journal's focus on innovative analysis and assessment of advances in science and technology. It also states that the journal does not charge any type of article processing charge (APC) or any type of article submission charge. Below this, it mentions the journal was established in 2014 and provides information about the 2014 and 2015 journal covers, including their sources (US Department Of Energy and Wikimedia Commons) and license (CC BY SA 3.0). A 'Current Issue' section is partially visible at the bottom. On the right, there is a promotional banner for the 2015 journal cover, featuring a blue background with a glowing blue sphere and a spiral, and the text 'open access, fully indexed, DOI' and 'http://epress.lib.uts.edu.au/'.

**Journals**

Archived Titles

**Books**

**About UTS ePress**

**Student Journals**

PAM REVIEW: ENERGY SCIENCE & TECHNOLOGY

**Browse**

- BY ISSUE
- BY AUTHOR
- BY TITLE

**Notifications**

- VIEW
- SUBSCRIBE

## About the Journal

A student peer reviewed journal concerned with innovative analysis and assessment of advances in science and technology. Themed issues focus on Energy Science & Technology, Nanotechnology, Life Science and Mathematics. Publications in PAM Review are expected to contribute new knowledge to respective disciplines. As such, the Journal provides students an authentic learning experience as researcher and author in a professional environment.

**This journal does not charge any type of article processing charge (APC) or any type of article submission charge.**

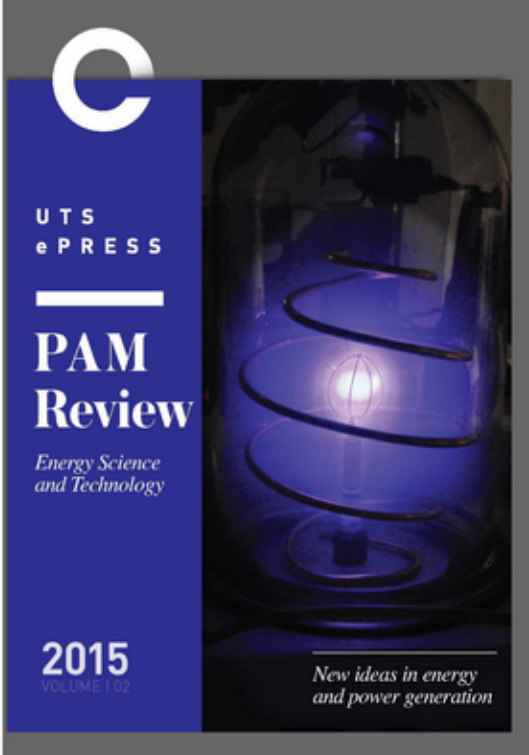
Established 2014

2014 Journal cover courtesy [US Department Of Energy](#).

2015 Journal cover courtesy [Wikimedia Commons](#) - [CC BY SA 3.0](#)

### Current Issue

open access, fully indexed, DOI



UTS ePRESS

**PAM Review**

*Energy Science and Technology*

2015  
VOLUME 1 02

*New ideas in energy and power generation*

<http://epress.lib.uts.edu.au/>

# PUTTING THE PROFESSIONAL INTO PRACTICE-BASED LEARNING

UNIVERSITY OF TECHNOLOGY SYDNEY

## *PAM Review*

Energy Science and Technology 68412  
www.uts.edu.au

### Efficiency Comparisons of Secondary Biofuels

Connor Day<sup>1,\*</sup>, Yin-Chen Tseng<sup>2</sup>, Reuben Puyol<sup>3</sup> and Jessica Nissan<sup>4</sup>

professional journal format

Faculty of Science, University of Technology Sydney, 15 Broadway, Ultimo NSW 2007.

<sup>1</sup> University of Technology, Sydney, PAM; E-Mail: ConnorPeterson.Day@student.uts.edu.au

<sup>2</sup> University of Technology, Sydney, PAM; E-Mail: Yin-Chen.C.Tseng@student.uts.edu

<sup>3</sup> University of Technology, Sydney, PAM; E-Mail: Reuben.M.Puyol@student.uts.edu.au

<sup>4</sup> University of Technology, Sydney, PAM; E-Mail: Jessica.Nissan-1@student.uts.edu.au

\* Author to whom correspondence should be addressed; E-Mail:  
ConnorPeterson.Day@student.uts.edu.au

Received: 4 April 2014 / Accepted: 28 April 2014 / Published: 2 June 2014

peer review process

**Abstract:** Biofuels are essential for the energy production of the future. This report is a meta-study of the efficiencies of first, second and third generation secondary biofuels used for transportation purposes. We present and compare data

Copyright: © 2014 by the authors. This article is distributed under the terms and conditions of the Creative Commons Attribution license (<https://creativecommons.org/licenses/by/4.0/>).

DOI: <http://dx.doi.org/10.5130/pamr.v1i0.1386>

open access

fully indexed, DOI

*PAM Review* is a Student Journal from UTS ePRESS showcasing outstanding UTS student works

professional publishing house  
professional peer review system

# PUTTING THE PROFESSIONAL INTO PRACTICE-BASED LEARNING

## 3<sup>rd</sup> semester class

### Starting Point

**95% theoretical material**  
(concepts, problem solving)

**no time to explore theory in  
practice in detail**

**5 assignments, 1 class test,  
1 practical, final exam**

**15/20/30/35**

### Wishful Thinking

**cover same material plus more**  
(gaps in course material)

**cover multiple, directly relevant  
applications in detail**

**1 class test, 1 prac, 1 practice-based  
“authentic” assignment**

**25/0/75**

# PUTTING THE PROFESSIONAL INTO PRACTICE-BASED LEARNING

## 3<sup>rd</sup> semester class

### The Aspiration

Workplace situation – an **authentic**  
workplace-based assessment task

Putting the **professional** into  
practice-based learning

### The Plan

My workplace as academic

Writing of scientific paper

Research team, publication in peer-  
reviewed journal, peer-review, timed  
review cycle, publishing submission  
deadline, journal publication

### Workload Implications

**Add:** Assessment rubric, scaffolding

**Drop:** Final exam setting/marking

**Flip:** One third of content

# PUTTING THE PROFESSIONAL INTO PRACTICE-BASED LEARNING

## Flip

One third of subject content delivered as project work,  
here *scientific meta-study*

## Scaffolding of skills

Creating room for scaffolding of (A) scientific writing skills and  
(B) professional peer-review

## Assuring that new skills are acquired

Feedback loop for (A) scientific writing skills and  
(B) professional peer-review  
(C) post-project feedback

# PUTTING THE PROFESSIONAL INTO PRACTICE-BASED LEARNING

## Practice-based assignment

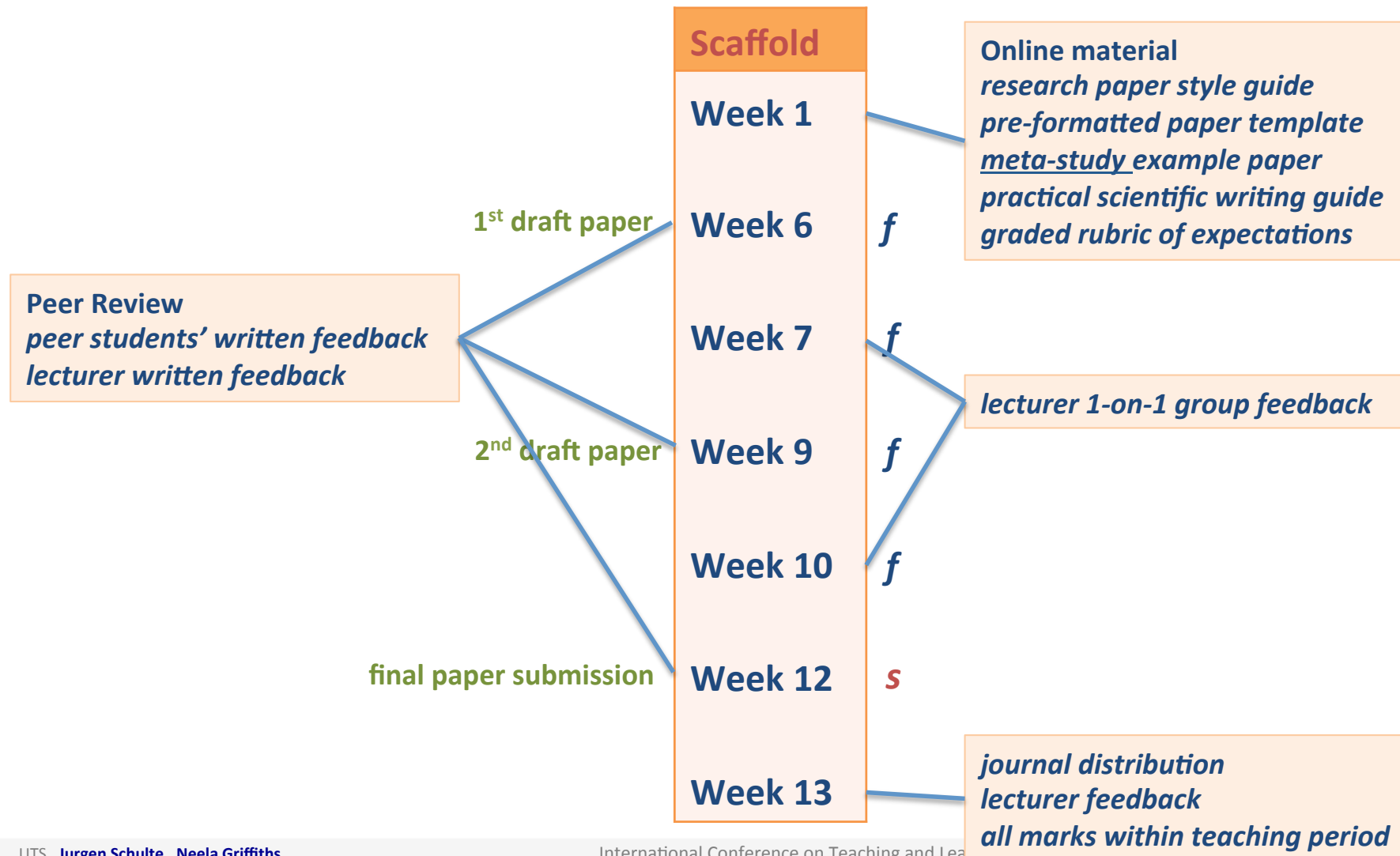
### Environment similar to creation of real scientific publication:

- gaining expertise in an unknown topic within a short period of time;
- consulting scientific databases;
- reading peer-reviewed scientific papers and extracting relevant information;
- formulating a research objective for the meta-study;
- writing a paper in a prescribed scientific publication format;
- working in a research team with a range of expertise;
- managing research and paper writing workloads within a team;
- acting as a peer-reviewer for other group papers;
- assessing papers according to prescribed peer-review guidelines;
- completing & submitting meta-study paper within journal's publication timeline.



# PUTTING THE PROFESSIONAL INTO PRACTICE-BASED LEARNING

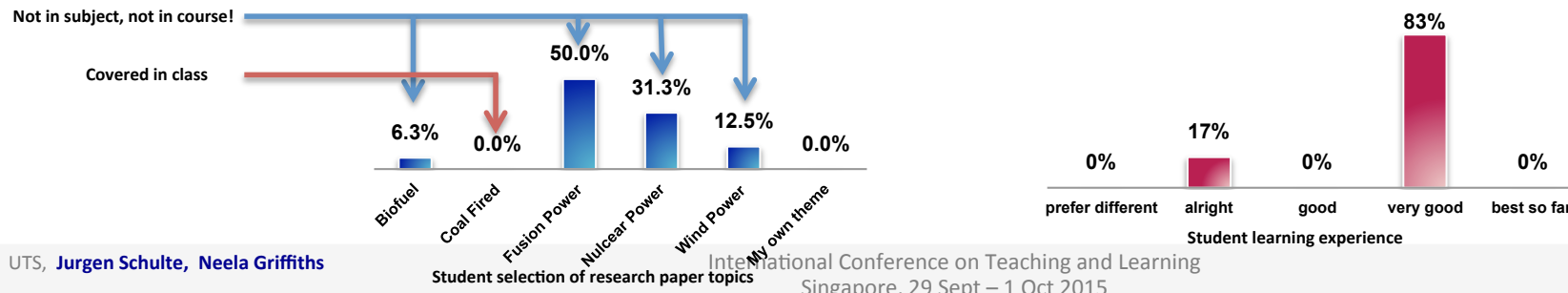
## Scaffolding (absolutely essential): A. paper writing, B. peer-review process



# PUTTING THE PROFESSIONAL INTO PRACTICE-BASED LEARNING

## Learning Experience

|  |  |
|--|--|
| Students pick their own research topic (complement lecture) research objective | <i>Students work on a task they are really interested in</i>   |
| Doable professional work   | <i>Meta-study allows student to create new knowledge without being research expert in the field</i>                    |
| Tangible outcome   | <i>Professionally printed/published, student peer-reviewed journal, ("my 1<sup>st</sup> professional publication")</i> |
| Feedback on major assessment   | <i>Feedback even after all semester assessment has been completed</i>  |



# PUTTING THE PROFESSIONAL INTO PRACTICE-BASED LEARNING

## Focus Group Outcome

**No complaint about the subject content being flipped**

**Students felt empowered by the fact that they could  
'self-manage' their learning**

**Removing the learning towards an exam  
allowed experience of deep learning**

## Practice-based assignment (Focus Group Response)

### *Learning Experience*

‘there are ways to pass tests without understanding but this way we have to understand’

‘enjoyed the self-managed learning the most, as I feel information I’ve collected during this project will have greater “staying power” than it may otherwise’

### *Workplace scenario*

[it made] ‘the subject more applicable to future careers’ [and] ‘hands-on’

‘I have also learned a lot about being a leader and making sure everyone is on the right track, but in a positive and encouraging manner’

‘[W]orking in a team was rewarding, it helped to improve my skills of collaboration and collaborative time management’

## Practice-based assignment (Focus Group Response)

### *Peer-review feedback cycles*

**‘I wasn’t actually aware that scientific papers were reviewed in this way before publishing’**

### *Value of the peer-review feedback*

**‘it was good to see feedback from class-mates too, as they often had different perspectives on the paper writing process’**

### *Engagement*

**‘[T]his type of task is not one I am familiar with. I really enjoyed it and would enjoy doing it again’**

**‘The self-managed learning was a good way to see what I would have done differently for another project in terms of time management and working within a team’**

**Ownership: ‘not doing what we have been told to do’, ‘freedom of choosing’**