



Do Workshops Work?

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(MESH), Western Sydney University**

MESH

Provides numeracy, mathematics and statistics support to students of Western Sydney University.

MESH Workshop program

Each semester the MESH team runs support workshops tailored to specific units across a number of schools.

Since 2015 MESH has been involved in a research project which aims to evaluate the impact of workshops on student outcomes and the perceived value of the workshops conducted.

Components of the research

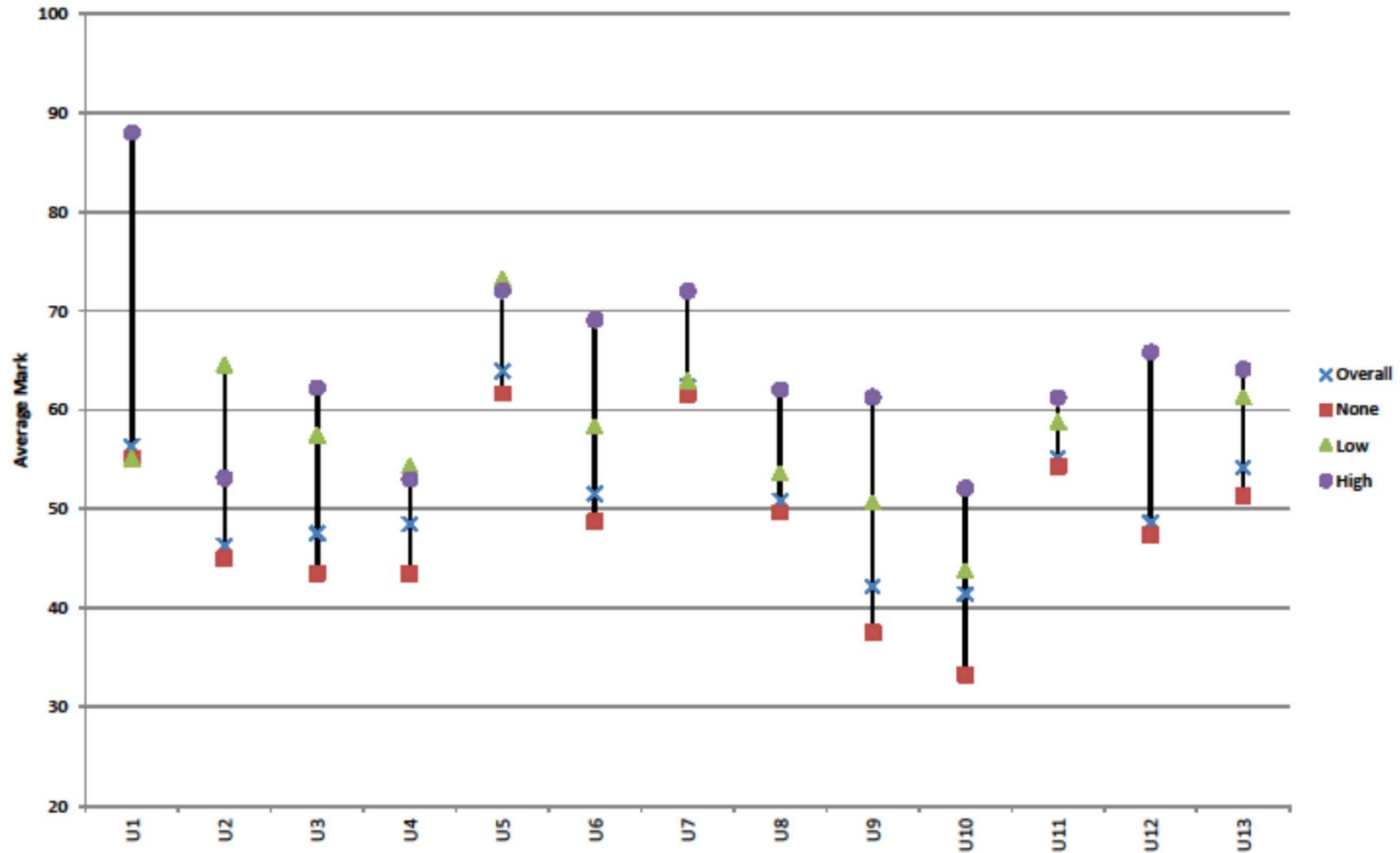
- Comparison of the performance of students who attended workshops with those who didn't.
- Student perceptions of MESH workshops collected via an online survey sent to all students who registered for a workshop.

Performance

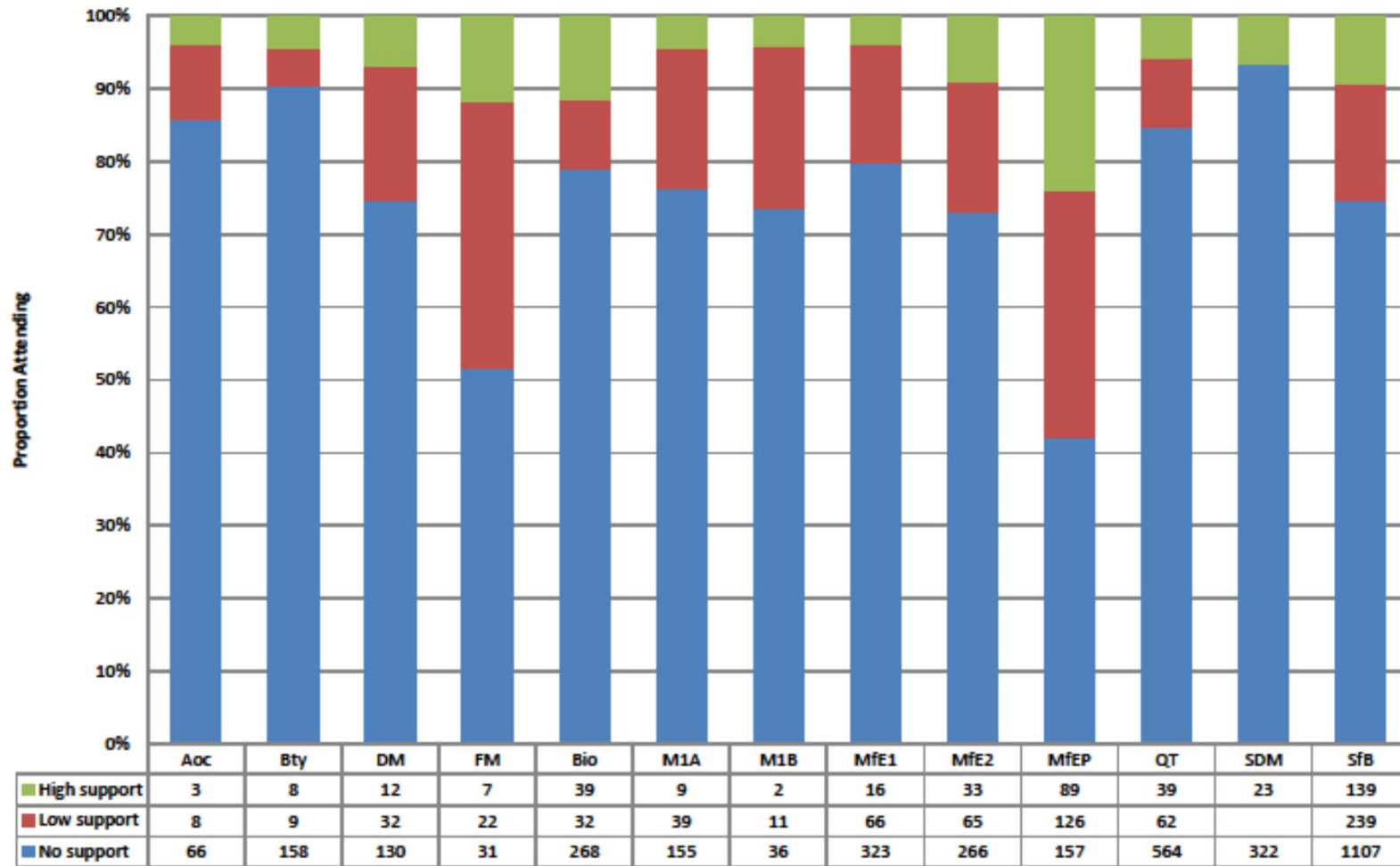
2015 Autumn and Spring Semesters

- 13 units, 4700+ results
- Students' results and demographic information for the units obtained and analysed
- Graph for final results - average mark for the unit compared to the average mark for each level of support, "No support", "Low" (<1/2) and "High" (1/2 or more).
- Graph for workshop participation by unit
- For further analysis "No support" divided into 2 groups: those who registered for a workshop but did not attend and those who did not register for any workshops

Average Mark by Support Level 2015 All



Workshop Participation by Support Level 2015 All Students



Demographics

For each student we have:

- Course Name
- Grade Point Average
- Unit Name
- Unit Mark
- Unit Grade
- First in Family
- Gender
- Age at end of year
- Equity – Low SES
- Domestic/International
- Current School Leaver or not
- ATAR (current school leavers)
- Highest Maths Level at HS (Domestic students)
- Workshops Attended
- Attendance at Maths Start bridging workshops

Analysis

Exploratory analysis for variables to explain final grade suggest 3 main subgroups of students:

- Current School Leavers
- Non Current School Leavers
- International Students

Ordinal regression used to predict final grade (AF, F, P, C, D, H) based on most significant variables.



Current School Leavers

Variable	Estimate	Significance
Support Level:None	0.070104	
Support Level:Low	0.641085	***
Support Level:High	0.729251	***
Highest Maths:Basic	0.522447	***
Highest Maths:Intermediate	0.759102	***
Highest Maths:Advanced	1.393482	***
Gender:F	0.341049	***
Area:Fund	0.568987	***
Area:Bio	0.680566	***
Area:Eng	-0.379711	*
Area:Stat	0.745279	***
ATAR	0.065533	***



Non-Current School Leavers

Variable	Estimate	Significance
Support Level:None	0.39089	
Support Level:Low	0.66845	***
Support Level:High	0.99580	***
Highest Maths:Basic	-0.13593	
Highest Maths:Intermediate	0.46633	*
Highest Maths:Advanced	1.15234	***
Gender:F	0.40128	**
Area:Fund	0.39912	.
Area:Bio	1.59782	***
Area:Eng	0.38952	
Area:Stat	0.72237	**
Age	0.04253	**



International Students

Variable	Estimate	Significance
Support Level:None	0.78765	*
Support Level:Low	0.58747	*
Support Level:High	1.38765	***
Gender:F	0.24314	
Area:Fund	-1.19188	*
Area:Bio	0.87629	
Area:Eng	-0.93361	*
Area:Stat	-1.14779	**
Age	-0.09214	*

Student Perceptions – Survey

Invitation sent to all students who registered for a MESH workshop in 2015 or Autumn 2016

For those who attended questions included

- Helpful?
- Improved mathematical/statistical skills?
- Improved confidence?

Student Perceptions – Survey

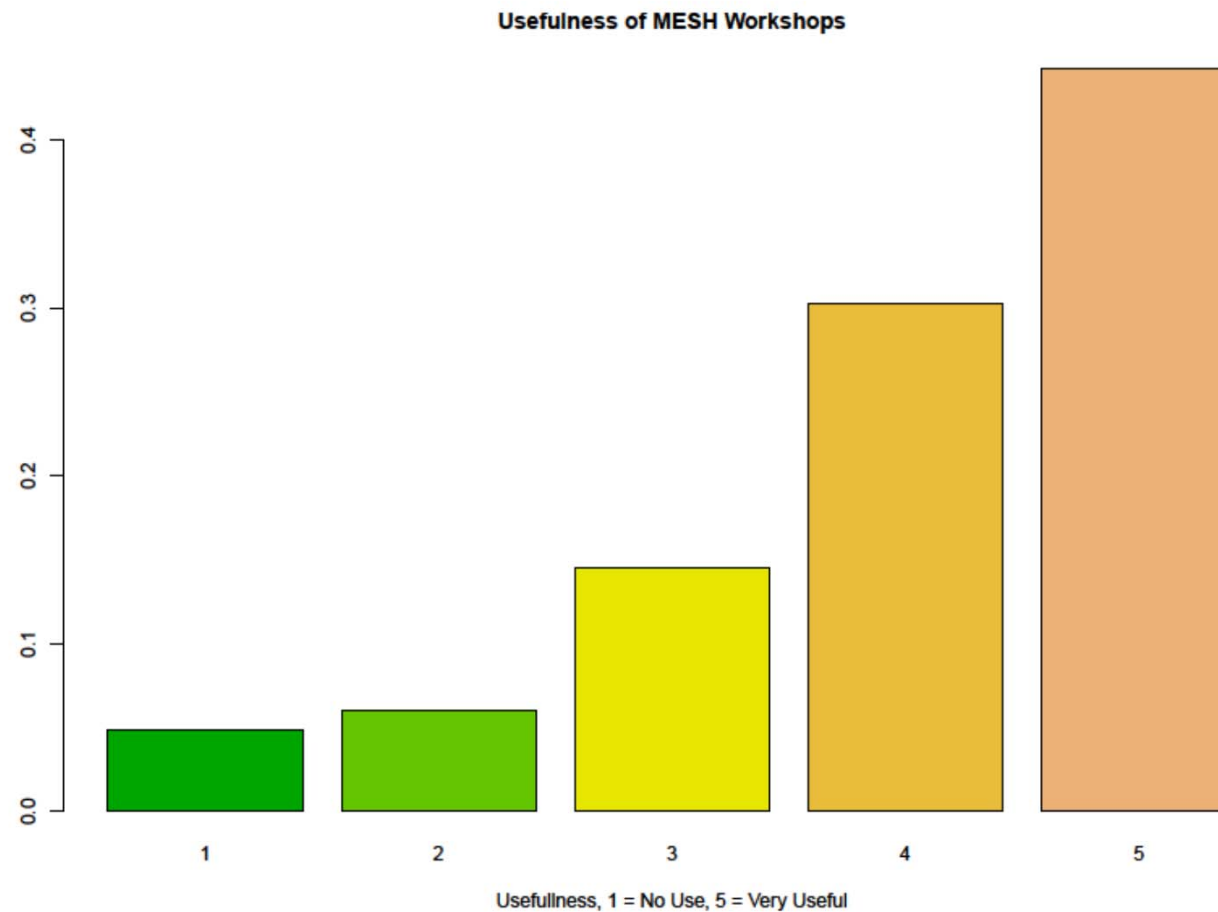
Invitations

- 2015 Autumn 933 (11 undelivered) – 922
 - 2015 Spring 824 (13 undelivered) – 811
 - 2016 Autumn 1016 (13 undelivered) – 1003
- | | | |
|--|-------|------|
| | Total | 2736 |
|--|-------|------|

Responses

- 2015 Autumn 62
 - 2015 Spring 48
 - 2016 Autumn 60
- | | | |
|-------|-----|-------------|
| Total | 170 | Return ≈ 6% |
|-------|-----|-------------|

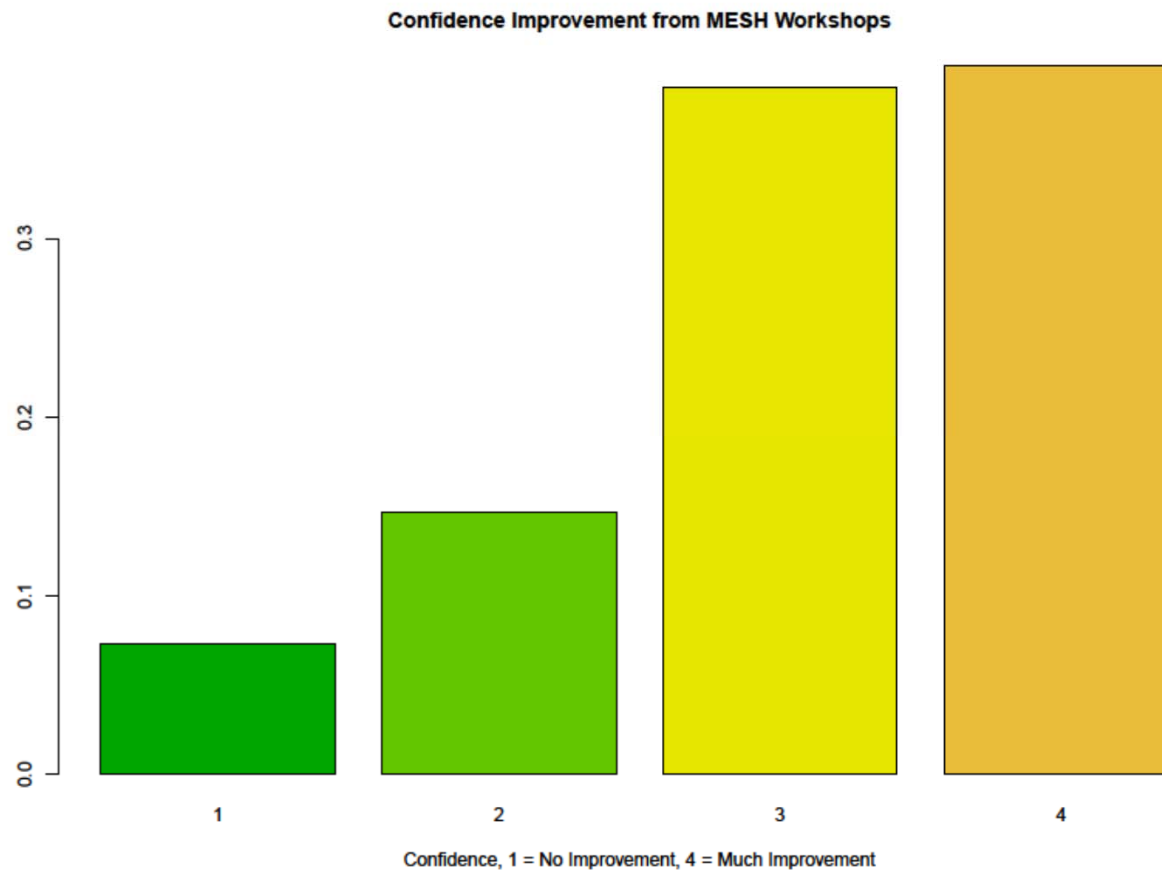
The workshops I attended were
1. No help at all5. Very helpful





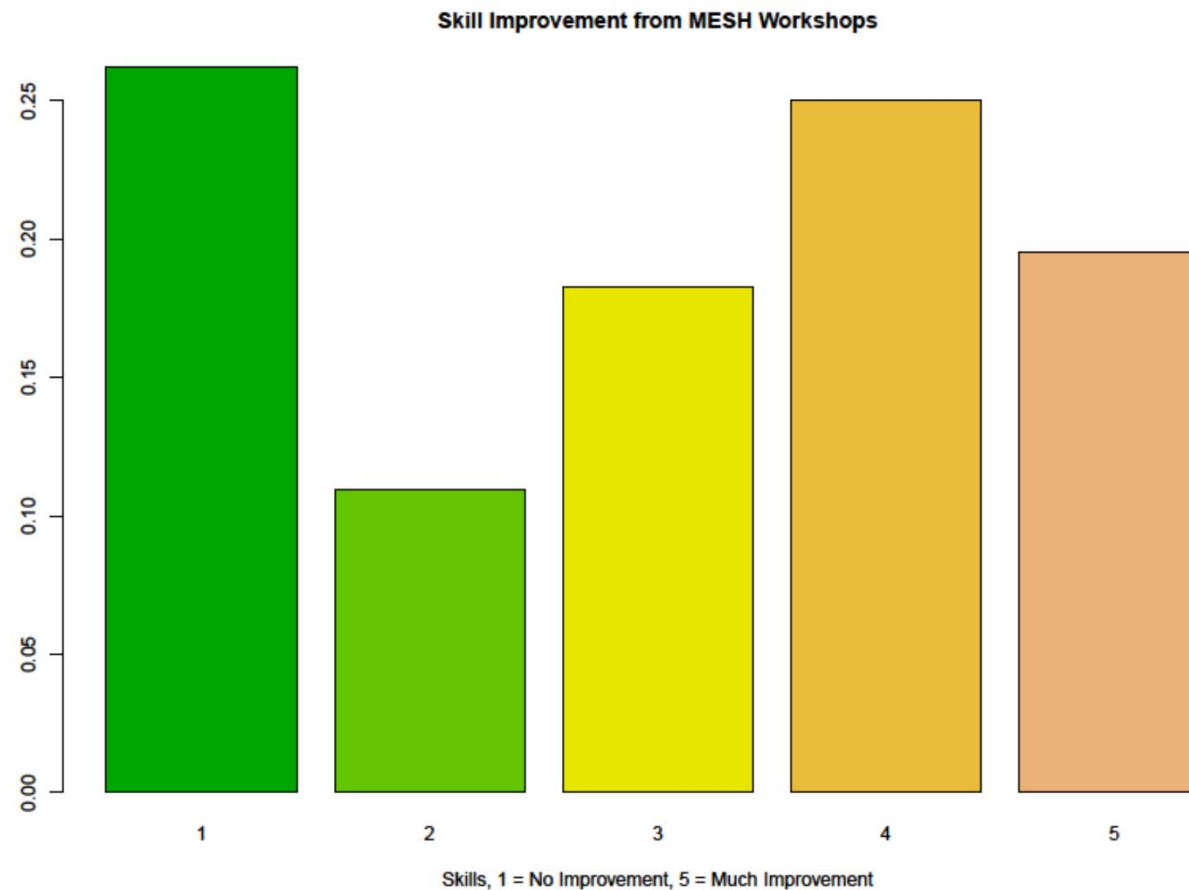
The workshops helped me to improve my **confidence** with mathematics/statistics

1. Strongly disagree4. Strongly agree



Attending these workshops has helped me to improve my **mathematical/statistical skills**

1. Strongly disagree5. Strongly agree

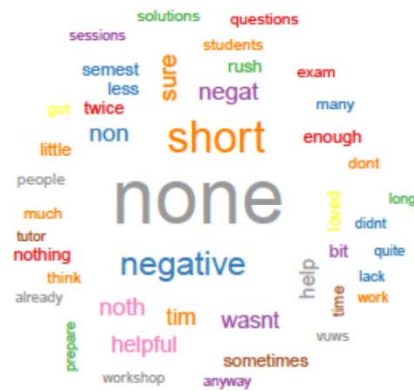


Positive aspects wordcloud relative importance of the most used words



Negative aspects wordcloud

relative importance of the most used words





Comments and future directions

- Engagement with workshops is a significant factor in the student grade but participation is low. How can we improve this?
- Why do students perceive that workshops improve confidence but not skills?
- Are results from other institutions similar or is it our cohort?