Student Networks and Learning Styles
A case study exploring investigative projects

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Introduction & Background

- Calahonda field course (UoM & MMU)
  - Investigative projects
  - Well resourced
  - Highly interactive, student centred, EBL
- Interaction and collaboration between students and tutors
  - Create/engineer opportunities
  - Collegiate research environment
- Well evaluated
  - Self, peer & tutor assessment publications
- Iterative developments

Origins of the project

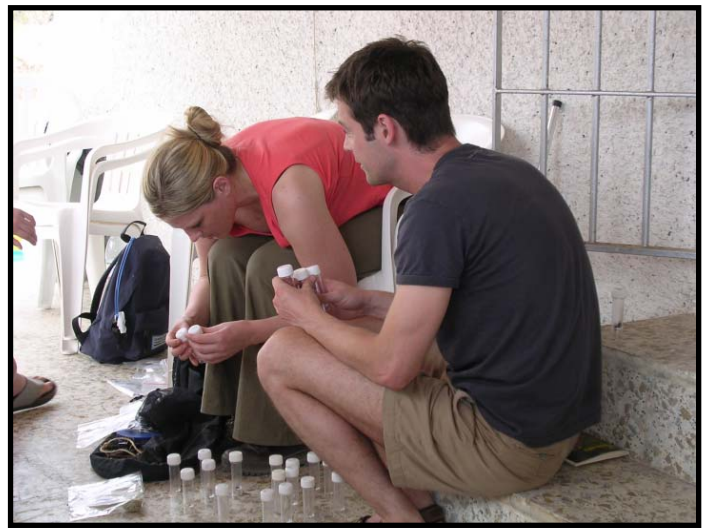
- Thoughts about communication and collaboration
- Concept of students learning networks
- How do students utilise peers and tutors as learning resources?

- What influences academic interactions?
- What value do students attach to those interactions?

Project overview

Opportunistic action research exploring:

- Use of tutors and peers as learning resources
- Characteristics of student learning networks
  - Selective, opportunistic, “fidelity” (exclusive/consistent)
- Influences on interactions
  - E.g. Learning styles (Felder & Solomon’s ILS), gender



Aims of this talk

- Describe the project and methods
- Describe some of the characteristics of the networks we have observed
- Some preliminary thoughts on the complex influence of learning styles

Methods

Field course structure

EBL approach - Students design own investigative project

- Formulate research questions and methods
- Collect data
- Analysis
- Write-up report (scientific paper)
  - Tutor assessed
- Oral presentations
  - Self, Peer and Tutor assessed

Survey schedule

Questionnaires at the end of:

- Stage 1 - Formulate research questions
- Stage 2 - Complete methods development
- Stage 3 - Data collection and collation
- Stage 4 - Statistical analyses

- Exit survey (including ILS questionnaire)

What we asked at each stage

- Which tutors & peers did you interact with to reach this point (how many times, how long)?
- Which tutor and peer did you find the most useful?
- Who instigated the tutor-student interactions?
- How would you assess your contribution to the project with that of the tutors you have interacted with?

Scale

Exit survey

Overall perceptions of networking and collaboration on the course

e.g. "*Try to identify one critical interaction within the life of your project that most helped you to complete the project?*"

Results/Discussion

Proportion of possible interactions

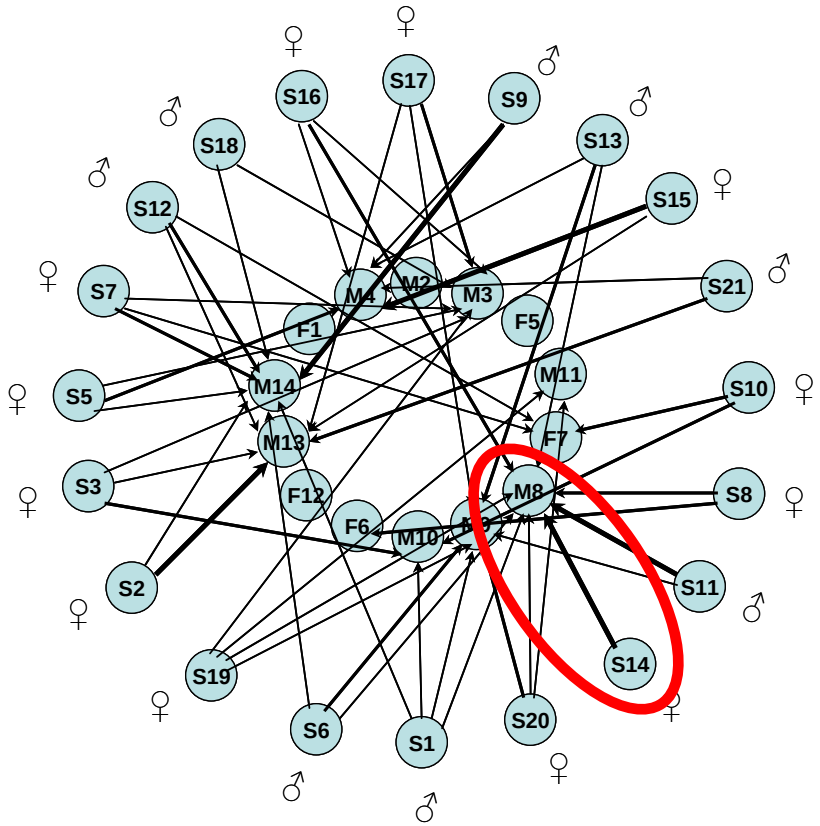
Networks comprised 14 tutors and 20 students
260 potential student-tutor links
361 potential student-student links

Interaction	Stage 1 Question	Stage 2 Methods	Stage 3 Data Coll	Stage 4 Analysis	Whole Network
Student-student	80 (22.1%)	76 (21.1%)	63 (17.5%)	67 (18.6%)	41%
Student-tutor	78 (30.0%)	49 (18.8%)	63 (24.2%)	61 (23.5%)	57%

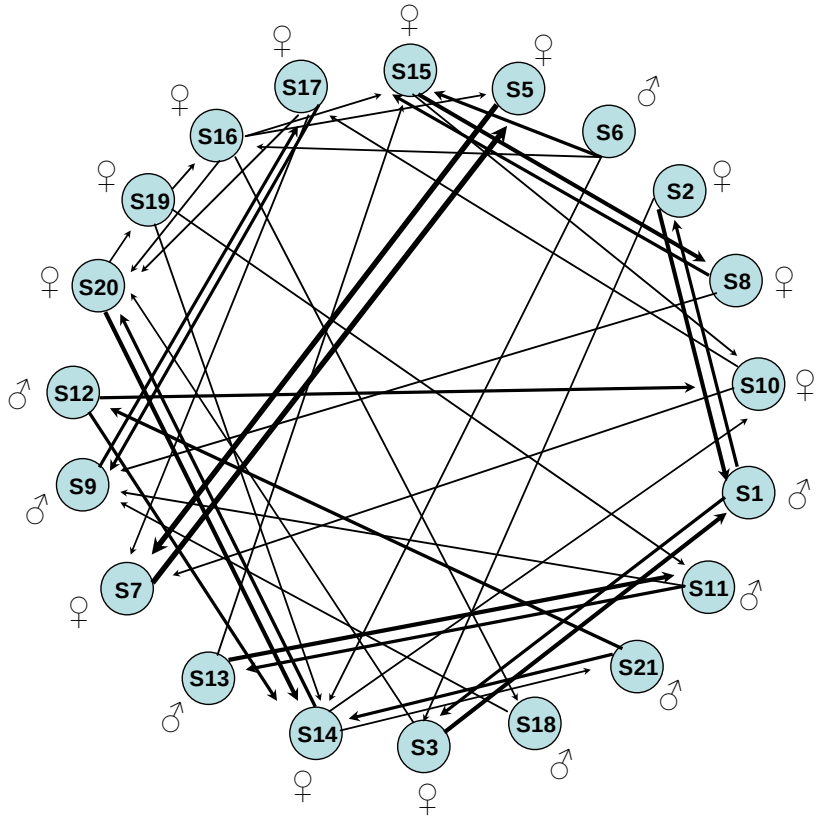
- Most interactions occurred at Stage 1
- Good proportion of potential interactions realised in the networks
- Indication that students select different tutors at different stages

Network diagrams

Most important (valued) tutor and peer

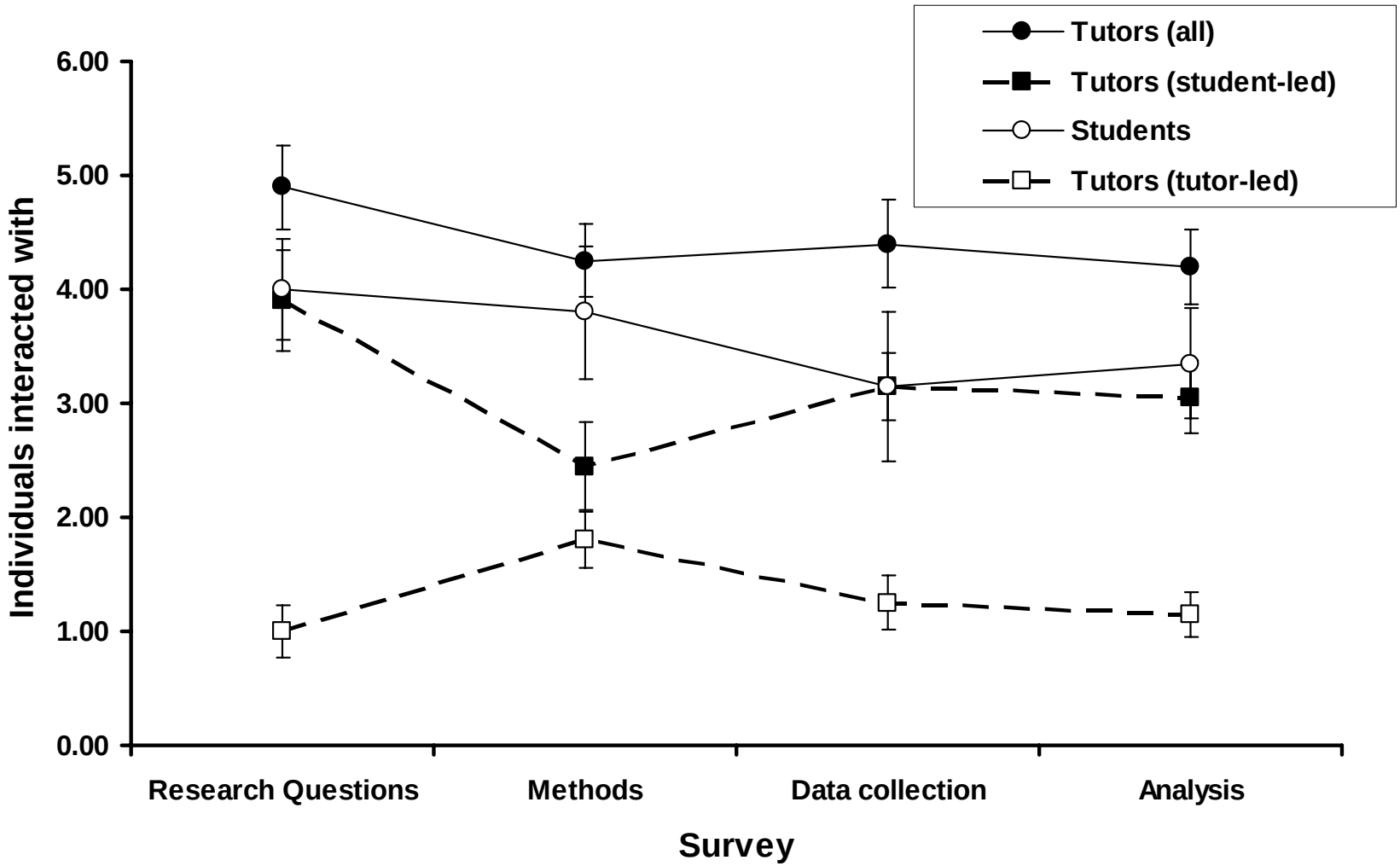


a. Student-tutor interactions

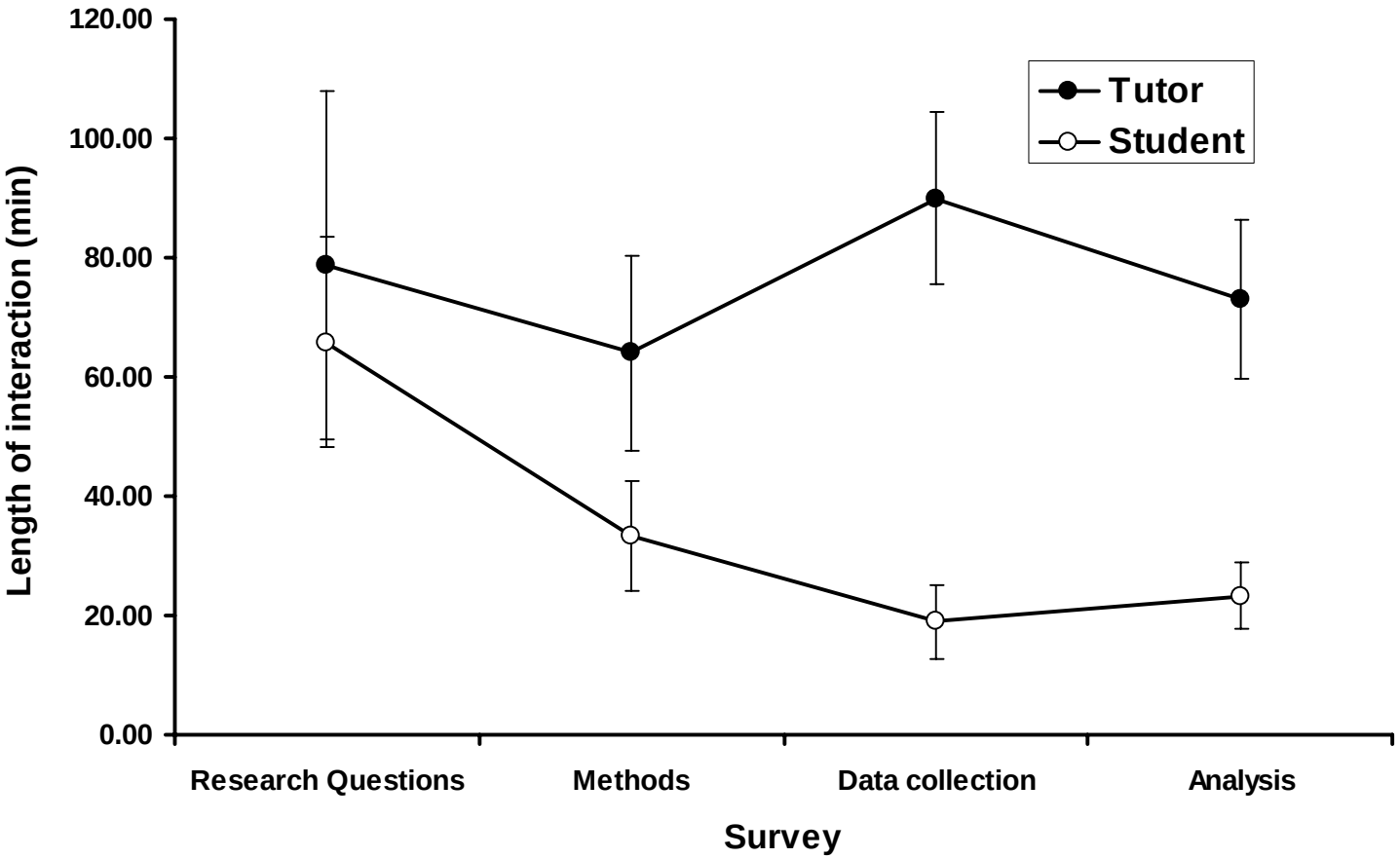


b. Student-student interactions

Number of interactions



Duration of interactions



Perceived critical interactions

Interaction		Freq	%
Project initiation	Formulating research questions	5	25
Data collection	Refining*	5	25
Methodological barriers to progress	Requirement for expertise (e.g. identification) or equipment	2	10
Statistics	Analysis, interpretation and presentation	8	40

Index of learning styles

- 4 axes (Active-Reflective; Visual-Verbal; Sequential-Global; Sensing-Intuitive)
- Ongoing analysis – including multivariate
- Proving very complex
- Indications
  - Tutors and students different profiles
  - Indications ILS axes have some impact on network sizes – inconsistent between stages
  - Anecdotal links\matches

Where do we go form here?

- Further exploration of anecdotal evidence of learning styles influencing learning
- Links into Social Learning Theory
- Principle Components Analysis
- Perceptions of contribution
- Other personal characteristics e.g. preferred Morning/Evening working times
- Implications for field course design

Thanks !

Perception of interaction scale

1. The tutor(s) provided me with a complete prescription/solution that I have followed exactly.
2.
3. The tutor(s) provided strong guidance that helped me to progress with my own ideas/methods/solutions which were initially unstructured and not well formulated.
4.
5. The tutor(s) helped me to resolve some minor problems/misunderstandings in my own ideas/methods/solutions which I then progressed with.
6.
7. The tutor(s) confirmed that I should progress with my own ideas/methods/solutions.

Back

Q3 - Critical interaction within the project?

Student s012

drunken discussion with t014 about coolness of ants

Back

Q3 - Critical interaction within the project?

Student s006

although I knew that I wanted to study plants discussing with t013 the exact variable I was testing (salt)

Back

Q3 - Critical interaction within the project?

Student s015

t010 and t011 buying me a ladder and t013 and t004 helping me to get the pods from high up

Back

Q3 - Critical interaction within the project?

Student s016

stats with t008. helped me make sense of the data and understand what things occurred so that I could discuss ideas for results in both write up and presentation and make sense of them

Back

Q3 - Critical interaction within the project?

Student s002

Interaction with t013 about constructing my table - during data collection. I had so many variables and factors influencing my project the table was difficult to visualise

Back