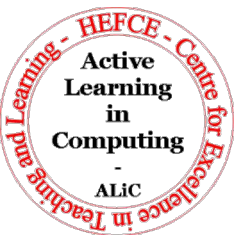


Active Learning in Computing: Engaging Learners in a Cross-Site Team Project

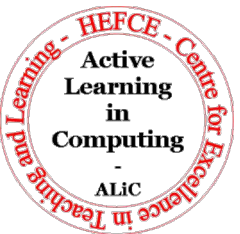
Marie Devlin, Lindsay Marshall, Chris Phillips

Active Learning in Computing

University of Newcastle upon Tyne



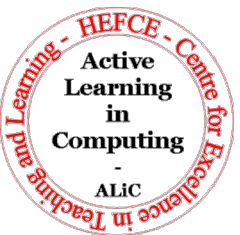
- Active Learning in Computing
- Software Engineering Team Project
- Cross-Site Working
- Skills Recognition & Development
- Video Conferencing Aspect
- Conclusions & Further Work



Active Learning in Computing (ALiC)

- University of Durham with Newcastle, Leeds Metropolitan University & University of Leeds
- Aims
 - Increase levels of student engagement in CS curriculum.
 - Equip students for employment by introducing a ‘real’ world perspective.
 - Demonstrate how to better integrate research and teaching activities.
 - Revolutionise the learning environment to embrace diversity & enable students to control the pace & style of their learning.

<http://www.dur.ac.uk/alice/index.html>



The Software Engineering Team Project

- Compulsory UG 2nd Year Module
- Assessment based on deliverables produced during year
- Students work in peer teams of 6-7
- 5 weeks Software Engineering – assessment 25%
- Team Project Component – 75%
- Aim to teach team skills – communication, project management, team working, leadership as well all the stages of the Software Engineering process.
- Aim to be as realistic as possible

The Software Engineering Team Project

- Different approach 2005/2006
- Cross-site teams - Durham & Newcastle students working together
- Video-conferencing to facilitate team meetings as well as email, phone, in-person.
- 12 teams at each site – matched one to one in an arbitrary fashion
- Shared task – design a prototype holiday guide application – Newcastle software for a PDA, Durham for a mobile phone
- Common look & feel for a ‘corporate identity’ across sites

Cross-Site Working

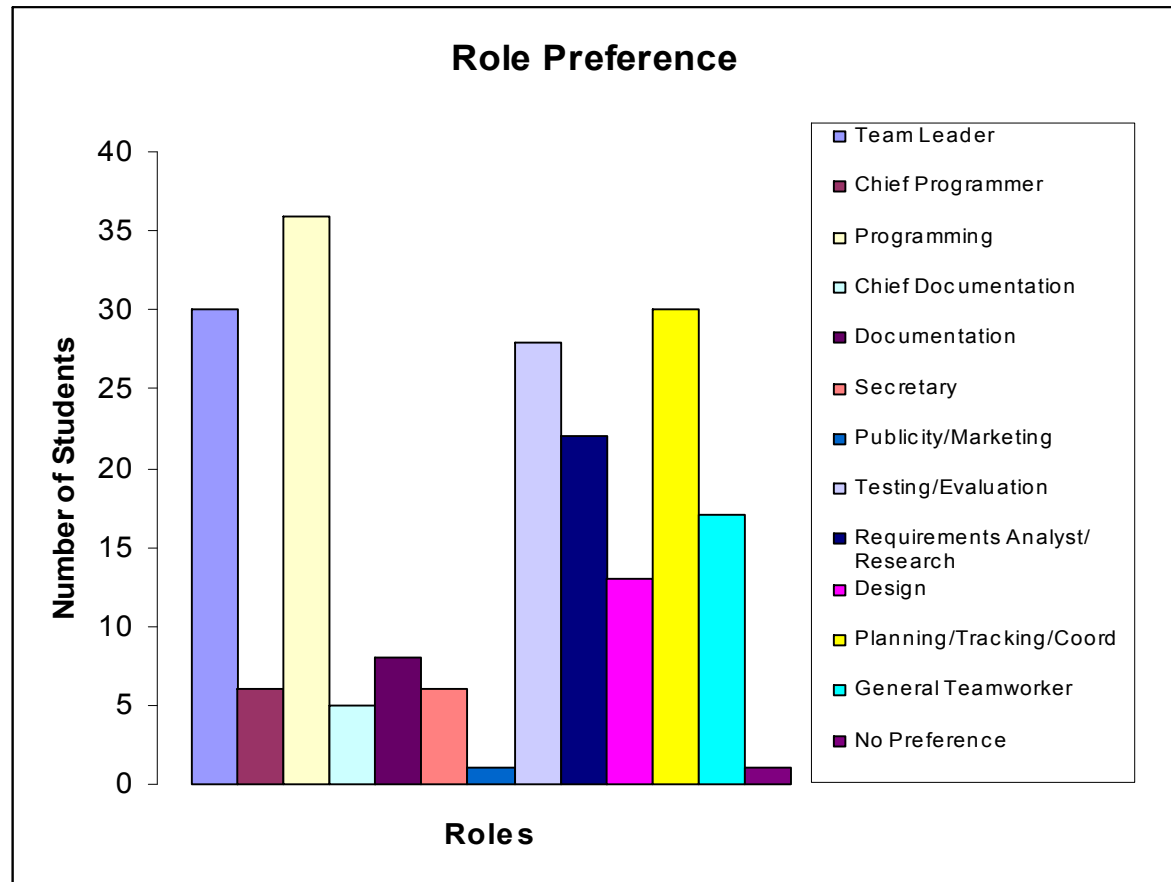
- Loose coupling of collaboration to ensure learning outcomes & assessment methods not compromised
- Differences between sites:
 - Delivery mechanisms and Curriculum emphasis
 - Timetables
 - Schedule & size of Deliverables
 - Team Management – Monitors/Project Managers

Skills Recognition & Evaluation

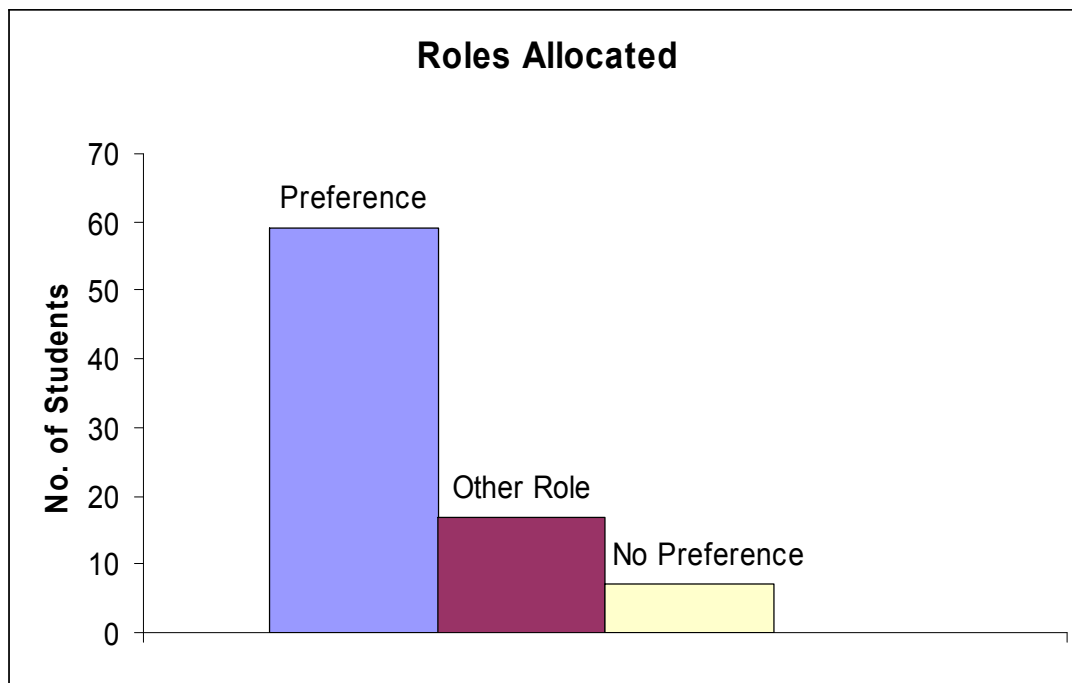
- **Innovator** – produces ideas, imaginative, unorthodox, radical, clever, uninhibited – can be oversensitive, may need careful handling
- **Investigator** – Finds things out, always knows someone who..., brings info back to team, enthusiastic, gregarious – can be lazy and complacent
- **Chair** – Self-confident, commands respect, good speaker, thinks positively, good at guiding team- can be domineering, bossy
- **Shaper** – Energetic, drives team, needs to succeed, make things happen – can be disruptive, argumentative, impatient & likes their own way
- **Evaluator** – Careful, makes intelligent judgements, tests out ideas, evaluates proposals, helps team avoid mistakes – can be aloof, pessimistic & over-critical
- **Teamworker** – Sympathetic, understanding, sensitive, shows strong concern for social interaction, leads from behind. Places the team above personal concerns – can be indecisive
- **Organiser** – Methodical, hardworking, reliable, orthodox, turns ideas into feasible plans, gets on with tasks – can be inflexible and uninspiring
- **Finisher** – Painstaking, conscientious, follows through & works hard to finish things, meets deadlines and pays attention to detail, can be perfectionist and over-anxious

Skills Recognition & Evaluation

Role/Skill	Primary	Secondary	Primary %	Secondary Skill %
Innovator	30	45	36	54
Investigator	32	39	38.5	47
Chair	18	35	22	42
Shaper	23	31	28	37
Evaluator	45	31	54	37
Teamworker	47	31	57	37
Organiser	39	32	47	38.5
Finisher	35	32	42	38.5



Role Preferences: Interim



Team Structures

- Democratic
- Democratic with Team Leader
- Autocratic Team
- Hierarchical Team
- Chief Programmer Team

Team Structures

Team Structure	Individual Preference at Beginning (83)	Actual Team Structure - Team Interim Report (12)
Democratic	10	2
Autocratic	0	1
Hierarchical	19	6
Chief Programmer	3	0
Other	3	0
Democratic with team leader	48	3

- Technology – Access Grid – Use other tools
- Technical Issues – equipment more than anything
- Scheduling Meetings – timetables, room bookings
- Intra-team and inter-team relationships –perceptions - communication or NOT
- Deliverable Schedule, Assessment & Curriculum differences
- Student perceptions & reactions to collaboration
- Effects on module outcomes
- Student Feedback

Conclusions & Further Work

- Module Re-design – motivation for collaboration
- Scheduling – Alignment in practical timetable, opening of dedicated rooms at Newcastle.
- Video Conferencing reliability – perceptions affected by poor equipment , issues resolved on both sites – procedures if things do go wrong again.
- Training for students on how to conduct meetings – virtual and face-to-face.
- Differences in deliverable schedule, curriculum emphasis to be discussed.
- Evaluate module outcomes & student feedback at end of year, improve and disseminate.