

Supporting self and peer assessment of individual contributions in groupwork

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Overview

Today we discuss the educational design and impact of a self and peer assessment online support tool

TeCTra - Team Contribution Tracking

TeCTra supports the learning of how to self-assess individual work effort and how to peer-assess team-member contributions.

TeCTra has been developed since 1998 within a capstone undergraduate subject **Software Development Project**

- 12 credit point subject (50% of a fulltime study load)
- 350-400 students per year in groups of 10
- Groupwork outcomes are 100% of assessment

TeCTra is currently being pilot-tested and evaluated in various disciplines and university's as an Australian Government Carrick Institute funded 2006 Priority Project.

Developing graduate attributes of professionalism

- To be able to assess the work of oneself and peers is a core attribute for professional practice.
- Developing these graduate attributes in our students requires the learning of self and peer evaluation, feedback and review skills.
- Novice professionals need to practice giving and receiving peer reviews and benefiting from constructive feedback.
- **When and how do we teach and support the learning of these core abilities and professional attributes?**

Assessment of individual contributions

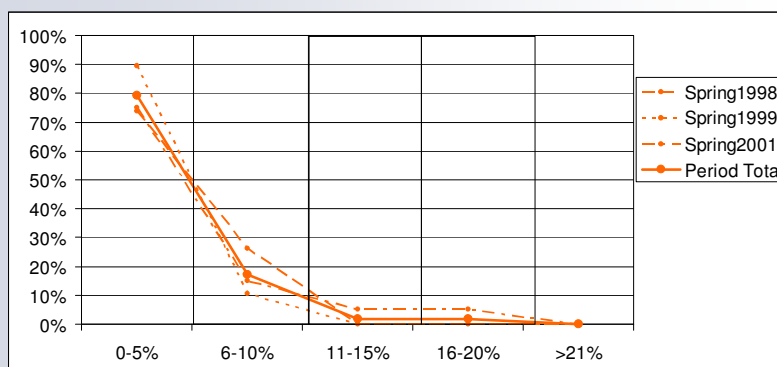
- In many courses significant capstone subjects involve projects that require large student teams.
- Academics have limited opportunities to observe and assess the complex group and teamwork dynamics that are taking place.
- A summative approach is based on 'the last impression'.
- The common strategy for assessing groupwork of allocating the same mark to all team members is not adequate when the project tasks are extensive, the teams are large in number (more than 4 members), can extend for the whole semester and the groupwork outcomes can constitute 100% of the final student assessment (Rosen 1996; Lejk and Wyvill 2001; Kennedy 2005)

Designing peer assessment

- Peer assessment is required to assess individual contributions to groupwork (Johnston and Miles 2004).
- Peer assessment for evaluating individual contributions to groupwork is controversial because it can produce 'unreliable' results caused by the inexperience of the student assessors and marks are often undifferentiated (Kennedy 2005).
- The labour intensive processes academics have to administer are problematic (Clark 2005).
- A peer assessment strategy is required which is ideally formative, diagnostic and summative (Goldfinch 1990; Gatfield 1999).
- This ideal has been difficult to achieve (Lejk and Wyvill 2001; Li 2001) and is an important and unresolved assessment issue.

Peer assessment without TeCTra online support

Marks differentiation in the period with no online support 1998 to 2001



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Peer assessment with time recording

TecTrac ViewTimesheet - Microsoft Internet Explorer

Semester: autumn 2004
 Subject: 31476
 GroupID: GP01
 Week Starting: 2004-03-01

Richard Raban
 Subject Coordinator
 July 15, 2006

WEEK 1: Weekly Timesheet for Jennifer Law

Task	Work	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Total
PL	M	-	1.00	-	-	-	-	-	1.00
PL	M	-	-	2.00	-	-	-	-	2.00
PL	M	-	-	-	1.00	-	-	-	1.00
PL	M	-	-	-	-	1.00	-	-	1.00
SRS	D	-	1.00	-	-	-	-	-	1.00
SRS	D	-	-	-	2.00	-	-	-	2.00
SRS	D	-	-	-	-	0.50	-	-	0.50
SRS	N	-	2.00	-	-	-	-	-	2.00
SRS	N	-	-	-	3.00	-	-	-	3.00
SRS	N	-	-	-	-	0.50	-	-	0.50
SRS	Q	-	-	1.00	-	-	-	-	1.00
Weekly Hours Total									15

PL -> Project Leader Tasks
 M -> Management
 SRS -> System Req's Specs Preparation
 D -> Development
 N -> Documentation
 Q -> Quality Review

Project Groups | Project Group Members | Semester Weeks Chart | Weekly Statement | Help | Log Out

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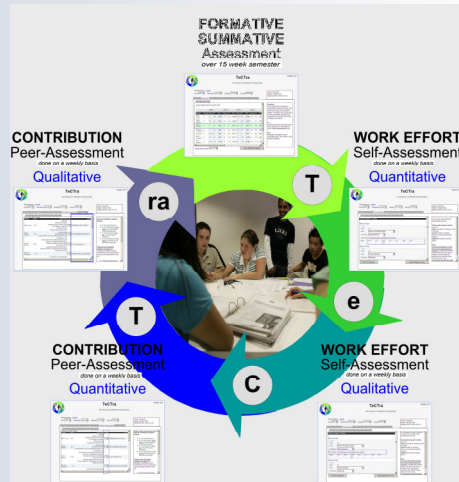
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Peer assessment with time recording

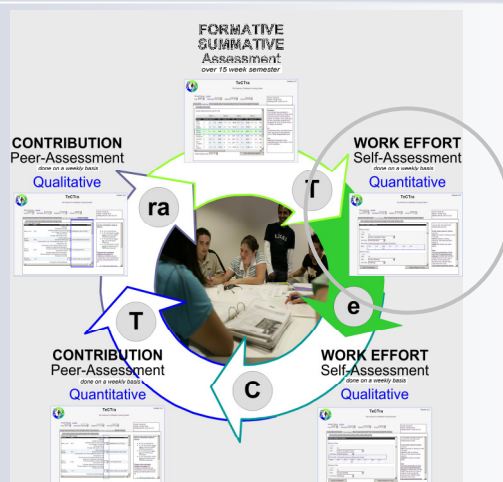
Marks differentiation in the period with time records available 2002 to 2004

Mark Range	Spring2002 (%)	Spring2003 (%)	Autumn2004 (%)	Period Total (%)
0-5%	55	55	55	80
6-10%	25	25	25	25
11-15%	10	10	10	10
16-20%	10	10	10	10
>21%	5	5	5	5

TeCTra weekly assessment cycle



Quantitative self assessment



Recording time spent

TeCTra

The Teamwork Contribution Tracking System

Version: 1.2.7

Shawn Penney [Logout](#)

Year: 2007 Semester: Spring Subject: 31746 Group: GP02

Group: Group 02 Meets: Wed @ 19:00 Meeting Room: CM01.04.413

Group Info | Summary | Time Sheets | Peer Assessment | My Peer Assessment | Edit My Details

W01 | W02 | W03 | W04 | W05 | W06 | W07 | W08 | W09 | W10

Penny, Shawn: 13 Hours

Remove Task

Task: Admin Assistant Tasks

Total: 2.0

WorkType: Administration

Deliverable: looking through sourceforge and emails

Days: Mon Tue Wed Thu Fri Sat Sun

2.0

Remove Task

Task: Group Meeting

Total: 2.0

WorkType: Meetings

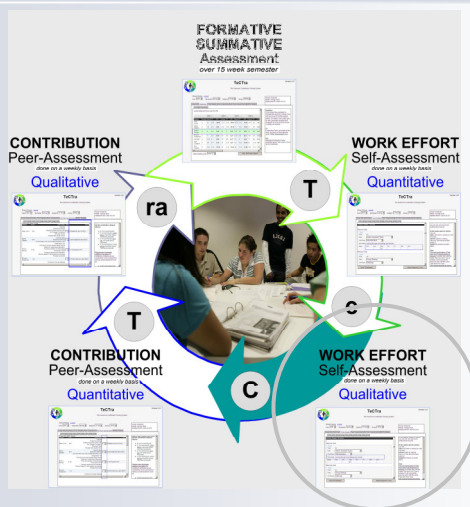
Save Timesheets Select Report to View

In the weeks closed for entries, you can only view previously entered time records.

In the weeks open for entries, you can add a new task by clicking on Add new task, remove a task by clicking Remove Task above the task panel or update the already recorded tasks.

Note: Only one combination of Task and Work Type per person is allowed. If another task with the same Task and Work Type is entered, it will override the previous entry with the same Task and Work Type. Deliverable must not be longer.

Qualitative self assessment



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Recording project deliverables

TeCTra Version: 1.2.7

The Teamwork Contribution Tracking System

Shawn Penney [Logout](#)

Year: [2007] Semester: [spring] Subject: [31746] Group: [GP02] Group: Group 02
Meets: Wed @ 18:00 Meeting Room: C101.04.413

Group Info | Summary | Time Sheets | Peer Assessment | My Peer Assessment | Edit My Details

[W01] [W02] [W03] [W04] [W05] [W06] [W07] [W08] [W09] [W10]

Penney, Shawn: 13 Hours

Remove Task:

Task: [Admin Assistant Tasks] Total: 2.0

WorkType: [Administration]

Deliverable: looking through sourceforge and emails

Days: Mon Tue Wed Thu Fri Sat Sun (2.0)

Remove Task:

Task: [Group Meeting] Total: 2.0

WorkType: [Meetings]

[Save Timesheets] [Select Report to View]

In the weeks closed for entries, you can only view previously entered time records.

In the weeks open for entries, you can add a new task by clicking on Add new task, remove a task by clicking Remove Task above the task panel or update the already recorded tasks.

Note: Only one combination of Task and Work Type per person is allowed. If another task with the same Task and Work Type is entered, it will override the previous entry with the same Task and Work Type. Deliverable must not be longer

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Quantitative peer assessment

FORMATIVE
SUMMATIVE
Assessment
over 10 week semester

CONTRIBUTION Peer-Assessment Qualitative

CONTRIBUTION Peer-Assessment Quantitative

WORK EFFORT Self-Assessment Quantitative

WORK EFFORT Self-Assessment Qualitative

Giving peer contribution ratings

TeCTra

The Teamwork Contribution Tracking System

Version: 1.2.7

Shawn Penney [Logout](#)

Year: 2007 Semester: spring Subject: 31746 Group: GP02

Group: Group 02
Meets: Wed @ 18:00
Meeting Room: CM01.04.413

[Group Info](#) | [Summary](#) | [Time Sheets](#) | [Peer Assessment](#) | [My Peer Assessment](#) | [Edit My Details](#)

Member	Hours	Deliverables	Rating	Feedback
Peter Lynch	22.0	Meetings Email Sourceforge SVIDD Process and Document QA Changes, Formatting Document Check Process Task Quality Check	2	Please QA your writing.
Daniel Gassler	22.5	Librarian tasks Email Sourceforge SA document work, SA process document work Presentation Task	2	Complete SA document.
Shawn Penney	21.25	Informal and formal meeting, status reports Meeting for organising presentation Final documentation of deliverables Contribution forms	3	A lot of good work.
Edward Fredericks	0.0	Changing objectives documentation General research, deliverables, sourceforge Process documents Formal and informal meetings	0	Where were you last week?

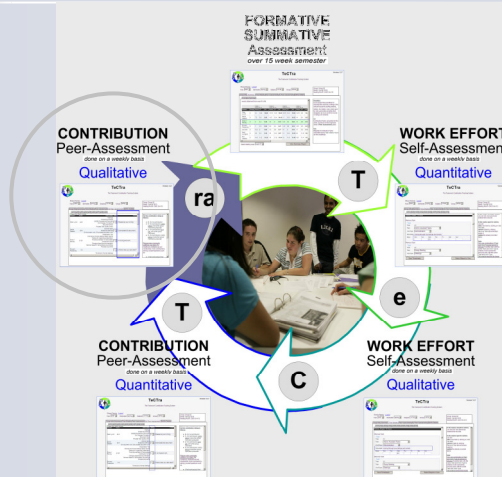
Please enter against each name her/his contribution rating as follows:

- 0 - for no contribution
- 1 - for contribution visibly above what other group members produced
- 2 - for contribution at a par with other group members
- 3 - for contribution visibly below what other group members produced

Please make comments justifying your rating. Be courteous, professional and constructive. Form comments by asking yourself questions such as:

- What works about their

Qualitative peer assessment



Giving individual peer feedback

TeCTra

The Teamwork Contribution Tracking System

Version: 1.2.7

Shawn Penney [Logout](#)

Year: 2007 Semester: spring Subject: 31746 Group: GP02

Group: Group 02
Meets: Wed @ 18:00
Meeting Room: CM9.1.04.413

[Group Info](#) | [Summary](#) | [Time Sheets](#) | [Peer Assessment](#) | [My Peer Assessment](#) | [Edit My Details](#)

Week	Member	Hours	Deliverables	Rating	Feedback
Week 05 2007-10-09	Peter Lynch	22.0	Emails Sourceforge SI/SD Process and Document QA Changes, Formatting, Document Check Process Task Quality Check	2	Please QA your writing.
	Daniel Gasser	22.5	Librarian tasks SA document work, SA process document work Presentation Tips	2	Complete SA document.
	Shawn Penney	21.25	Informal and formal meeting, status reports Meeting for organising presentation Final documentation of deliverables Contribution forms General research, deliverables, sourceforge Process documents	3	A lot of good work.
	Edward Fredericks	0.0	Formal and informal meetings	0	Where were you last week?

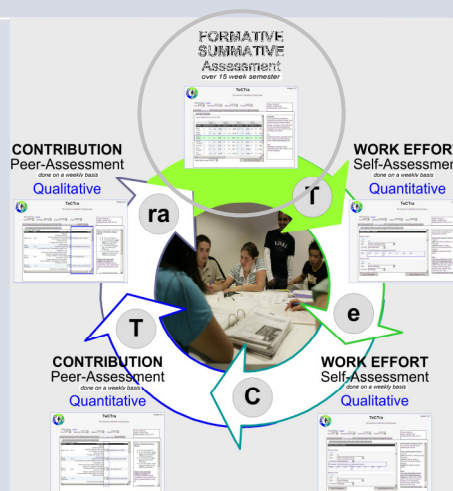
Please enter against each member his contribution rating as follows:

- 0 - for no contribution
- 1 - for contribution visibly below what other group members produced
- 2 - for contribution at a par with other group members
- 3 - for contribution visibly above what other group members produced

Please make comments justifying your rating. Be courteous, professional and constructive. Form comments by asking yourself questions such as:

- What worked about their...

Formative/Summative assessment



Weighted contribution factors

TeCTra

The Teamwork Contribution Tracking System

Version: 1.2.7

Shawn Penney [Logout](#)

Year: 2007 Semester: spring Subject: 31746 Group: GP02

Group: Group 02
Meets: Wed @ 18:00
Meeting Room: CM01.04.413

[Group Info](#) | [Summary](#) | [Time Sheets](#) | [Peer Assessment](#) | [My Peer Assessment](#) | [Edit My Details](#)

Formative Summary

weekly statement from week: 1 to 10

Member	Penalty	Week 1 2007-09-03		Week 2 2007-09-10		Week 3 2007-09-17		Week 4 2007-09-24					
		Hours	CF	Hours	WC	Hours	WC	Hours	WC				
Peter Lynch	0	12	10.8	10.80	17.75	10.9	10.86	16.75	10.3	16.63	14.76	9.5	10.2
Daniel Gassler	0	7.5	9.9	9.90	11.5	10.4	10.48	11	10.3	10.23	14	9.1	9.5
Shawn Penney	0	9	9.4	9.40	12	9	9.17	14.5	9.4	9.26	13	9.5	9.3
Edward Fredericks	0	7	8.5	8.50	9.5	8.1	8.27	14.5	8.9	8.52	13.5	9.5	8.7
Ian Smith	0	12.5	9	9.00	7.5	8.6	8.77	15	8	8.46	17	8.2	8.36
Bent Lundgren	0	6.5	9.4	9.40	19	10.4	9.97	14	10.3	10.10	24	11.8	10.4
Eric Masters	0	14.5	11.2	11.20	18	11.8	11.64	19	11.8	11.66	18.5	11.4	11.4

Select starting week: week 01 View Summary Report

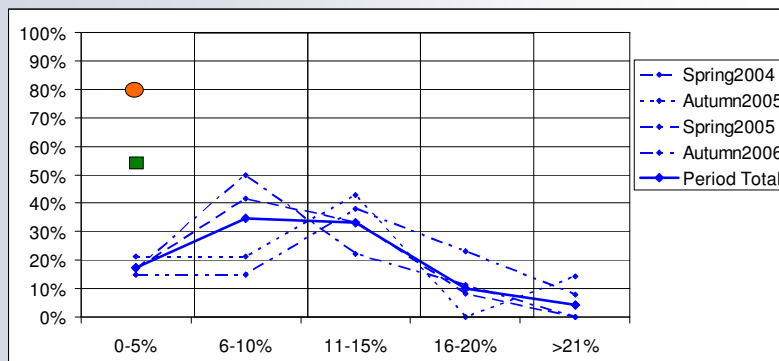
Penalties:
If your project has penalties for missing time records or ratings, they will be accrued for all the passed weeks and the weeks still open for entries. So initially, every week open for entry generates penalties that disappear as soon as time records or ratings are entered.

CF:
Contribution Factor calculated for the week, as shown in the respective week of Peer Assessment panel.

WC:
Weighted Contribution Factor calculated using Total/Weekly Hours as the weightings.

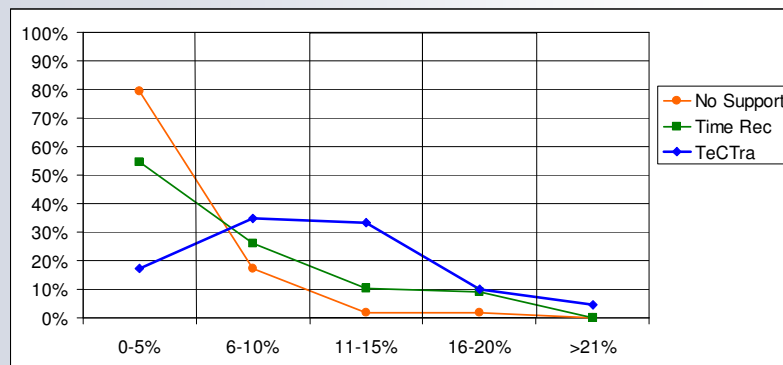
Peer assessment using TeCTra

Marks differentiation in the period supported by TeCTra 2004 to 2006



TeCTra's impact on assessment

Overview of changes in the distribution of peer-marks due to changes in peer-assessment strategies from 1998 to 2006.



Summative assessment strategies using TeCTra data

- We need more case-studies for different disciplines and types of group projects
- TeCTra's individual weighted contribution factors can be mandated or voluntary in determining final assessments
- An overall 'pool' of marks for a group project can be generated in various ways
- In the Software Development Project subject a pool of marks is generated at two points;
 - 50% at mid-semester (40% by another team, 60% by academic)
 - 50% at end-of-semester (40% by another group, 60% by academic)
- This pool is then divided amongst the team and TeCTra data is used as voluntary guidance

TeCTra 2007-08 project timeline

- TeCTra's development has been funded by a 2006 Carrick Institute Priority Project grant
- In 2007-2008 TeCTra is being re-developed and pilot-tested by the project partners;
 - 3 UTS Faculty's – IT, Engineering & Business
 - 3 Australian University's QUT, Curtin and Griffith
- In 2009 TeCTra will be ready for dissemination as a product or service
- **Call for University of Edinburgh pilot-testers...**

TeCTra online tool

Team Contribution Tracking

- Develops students self and peer holistic evaluation skills
- Provides visibility of individual contributions
- Develops students formative and diagnostic feedback skills
- Provides opportunity for student reflection and adaption
- Provides formative and summative assessment data
- Makes peer assessment relatively easy
- **Are you interested in being a pilot-tester in 2008?**