Industrial Engagement for 21st Century CS Education

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Overview

The context

The problem … and (non) solutions.

Industrial placements … a reminder.

The IT Clinic idea.

Experience.

Suggestions for collaboration.

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The context

CS has strong practical aspects: from an office application running on a PC to a million line mobile phone billing system.

We understand and transmit the principles.

How to convey the context of what we are teaching?

The perception

"The university system is producing the wrong sort of graduates … "

Ian Watmore, UK Government Chief Information Officer

Computer Weekly, 1 November 2005

Monday panel discussion

"It takes at least a year to get new graduates up to speed …"

"We'd like graduates to have business skills …"

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What is *not* the solution

"ITMB is a new IT degree course … It was designed by some of the biggest employers in the IT industry to ensure that graduates with an ITMB degree have all the tools they need to excel in, and lead the industry in the future. The government has funded the creation of ITMB …"

e-skills, UK

Industrial placements

What we simply cannot do in the classroom.

Opportunity for both universities and companies to concentrate on what they do well.

One year student placements

BSc in Computer Science with a Year in Industry.

A full twelve month period as a paid employee, between second and final years.

Most placements are away from Canterbury.

One year *vs* summer internship

Real employment *vs* a taster.

Examples

- Student selling £1m+ consulting contract.
- Recruiting students for the next session.
- Customers, internal technical, …
- International opportunities: Sun, Siemens …

Retention?

Possibility of part-time work in the final year.

No problem of non-retention.

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What the department does

Partner companies: repeatedly take students.

Presentations, help with applications.

Visiting the students twice during the year.

Supports the industrial supervisor.

Supports the assessment process.

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What the department doesn't do

Place students with companies.

Students have to apply for positions
   … they need to commit to the process.

Companies have to appoint
   … they need to commit to the student.

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Hard data

Eight percentage-point difference between students who take placements and students who don't …

… in UK terms that is a degree class.

This is *not* taking into account marks for the year in industry itself.

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Employment data

Fewer still seeking work

The quality of the jobs

Job satisfaction

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The quality of the experience

"The best year of my life."

Ambassadorial role of returning placement students …

… good news for the Vice Chancellor.

Limitations

Whole (extra) year

Away from Canterbury

Corporate experience: a very small cog in a very large machine (e.g. recent IBM example)

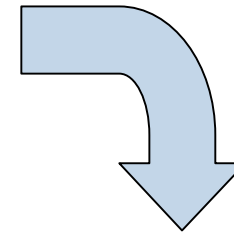Computing Laboratory
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The Kent IT Clinic

Industry in Canterbury: almost all are SMEs and smaller.

Third-leg funding: funding university enterprise activity.

Student experience … and talent.

Student consultants for small businesses.

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Student consultants for SMEs

Win for enterprises

High-quality consultancy

Reliable and responsive

Mentored by an experienced consultant.

At a competitive price.

Boosts the local economy, and fills a skills gap.

Win for students

Invaluable experience.

Complements placements

Part of the curriculum

Enhances both generic life skills and technical expertise.

Win for the university

Better motivated and achieving students.

Industry alignment.

Boosts student recruitment and retention.

Strengthens profile and links in the local area.

Facts

25 student consultants, 25% FTE each.

£30k income over the last 18 months.

Engagement with 34 organisations this year.

Successfully completed 25 client contracts in last 12 months.

Academic support

Academic module: IT consultancy principles.

Academic coordinator + supervisors.

Assessment: PARs and reflective report.

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Testimonial

"We have been very pleased with all the support and contact we have had with the team there at KITC and would not hesitate in recommending their organization to others, as both the Executive Director and myself have already done on a number of occasions."

Lucy Clements, Channel Corridor Partnership.

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Experience

Academic credit rather than £s.

Clarity about procedures: specs and docs.

Continuity.

Year pattern: term *vs* vacation.

Can *all* students be expected to do this?

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Present and future

Computing magazine award.

Links with IBM, Medway Council, …

Ensuring the supply of business … managing expectations … becoming self-sustaining.

Offers

Transferring the Kent IT Clinic model to other departments.

European placements exchanges … internationalising the student experience.

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Conclusions

Academic departments and industrial enterprises each do what they do best.

No compromise of academic standards.

Graduates who 'hit the ground running'.