Vertically Integrated Projects (VIP)

A new innovation in teaching
--- Strathclyde leading the way
With help from our friends at Georgia Tech!!
Where are we?

- The University of Strathclyde is in Glasgow.
- Glasgow is the largest city in Scotland, in the north of the United Kingdom.
  - Times Higher University of the year 2012.
  - Entrepreneurial University of the year 2013.
The campus is in the city centre of Glasgow
VIP@strath history Part 1

July 2010    Ed Coyle visited and gave a talk on VIP @ GATECH
Jan 2011     Strategic Senate on Innovation in Education
Mar 2011     Funding awarded from Education Excellence Fund
Jun 2011     Ed Coyle visits to lay foundations of VIP@strath
Oct 2011     Strathclyde team visit GA Tech to see VIP in action
Jan 2012     First Strathclyde VIP projects launched
Mar 2012     VIP Showcase/Heriot Watt Uni Enhancement Conf
Two nations divide by a common language!!

You say tomato!

Senior design?
= 4th year project
Sophomore?
= 2nd year
School
= Faculty
Faculty
= Academic Staff
Accreditation, External Examiner?? Credit Values

Ed’s favourites:
Single malt, 80/-
VIP@strath history Part 2

Aug 2012    Times Higher University of the Year visit
Sept 2013    Open meeting for prospective VIP leaders RKES
Oct 2012     New Projects launched
Nov 2012     VIP Seminar series
              - Entrepreneurship/Project Management/Senior Industrialist
March 2013    Showcase with Georgia Tech
                VIP Board established
April 2013    to present projects increase to 9, workshops on
                Leadership, Project management, Entrepreneurship
The Good-

Unequivocal support from the very top!

Clear message – VIPs are here to stay!

VIP Champion ie me- with time, space and a budget

Unbelievable student enthusiasm!

VIP support person approved-hurray!!!

Our first VIP program sponsorship - SHELL
The bad-

A little active resistance

Some concerns over workload

Timetabling

Administration having to play catch up

Staff finding it too stressful/taxing
The Ugly-

Resource allocation

A failing student blaming VIP

Exam Marks return

Where is all the documentation?

Quality Assurance
Strathclyde USPs

*Diversity* – Engineering, Science, Humanities, Business

*Outreach* – International Development, Business, Schools

*Entrepreneurship* – Business aspect in every project!

These are consistent with position as

*A Leading International Technological University*
In VIP

UG students get the Chance to -

1. Lead a Group
2. Show Initiative
3. Plan Work
4. Be Flexible
5. Take Ownership of Own Learning
6. Work with Students from different years and disciplines.
Alignment with Strategic Objectives

- Leading International Technical University
- Research Informed Teaching
- Internationalisation
- Outreach
- Interdisciplinary learning
- Producing employable graduates and effective citizens
Examples of Vertically Integrated Projects Addressing Big Problems

Internal

- Hard science
  - Cancer treatment
  - Antibiotics
- Arts and Humanities

Outreach

- International development
- Business/entrepreneur
- Schools activities
Polarised Growth

Provides model based on analysis of data

Fig. 3 Normal distribution curves

Maths

Provides data from images

EEE

Bio

Provides images of stained hyphae to test model
A Midsummer Night’s Tragedy?

- “A Midsummer Night’s Dream is actually an anomaly among the festive comedies”
  -(Linda Bambur, 1982. Comic Women, Tragic Men  p.29)
This VIP offers a unique experience for students at different stages of study in different fields to come together, learn from each other, and combine their unique skill sets to contribute to an ambitious research project that can positively impact the lives of the rural poor of developing countries.

The system designed will use solar energy for community-based centralised charging of portable batteries, for specially designed multi-functional consumer devices which will be distributed amongst the community.

Modular design of these devices allows consumers to group their devices together to supply higher powered communal services such as TV watching and water pumping.
Enterprise VIP

A University-wide initiative to support future entrepreneurs and provide a learning platform for Strathclyde students

Tier 1 – Project Springboard
A one-stop shop for all queries

Tier 2 – Project Inspire
Planning Events to Inspire Activity

Tier 3 – Project Engage
Business Analysis for Start-Ups

Tier 4 – Project ‘A-Team’
Providing Expert Advice

Volunteers have the opportunity to engage with successful entrepreneurs and help put their business knowledge into practice

Hunter Centre and Strathclyde Entrepreneurial Network

www.strath.ac.uk/viprojects
2014/15 Enterprise VIPs (Semester 2)

VIP Enterprise 1
E-book on Strathclyde’s entrepreneurial alumni
50 multi-media vignettes, 10 alumni for each decade since the university’s royal charter in 1964
Cross-faculty VIP with 5 Masters in Digital Journalism students and 4 UG Business students (2 3rd years doing it for credit and 2 volunteer 2nd years)
Steering committee: J. Levie (Hunter Centre), S. Duncan (English Dept.), F. Ireland (SEN and Alumni Office) and C. Johnstone (alumnus entrepreneur).

VIP Enterprise 2
Enhancing Strathclyde’s entrepreneurship ecosystem
7 3rd year Business students doing it for credit
Compare Strathclyde’s entrepreneurship ecosystem to others worldwide, spot a gap and fill it. Within 2 weeks, they had decided on 3DS (3 Day Startup), a 3 day bootcamp.
Working with J. Levie (Hunter Centre) and J. Sauter (SEN)
**Outcome 1:** Effective methodologies for parallel studies using small amounts of patient tissue (scarce!) - enable clinical testing

**Outcome 2:** High-throughput microsystems for *in vitro* cancer drug screening

**Outcome 3:** Multidisciplinary environment tailored for academic and industrial training

**Ulijn**
Gel platforms
Biochemistry

**Zagnoni**
Microfluidics
Lab-on-a-Chip

**Microfluidic Nanomedicine for Cancer Research**

**Boyd**
Radiotherapy
Drugs
Therapy resistant cancer stem cells

**VIP**
Vertically Integrated Project:
Humanitarian & Int’l Dev : Gates Foundation Toilet Challenge

The Gates Foundation ‘Toilet Challenge’ offers the potential for Students in a Vertically Integrated Project to develop a better understanding of how pan-disciplinary approaches to the Global Sanitation Challenge might be developed that are economically sustainable and socially appropriate.

Current problem:
• There are 2.5 Billion people in the world who are still living without proper sanitation!
• Given the breadth of the challenge and the variety of application contexts, it is highly unlikely that a single solution to sanitation can suit all scenarios.

Strathclyde University is engaging in a multi-disciplinary effort to engage designers in re-thinking sanitation for the 21st century, as water resources become increasingly scarce and water-dependent sanitation infrastructure is impracticable to install and maintain.

A whole-of-life solution for human waste management can be considered to be a complex system that consist of a number of integrated technologies and processes that have highly variable and contextual social, economic, environmental, legal, managerial, cultural, ethical, and technical considerations and constraints.

Sanitation Value Chain:

Images copyright: Bill & Melinda Gates Foundation, Heather Smith
Homes for children in San Kizito, Rwanda

Help us make a difference
Kindly Donate by 13th March 2013
Goals
The ROVER project aims to develop and build novel robotic vehicles that are both energy efficient and that can be used to obtain valuable environmental data that is difficult or impossible to obtain otherwise.

Technologies
Autonomy, renewable on-board energy sources, “smart” sensors, micro-propulsion, materials, active control technologies, real time data streaming, 6DOF tracking and measurement.

Research Issues
Design, manufacture and build of robotic vehicles; novel actuation, control methods, sensor technologies, renewable energy sources, dynamics and control, data collection and analysis, applications, sensor networking, biologically inspired design.
• Glasgow’s Identities, Languages and Technologies in the Past Century
• Backbone of successful bid to RCUK Schools-University Partnerships Initiative
• VIP extending public engagement to schools, initially utilising existing research in Education, History, English and Social Sciences
• Existing research taken to Cross-disciplinary work with schools on collaborative research projects.
• Links to the three core cross-curricular areas of Curriculum for Excellence – literacy, numeracy and health & wellbeing – and promotes interdisciplinary learning, a key CfE goal.
VIP Implementation Team

Steve Marshall EEE,  
*VIP Champion*

Val Belton, Management  
*Associate Deputy Principal (Education)*

Irene Bell, Aidan Johnston,  
*Learning Enhancement Advisors*

PLUS A NEW SUPPORT PERSON- Hooray!
What the students are saying about it

“Seeing an EEE-er understand something about biology is an amazing sight!”

Greig Paul

“So exciting, it should carry a health warning...”, Katherine Broadfoot

“Coming together is a beginning, staying together is progress, and working together is success.”

Dale Barnard

“If you can laugh together, you can work together!”

Victoria Phillips

“Achievement and Learning through Co-operation! “,

Philip Johnstone

“Everything is connected...”

Johnny Love

Beatrice Viviane Vetter: ”Teaching and learning from each other is key! I just love showing the others how to get about in the lab.”

Dale Barnard
THANK YOU!

QUESTIONS

COMMENTS

For more info on VIP see
www.strath.ac.uk/viprojects
Or email
viprojects@strath.ac.uk