ONLINE LEARNING ELECTIVE

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WHAT IS THE RATIONALE?

- A Massive Open Online Course:

- Unlimited participation

- Open access via the web

    - Most courses on YouTube

- Structured as a university course or less structured as an introductory course to an area of learning

WHY INTRODUCE THIS IN YEAR 10?

- Externally imposed restrictions on curriculum have eased.

  - - School Certificate replaced by ROSA

  BYOD policy allows more opportunities for independent learning

  - Ubiquitous, faster internet access. YouTube.

  - Online learning explosion world wide.

  Students are interested in non-school curriculum

  - Elective offerings are not appealing to all students

  - Students have already decided upon stage 6 courses

  Three Elective Policy

  - Extra choice is available through Year 9 social sciences offering

CHALLENGES OF 21ST CENTURY PEDAGOGY

- HOW TO CAPTURE AND USE STUDENT VOICE

- INFLUENCING TEACHERS TO OPERATE MORE LIKE STUDENTS OPERATE AS LEARNERS

- HOW TO PROVIDE CHOICE IN CURRICULUM WHILE INCULCATING CONCEPTS AND SKILLS

- FINDING A LEARNING CULTURE TO FIT THE LEARNING STYLES AND NEEDS OF STUDENTS

- HOW TO MANAGE THE FAST AND SHALLOW WORLD OF DATA FLOW AND INFORMATION

- BUILDING STUDENT TEACHER RELATIONSHIPS TO EXPLORE THE SLOW AND DEEP – CONCEPT DEVELOPMENT, PROBLEM SOLVING AND SKILLS ACQUISITION

REFRAME 1 - FROM KNOWING RIGHT ANSWERS TO KNOWING WHAT TO DO WHEN ANSWERS ARE NOT APPARENT

- Schools teach, assess and reward convergent thinking

- We need a mind-shift from valuing knowledge acquisition to valuing knowledge production

- Students need a critical stance: enquiring, thinking flexibly, learning from others' perspectives

- Selective abandonment is needed

- Find the time to develop thinking skills and dispositions

REFRAME 2 - FROM TRANSMITTING MEANING TO CONSTRUCTING MEANING

- There is a cycle of internalisation of what is socially constructed as shared meaning

- Constructivist learning is a reciprocal process (Vygotsky, 1998)

- Learners do **not** acquire **our** meanings but construct their own and shared meanings

- Learning as engagement of the mind to change it (Heiddeger)

REFRAME 3 - FROM EXTERNAL EVALUATION TO ONGOING FORMATIVE SELF-ASSESSMENT

- Educating for a life of tests or for the tests of life?

- Assessment: mechanism for ongoing feedback to the learner and the organisation

- Continuous renewal: self-managing, self-monitoring, self-modifying

- We need to shift the responsibility to students → help them become self-evaluative

EXPECTATIONS FOR LEARNING ARE CHANGING

The new context means new expectations. Most studies include ability to:

- communicate   change

- work in teams   solve problems

- analyse and conceptualise   manage oneself

- reflect on and improve performance

- create, innovate and criticise   cross specialist borders

- engage in learning new things at all times

Autonomy   Versatility   Flexibility

Chris Wardlaw, "Mathematics in Hong Kong/China – Improving on Being First in PISA"

ENGAGEMENT IS…

- SETTING THE OCCASION FOR OPTIMAL LEARNING TO OCCUR

- BUILDING INTRINSIC MOTIVATION FOR LEARNING

- FACILITATING SELF-EFFICACY GROWTH

- HAVING APPROPRIATE INTERACTIONS WITH THE ENVIRONMENT INCLUDING MATERIALS AND PEOPLE

- COLLABORATING TO CREATE PERSONAL LEARNING PLANS

PERSPECTIVES FROM THE COORDINATOR

REVIEWING STUDENT PROGRESS

- Student-Driven Component:
  - Use Moodle to track student submissions
  - Single assignment to upload a "progress journal" periodically

- Coordinator Review Component
  - Coordinator keeps spreadsheet of courses taken and progress
  - Touch base and maintain spreadsheet weekly

EXAMPLE – REVIEWING STUDENT PROGRESS

CS50x Progress Journal

Introduction to computer science (Harvard)

Date	Work	Time
31st Jan	Began Watching Video	30 mins
2nd Feb	Watching Video	30 mins
4th Feb	Finished Video	30 mins
5th Feb	Began Creating Program	90 mins
8th Feb	Finished the Start Screen	90 mins
11th Feb	Created Character and Plane Sprites	60 mins
12th Feb	Finished Dynamics and Began Character Interaction	120 mins
13th Feb	Added Score Calculator and Music	90 mins
14th Feb	Finalised Program and Submitted	90 mins
		630 mins (10.5 hours)

EXAMPLE – COORDINATOR SPREADSHEET

Student ID	Name	Yr	Course Name	Institution	Platform	Hours	Completed	Cert/Screen Sighted
438835997	BORGES Ryan	10	Chemistry	University of Kentucky	Coursera	30	Yes	Screen
438835997	BORGES Ryan	10	Science of the Solar System	Caltech	Coursera	3	No	
438835997	BORGES Ryan	10	How Things Work: An Introduction to Physics	University of Virginia	Coursera	18	Yes	Screen
438835997	BORGES Ryan	10	Greatest Unsolved Mysteries of the Universe	Australian National University	Coursera	10	No	
433553608	BORSCZ Marcus	10	Introduction to Programming 2		GROK Learning	20	Yes	Screen
433553608	BORSCZ Marcus	10	Introduction to Computer Science (CS50x 2017)	Harvard	EdX	60	Yes	Screen
432116522	SU Justin	10	Future Cities	ETH Zurich	EdX	35	Yes	No
432116522	SU Justin	10	Basic Mandarin Chinese Level 2		MandarinX	10	Yes	No
432116522	SU Justin	10	World of Wine	University of Adelaide		5	No	
432116522	Su Justin	10	Programming in Scratch	HarveyMuddX	EdX	30	Yes	

TYPES OF COURSES

- Computer Programming courses are popular

- Eclectic mix across humanities and science

  - From "Philosophy and Thinking" to "Fun with Prime Numbers"

  - From "First Step Korean" to "Video Game Design History"

Course Name	Number of Students
Introduction to Programming 2	4
Introduction to Algebra	3
World of Wine	2
Code Gym 1A	2
Introduction to Programming (Python)*	2
Programming in Scratch	2
Future Cities	2
Question Everything	2
Introduction to Computing using Python	2
Querying with Transact-SQL	1

INSTITUTIONS

Wide variety –

University of Queensland, Microsoft, ETH Zurich,S chool Yourself, University of Michigan, University of Edinburgh, University of Virginia, Cave of Programming, University of Adelaide, University of Queensland, Georgia Tech, WellesleyX, HarveyMuddX, GT, UC Berkley, Harvard, University of Arizona, Harvey Mudd College, Hebrew University, University of Arlington, Institute of electrical and electronics engineers, University of Copenhagen, Kyoto University, University of Kentucky, Bux, Caltech, Nanyang , Technological University, University of Rochester, RIT, University of Virginia, Australian National University, Yonsei University, Stanford University, University of California.

SPREAD VS DEPTH

- Students can choose more, short courses or fewer long courses

- On average, year to date:

  - MEAN HOURS 60.7

  - MEDIAN COURSES   2.5

Name	Total Hours	Number of Courses
SAITO Shawya	81	7
SU Justin	80	4
BORSCZ Marcus	80	2
JIN Christopher	80	2
ZHOU Jie	75	3
RAMANATHAN Raghav	75	2

Name	Yr	Course Name	Institution	Platform	Hours	Completed	Cert/Screen Sighted
SAITO Shawya	10	Question Everything	University of Queensland	Edx	20	Yes	No
SAITO Shawya	10	Introduction to Algebra	School Yourself	Edx	20	Yes	
SAITO Shawya	10	Preparing for the AP Physics 1 Exam	Bux	Edx	3	No	
SAITO Shawya	10	Introduction to Programming 1		GROK Learning	15	Yes	
SAITO Shawya	10	Code Gym 1A		GROK Learning	10	Yes	
SAITO Shawya	10	Introduction to Programming 2		GROK Learning	20	Yes	
SAITO Shawya	10	Fun with Prime Numbers: The Mysterious World of	Kyoto University	Edx	3	No	
SU Justin	10	Future Cities	ETH Zurich	EdX	35	Yes	No
SU Justin	10	Basic Mandarin Chinese Level 2		MandarinX	10	Yes	No
SU Justin	10	World of Wine	University of Adelaide		5	No	
Su Justin	10	Programming in Scratch	HarveyMuddX	EdX	30	Yes	
VORGIAS Jack	10	Python Programming for Everybody	University of Michigan	Coursera	4	No	
VORGIAS Jack	10	Synapses, Neurons and Brains	Hebrew University	Coursera	20.5	Yes	
VORGIAS Jack	10	Data Science Orientation	Microsoft	EdX	12.5	Yes	
VORGIAS Jack	10	Querying with Transact-SQL	Microsoft	EdX	27	Yes	
VORGIAS Jack	10	AP Adv Physics 1	RiceX (Rice University Houston)	EdX	2	No	
YU Jason	10	Introduction to Programming (Python)*		GROK Learning	20	Yes	No
YU Jason	10	Code Gym 1A		GROK Learning	10	Yes	No
YU Jason	10	Introduction to Programming 2		GROK Learning	10	No	
YU Jason	10	Java Programming for Beginners	Cave of Programming	Udemy	20	Yes	
YU Jason	10	C++ Programming for Beginners	Cave of Programming	Udemy	10	No	
ZHOU Jie	10	Introduction to Physics	University of Virginia	Coursera	43	No	Screen
ZHOU Jie	10	Question Everything	University of Queensland	Edx	15	Yes	Screen
ZHOU Jie	10	Introduction to Algebra	School Yourself	Edx	17	No	