

National University of Singapore Centre for Instructional Technology

**Designing an electronic portfolio system for
a large research university in Asia.**

**Ivy Tan
(cittani@nus.edu.sg)
Center for Instructional Technology
National University of Singapore**

Copyright Ivy Tan [2003]. This work is the intellectual property of the author. Permission is granted for this material to be shared for non-commercial, educational purposes, provided that this copyright statement appears on the reproduced materials and notice is given that the copying is by permission of the author. To disseminate otherwise or to republish requires written permission from the author.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

The Centre for Instructional Technology CIT

(Started. Dec 1998)

Mission Statement

- To create awareness of the potential of IT in enhancing education and showcasing the use of IT in teaching and learning at NUS.
- To support the creation and incorporation of multimedia content in courses and the development of new applications and services for academia.
- To define, develop and provide infrastructure services central to instructional technology efforts.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

The Centre for Instructional Technology. CIT

Services

- Learning and Content Management System - *IVLE*
- Student Electronic Portfolio - *SELF*
- Videoconferencing
- Teaching Facilities
- Web casting
- Digital Media Gallery
- Anti-plagiarism Service - TurnItIn
- Network TV
- Multimedia Development Labs
- Event Coverage, Video Production & Photography
- Interactive Courseware development

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

The National University of Singapore

University Type: Research

Location: Singapore, South East Asia (between Malaysia and Indonesia)

Full time Student Population: Approximately 23, 092 undergraduates,
8, 891 graduate students.

Medium of instruction: English

Academic Staff: Approximately 1, 750.

Student Population: Majority Asian. Known to be tech savvy.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Project Time Line

Research into e-portfolios: January 2002 - ongoing

Difficult Decisions

Build Vs Buy

Build on our own Vs Build within a consortium

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Project Time Line

Design phase: June – August 2002

Prototype development: July 2002 – December 2002

Technical and user testing: December 2002 – February 2003

Main system launch: February 2003

Total Development time: 8 months (Excluding design and research)

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Manpower

Number of developers or programmers: 3 (Project changed hands twice.)

Number of graphics designer: 1

Number of people who contributed to the design: 4

Instructional Designer: 1

Senior systems engineer analyst: 1

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Technology

ASP.net

Oracle and MS SQL server

Single sign-on

Authenticated using LDAP

Technical Challenges

ASP.Net technology was new

Databases are not centralized

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Why Build the e-portfolio system ourselves?

We studied university websites with e-portfolio projects. Read articles.

We considered joining a consortium so as to jointly build the e-portfolio with other universities, buying from another university or buying from a commercial company.

We decided to build our own.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Why Build the e-portfolio system ourselves?

1. Concerned with implementation in a local social cultural context.
2. As a research university, the use of IT in teaching cannot impose extra burden on lecturers who must balance teaching with research. Classes are too large for lecturers to give personal attention to students.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Why Build the e-portfolio system ourselves?

3. The university has an LCMS that is built in-house with sophisticated student assessment functionalities, grade book and the tracking of student progress. Current E-portfolio vendor products cannot match the sophistication of our existing assessment tools in the LCMS. We wanted to ultimately integrate the student e-portfolio with the LCMS.
4. Not easy to integrate our databases with a commercial e-portfolio system or a system developed by another university.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Why Build the e-portfolio system ourselves?

5. Ultimately, we want a customizable system that would meet the needs of our students **and blend seamlessly into our e-learning infrastructure.**
6. We did not think that faculty members should share the same e-portfolio platform as students. We will build a separate system for staff members and link the teaching portfolio to the student portfolio.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Design and implementation concern: **REFLECTIONS**

1. Local students have not been trained or encouraged to write reflections..
2. Students won't spend time writing reflections if that does not contribute to their final grades.
3. Students won't write or say anything critical about professors. They worry that this might affect their grades.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Design and implementation concern: **STUDENT ASSESSMENT**

1. A paradigm shift is required for academic staff to use online assessment methods. Assignments are traditionally scored and marked in hard copy.
2. Rubrics set up for assessment and peer evaluation, grade book features are available in the LCMS. They are not widely used.
3. In many cases, class sizes are too large for personalized attention. 200-400 students per lecture group.
4. The e-portfolio cannot add to the existing workload of academic staff.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Design and implementation concern: **BUILDING A PORTFOLIO (artifacts)**

1. No portfolio culture.
2. Danger of the e-portfolio becoming a resume builder instead of a portfolio builder.

Design and implementation Concerns: **IMS SPECIFICATIONS**

1. E-portfolio systems are not widely used as yet and we were not sure of its future directions.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Design and implementation concern: **REFLECTIONS. Solutions.**

1. Encourage reflections through the mobile version of the LCMS. Students can enter reflections anytime, anywhere with a PDA when they are in the LCMS environment.
2. Teach the benefits of reflections to staff and students. Implying training sessions are required to teach the writing of reflections.
3. For a start, the SELF will not be focusing on reflections as the main feature and will instead focus on the collection of artifacts and publishing the portfolio.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Design and implementation concern: **REFLECTIONS. Solutions.**

4. The SELF was not designed primarily as a tool for reflections. However, that feature is clearly available for those who want to use it.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Design and implementation concern: **Student Assessment. Solutions.**

1. Student assessment feature in the SELF is minimal but the system can be used for online assessment of student work.
2. Rubrics set up for assessment and peer evaluation, grade book features are already in the LCMS. We are currently integrating the LCMS with the e-portfolio.
3. We will not mandate that faculty members assess students online either using the LCMS or e-portfolio because a major paradigm shift is needed for that to happen. It is unrealistic for us to change that practice. We will show the staff what can be done with technology. Usage is voluntary.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Design and implementation concern: **Student Assessment. Solutions.**

4. Final module grades will not be available on the SELF due to security reasons. CAP scores will be available by December 2003 and access to continual assessment marks are currently being worked out.
5. As a large, research university, lecturer participation in the student e-portfolio is strictly voluntary. Design of the e-portfolio will have to encourage **student driven usage.**

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Design and implementation concern: Collection of artifacts. Solutions.

1. We will emphasize to the students that the main goal or mission of the e-portfolio is to allow for the collection of work samples and achievements that demonstrate learning and skills.
2. The original version of SELF Version 1 and 2 made it compulsory for students to upload artifacts, assignments, projects etc before they can create a resume. The link "My Portfolio" was a compulsory link in version 1 and 2 of SELF.

This prevented students from using the e-portfolio as just a resume builder.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Design and implementation concern: **What matters most to students.**

Grades Employment

To encourage student use, the design must help address these concerns.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Implementation of the student e-portfolio. The pilot study. January 2003

Pilot project with 10 students from across campus.

The students tested the system and were individually interviewed by the Instructional designer.

Students were asked about their views on writing reflections, collecting artifacts and how they think SELF can be implemented across the campus.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Implementation of the student e-portfolio. February 2003

Bottom up. Soft launch. No publicity. No training. Student driven.

Student access to the SELF was placed in the LCMS as a link. Single sign-on.

Reasons for the quiet launch

Stabilize the system.

Gather further feedback.

Our students are tech savvy, no training and little publicity was needed in past launches of learning systems.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Implementation of the student e-portfolio version 2. July 2003

Publicity

- Online training manuals and multimedia training.
- Brochures for new students.
- Lecturer's user Guide. (Print copy)
- Workshop for new students.
- Announcements through LCMS (ivle) workshops.

<http://self.nus.edu.sg>

Tools	Faculty/Programme												
	FAS	DEN	ENG	LAW	MED	BIZ	SOC	SDE	SCI	USP	MUS	OTH	TOTAL
Personal Information	177	0	174	12	9	34	146	31	156	0	0	3	742
Previous Schools	137	0	151	14	4	23	107	29	125	0	0	2	592
Exchange Programs	5	0	7	0	0	1	2	0	1	0	0	0	16
Other Awards	21	0	7	0	1	10	22	8	7	0	0	0	76
Industrial Attachment	2	0	16	0	0	4	4	3	2	0	0	1	32
Campus Employment	7	0	5	1	0	0	10	0	7	0	0	0	30
National Service	97	1	163	7	7	18	131	25	78	0	0	4	531
Special Projects	2	0	5	15	1	20	3	0	14	0	0	2	62
Community Service	11	0	6	3	0	1	8	1	9	0	0	1	40
Employment Record	20	0	19	6	0	2	24	4	31	0	0	0	106
Resume (Published)	8	0	8	0	0	2	7	1	4	0	0	0	30
Resume Created	39	0	56	4	1	12	50	5	34	0	0	4	205
eDiary	125	2	114	8	8	18	81	26	174	0	0	5	561
Reflections	39	0	36	12	0	11	69	6	38	0	0	5	216
Artifacts	30	0	32	24	0	19	30	0	22	0	0	3	160

LEGEND

- FAS Arts & Social Sciences
- DEN Dentistry
- ENG Engineering
- LAW Law
- MED Medicine
- BIZ School of Business
- SOC School of Computing
- SDE School of Design and Environment
- SCI Science
- USP University Scholars Programme
- MUS Yong Siew Toh Conservatory of Music
- OTH Non-Faculty-Based Departments

Web Access Statistics

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Latest usage statistics and user feedback indicate:

1. Very few students publish their resumes.
2. Resumes published does not contain artifacts, lecturers' comments or photo album.
3. Traffic to the SELF is good but very few students are using it to build a portfolio.
4. Students avoid writing reflections or entering any form of data that will be made accessible to professors. They use the e-diary instead for reflections because that is not open to the lecturers. Some students see the SELF as a tool for the lecturers to "...track our every move....".

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Latest usage statistics and user feedback indicate:

5. No lecturer participation.
6. Reflections and artifacts are of good standard and quality.
7. The team is receiving email feedback from users.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Latest usage statistics and user feedback indicate: CIT reaction

We are very encouraged by the students who are writing reflections and collecting artifacts because:

- Our students have never been taught the value of reflections and portfolio building.
- They grew up in a culture where bridging the student - teacher gap requires a major paradigm shift on the part of students, teachers and society.
- The current resume template is ugly and not encouraging.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

How to improve usage:

If lecturer access is removed, student usage will increase.

Open and meaningful communications between teacher and students must be fostered. Closing or limiting lecturers' access is not an option.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Other ways to encourage proper usage:

- Workshops for staff and students
- Attractive resume templates.
- Flexible photograph upload.
- Integration with the LCMS.
- Further integration with campus databases.
- Interesting features like personal learning style inventory.
- Lecturer driven focus groups.
- Top down encouragement.

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Portfolio-Resume	
	Details Portfolio Photographs Print
Personal Information	
Name	: TAN TOO HOON, JERMAN
Date Of Birth	: 27/05/1991
Nationality	: SINGAPORE CITIZEN
Contact Address	: 30C GRAND WATTS DRIVE STORE
Email Address	: tananna@hotmail.com
Contact Number	: 62942663
Special Needs	:
Learning	: Small Group Tutorials

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.



The screenshot shows a web page for a student e-portfolio. The header is blue with the text 'National University of Singapore' and '10 Kent Ridge Crescent Singapore 119260'. The main title is 'Portfolio Resume'. A left sidebar contains a list of menu items: 'About Me', 'Courses', 'Co-Curricular Activities', 'Industrial Attachment', 'Campus Employment', 'Community Service', 'Work History', and 'Photo Album'. The main content area features a profile picture of a woman, Irene Sze, and a text block that reads: 'Hello and welcome to my portfolio-resume. Let me introduce myself, my name is Irene Sze and I am a new graduate in Chemical Engineering from the National University of Singapore. I have prepared this portfolio resume with samples of my work and accomplishments. I hope you like my portfolio. Feel free to contact me at Irenesze@hotmail.com.'

<http://self.nus.edu.sg>

National University of Singapore Centre for Instructional Technology

Student Electronic Learning Folio (SELF). A student e-portfolio system.

Future Developments

HTTPS

Further integration with student databases

Integration with the LCMS

Alumni Access

IMS compliant

More attractive portfolio- resume templates

<http://self.nus.edu.sg>