PREPARING STUDENTS WITH KEY COMPETENCIES AND SKILLS FOR A GLOBAL LABOR MARKET: A CASE STUDY OF VIRTUAL TRANSNATIONAL LESSON DELIVERY THROUGH A GLOBAL SOFTWARE DEVELOPMENT PROJECT

Thanwadee Sunetnanta, Mahidol University, Thailand. ittth@mahidol.ac.th
Olly Gotel, Independent Researcher, New York, USA. olly@gotel.net
Christelle Scharff, Pace University, USA. cscharff@pace.edu
Vidya Kulkarni, University of Delhi, India. vkulkarni@cs.du.ac.in
Moniphal Say, Institute of Technology of Cambodia, Cambodia. say.moniphal@gmail.com
Global Competency

• “Globalization demands the graduates to be competent, not only to function professionally in an international environment, but also to be capable of making personal and public-policy decisions as citizens of an international society” [1]

• Global competency is (1) Desired skills to help workers deal with the globalized world (2) essential skills for those working in an international environment.
  – Global competency elements were grouped into international awareness, appreciation of cultural diversity, proficiency in foreign languages and competitive skills [2].

• Many universities have been urged to foster global competency in their curricula.
GSD Project

- The GSD project delivered a transnational lesson on software development practice, virtually, across the borders of four different countries: the USA, India, Cambodia and Thailand.

- The aim of the GSD project was to engage the participating students in both acquiring and exercising the competencies and skills considered desirable for working in a global setting.
GSD Focal Points

• To demonstrate that the quality of the work in a global setting relied on anticipation and communication between the stakeholders [3].

• GSD Role-based learning
  – Clients
  – Client coaches
  – Developers
  – Developer coaches
  – Software quality assurance (SQA) manager
  – Auditors
GSD 2008 Teams [4][5]
## Sample of Responsibilities and Competencies in GSD Model

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
<th>Skills and Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clients</td>
<td>- Own and manage requirements</td>
<td>- Analytical skills for problem solving</td>
</tr>
<tr>
<td></td>
<td>- Solicit candidate software systems to meet the requirements</td>
<td>- Negotiation</td>
</tr>
<tr>
<td></td>
<td>- Conduct acceptance test</td>
<td>- Project management</td>
</tr>
<tr>
<td></td>
<td>- Select the systems that of highest quality to further deploy</td>
<td>- Feasibility study and project selection process</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Interpersonal and communication</td>
</tr>
<tr>
<td>Client Coaches</td>
<td>- Mentor the client teams to baseline the requirements and manage changes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Formulate test plans</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Guide selection process</td>
<td></td>
</tr>
</tbody>
</table>

(reproduced from [6])
Skills and Competencies of Different Roles
(reproduced from [6] )
GSD Tooling (1)

- *Engineering tooling* was used for the software engineering tasks.

- **Software** modeling tools
- **Design tools**
- **Coding tools**
GSD Tooling (2)

• *Communication tooling* was used for information gathering and sharing between the GSD teams.

- **E-mails**
- **Chats**
- **Wikis**
Teams Wikis

International Awareness

New York City Developers 2008

Thai Developers 2008

Indian Developers 2008

Team

DEVELOPERS
- Adam Pitzer - Team Leader:
  - Yahoo Email: sytetradquestrian@yahoo.com
  - Yahoo IM: tetradquestrian
  - 4th Year Computer Science (BS) Student - Paul
  - Relevant Coursework: Database Design, Data Structures
  - Experience with Java, Linux, SQL, Flash
  - Personal Schedule
- Paul Dumolin - Quality Manager

STUDENTS
- Kittitl Tanvitayakul (Big)
- big.qrdhais@yahoo.com
  - Third year student in Information and Communications
  - Developer Team Leader

Team

STUDENTS
- Developers in India
  - Indian Team

Team

STUDENTS
- Anil Gupta
GSD Tooling (3)

- *Socialization tooling* was used for engaging the students in the different GSD teams so as to get to know each other, as well as for engaging the students with the professors.

- Fact-finding questionnaires
- Virtual social event
Socialization Exercises

FaceExercise

Consolidated results now available here

This exercise is to be carried out by all the students working on the GSD projects. Interaction "should" be intense! Please make sure they do not copy each other during the time it just involves some print outs.

* Instructions

* Faces

Why do this? Well, do these students recognize each other? Give their extended team mates this late into the semester.

- Print a set of instructions for yourself.
- Print a set of faces documents for yourself.
- Ask each student to do the 3 tasks with the faces.
- Please summarise the results.

Results:

- Consolidated
Socialization Exercises

- appreciation of cultural diversity
- awareness of knowledge in comparative fields

- place a precise X on the location on Phnom Penh, New Delhi, New York and Bangkok (and to label which is which).
- place the flags of the countries involved in the project.
- place four pictures of dishes specific to the countries involved in the project. (Pad Thai, Samosa, Burger and Fries, and Amok)
- place four pictures of famous international landmarks in the countries involved in the project. (The Statue of Liberty, Angkor Watt, The Taj Mahal and The Royal Palace)
- Consider that it is 2:00pm in Cambodia right now. Ask them to write down next to each country X what the time would be there. (It would be 2:00pm in Thailand, 2:00am in the US and 12:30pm in India.)
Virtual Social Event – Second Life Party

http://secondlife.com/
GSD Campus Second Life set up by Dr. Christelle Scharff at Pace University
GSD Tooling (4)

- *Project management tooling* was used for coordinating and managing the project across time zones.
The Alignment of GSD Communication and Socialization Tooling with the Tri-Dimension of Global Competency

Communication tooling is a key driver for the development of foreign language skills and it leads to the development of other competency elements concerned with socialization issues.

Both synchronous and asynchronous.

The more the participating students develop their social bonding, the more they communicate with one another.

Communication tooling is a key driver for the development of foreign language skills and it leads to the development of other competency elements concerned with socialization issues.

Both synchronous and asynchronous.

The more the participating students develop their social bonding, the more they communicate with one another.

Communication tooling is a key driver for the development of foreign language skills and it leads to the development of other competency elements concerned with socialization issues.

Both synchronous and asynchronous.

The more the participating students develop their social bonding, the more they communicate with one another.

Communication tooling is a key driver for the development of foreign language skills and it leads to the development of other competency elements concerned with socialization issues.

Both synchronous and asynchronous.

The more the participating students develop their social bonding, the more they communicate with one another.

Communication tooling is a key driver for the development of foreign language skills and it leads to the development of other competency elements concerned with socialization issues.

Both synchronous and asynchronous.

The more the participating students develop their social bonding, the more they communicate with one another.

Communication tooling is a key driver for the development of foreign language skills and it leads to the development of other competency elements concerned with socialization issues.

Both synchronous and asynchronous.

The more the participating students develop their social bonding, the more they communicate with one another.

Communication tooling is a key driver for the development of foreign language skills and it leads to the development of other competency elements concerned with socialization issues.

Both synchronous and asynchronous.
Lessons Learned & Remarks

• Although participating in the GSD project is not totally comparable to undertaking an international internship and international cooperative education abroad, this is an affordable way to equip and train students with essential skills and competencies required to work in an international setting.

• An important success factor of the implementation of the GSD project was the academic networking between the universities involved.

• Creating an awareness of the importance and benefits of such a virtual transnational lesson, and gaining support from senior administration to run such a lesson are also crucial.

• Its teaching and learning model can be reproduced to better provide a learning-centered environment [6].
Conclusions

- The 2008 GSD project exemplified an alternative strategy for virtual transnational lesson delivery, and may be considered as a viable part of a virtual international internship or international cooperative training.

- The GSD tooling environment was an important enabling mechanism for the students to learn and to practice the desirable skills and competency to enable them to work within an international team.

- The GSD project exploited both an activity approach and a competency approach to engage the students with global competency.
Acknowledgement

- This work is supported by a National Collegiate Inventors and Innovators Alliance grant (#3465-06), “Incubating the Next Generation of GSD Entrepreneurs” and a Campus Second Life scholarship. (Dr. Gotel and Dr. Scharff)

- We thank all 60 students who have been involved in 2008.
References


