




PBL AT MAKERERE UNIVERSITY

Journey in ECE Department

EXPERIENCE WITH USE OF PROBLEM BASED LEARNING (PBL) IN EDUCATION IN AFRICA
Second AfricaLics International Conference
University of Rwanda, Kigali, Rwanda



Presentation Outline

- Brief background
- My interest in Problem Based Learning (PBL)
- My PBL journey
- Experiences in using PBL in teaching
- Spreading the PBL Gospel

Brief Background

- Senior Lecturer, Department of Electrical and Computer Engineering, Makerere University
- Director of Innovation, ResilientAfrica Network
- Strong believer in the opportunity of our students to create magic ... even at university level

Note:

Makerere University College of Health Sciences started
Problem Based Learning/Community Based Education and Service
curriculum

for incoming students in the academic year 2003/2004



My interest in Problem Based Learning

- Introduced to Prof. Mona Dahms by Dr. Robinah Kulabako (Civil Engineering at Makerere University)
 - *Both had interest in making engineering education more engaging for our students*
- Invited by UNESCO Chair in Problem Based Learning (UCPBL) at Aalborg University (AAU), Denmark, for an academic visit from 3 – 8 September 2007
 - *Held series of meetings with PBL practitioners*
 - *Visited PBL group rooms*

My PBL journey

- First PBL project with students – September 2007
 - Course: Information and Communication Technology I
 - Students to divide themselves into groups of 5-6
 - **Assignment:** *Investigate a given ICT tool/application (choice between 'Advances in ICT' or 'Broadband Services'). Students are expected to address both the technical aspects as well as the application in Uganda*
 - **Method of group work:** *Adapted from Project Organised Problem Based Learning (POPBL) model used at Aalborg University*
 - **Technical Assistance:** *Review of my class documents and further tips from Prof. Mona Dahms*

Experiences in using PBL in teaching

- Conducted group project based assignment for my classes each semesters since Semester I, 2007/2008 Academic Year
 - *ELE1112: Introduction to Electrical Engineering*
 - *ELE4202: Propagation*
 - *TEL4215: Telecommunications Systems II*
 - *CMP4202: Wireless Technologies*

Group project makes us feel like “real engineers”

- Hosted Prof. Dahms in a visit to the ECE Department in February 2013
- Strengthened use of IEEE publications among my students
- Strengthened use of online collaboration platform, Wikispaces classroom
- Individual accountability – each student writes summary of contribution to group

Experiences in using PBL in teaching .../2

- Varying degrees of benefit and engagement by student groups

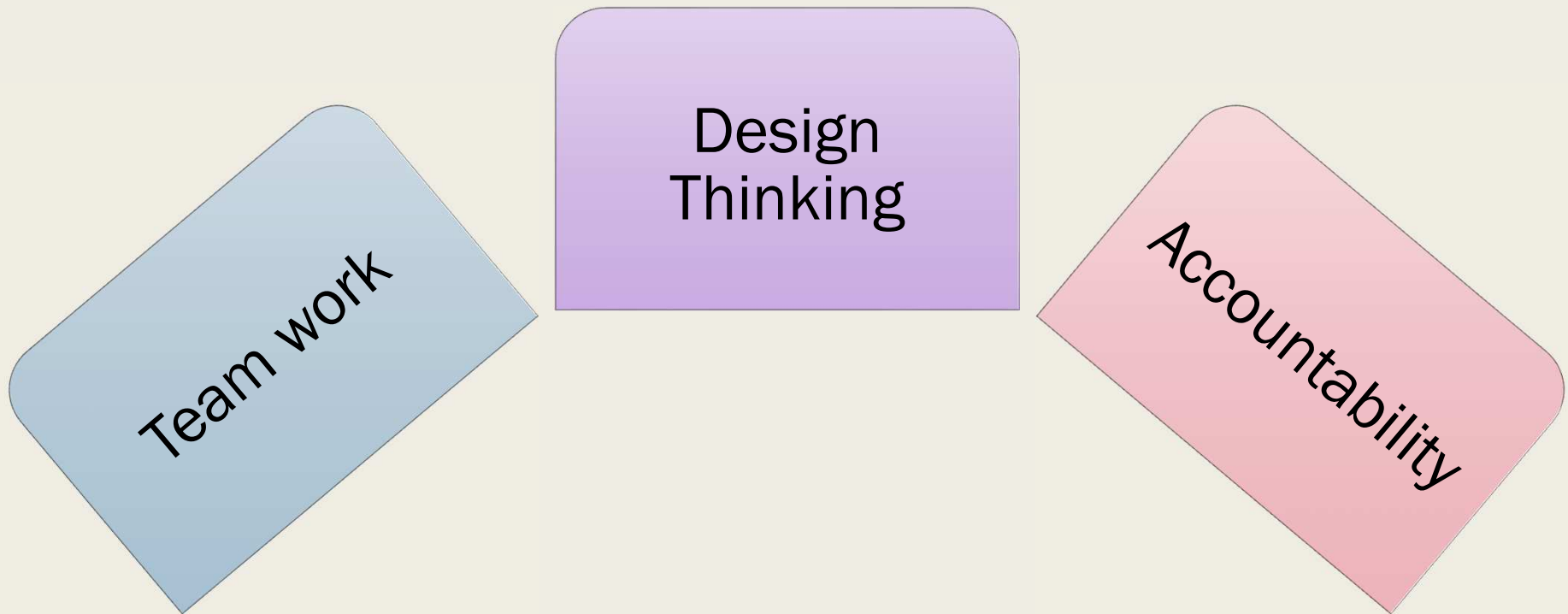
3.4 Lessons Learned

A lot of lessons were learnt during the project. These include:

- The understanding of wireless sensor networks: their architecture, topologies, standards, applications, benefits and weaknesses
- Use of WSNs to enhance hotel and building security
- Team work
- Report referencing

- Getting students to gel into **functional groups** sometimes a challenge
- Project contributes to continuous assessment component of final mark (and for some students **more effort than marks to be realised**)
- Limited opportunity for **more hands-on types of projects** for physical prototyping of group solutions

Spreading the PBL Gospel



Thank you for your kind attention

Contact Information

Dorothy Okello

**Senior Lecturer, *Department of Electrical and Computer Engineering /
Researcher, Community Wireless Resource Centre***

College of Engineering, Design, Art and Technology (CEDAT) Makerere University

Director of Innovation, *ResilientAfrica Network (RAN)*

Makerere University School of Public Health

Email: dkokello@cedat.mak.ac.ug
