Empowering educators for online learning and assessment through Blended Learning

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Sharing Journey

• Overview of SingHealth
• Challenges in Healthcare Education
• Blended Learning Solution
• Case Study
• What’s Next
Overview of SingHealth (context)
SingHealth
Largest Healthcare Group in Singapore

Hospitals

SGH
KKH

National Centers

NCCS
NDC
SNEC
NHCS
NNI

Primary Healthcare

SHP
Bukit Merah
Outram
Marine Parade
Sengkang
Geylang
Bedok
Tampines
Queenstown
Pasir Ris

Duke-NUS
Graduate Medical School

Bright Vision Hospital
Step-down Care
Providing Integrated Medical Care

Every year...

- **188,000**
  Inpatient Admissions

- **702,000**
  Patient Days

- **77,252**
  Inpatient Surgeries

- **133,198**
  Day Surgeries

- **2.1 million**
  Specialist Outpatient Clinic Visits

- **1.68 million**
  Polyclinic Visits
Clinical Excellence

- Reputation by word of mouth

- Awards & Accolades
  - Readers’ Digest Award
  - Asian Hospital Management Awards
  - Joint Commission International
  - President’s Science Awards
  - Clinician Scientist Awards
  - National Medical Excellence Awards
Challenges in Healthcare Education
Challenges Faced by Healthcare Professionals

- Speed of change in healthcare education
- Busy work schedules
- Lack of time for training / self-development
- Lack of manpower & time to prepare course materials
- Deterioration of training/education quality
Consequence Of Doing Nothing
Environmental Scan

Technological Changes
SINGHEALTH ACADEMY

New Era in Healthcare Education

INCREASE

Clinical load

Teaching load

REDUCE

Classroom Hours

Travel Time

was formed to support healthcare education.
SingHealth Academy
Mission & Vision

Officially established in 2009

Support SingHealth’s pursuit in Academic Medicine through Healthcare Education and Learning

OUR “4Rs” VISION
To provide the Right learning to the Right people, in the Right place, at the Right time
Solution: Blended Learning
Attention & Retention

• Paying Attention: 40%
  - Pollio, 1984

• Retention: 1st 10 mins: 70%
  Last 10 mins: 20%
  - McKeachie, 1986
The time course of forgetting

Source: Hermann Ebbinghaus, Memory: A Contribution to Experimental Psychology, 1985
Create Blended Learning Awareness

Traditional classroom-based teaching + Modern technologies = Blended Learning

Solution

Workshop

E-Learning

Blended Learning

Books & Articles

Video
Solution
Create Blended Learning Awareness

Traditional Classroom Programme

Day 1 | Day 2 | Day 3 | Day 4

Blended Learning Programme

eLearning | ½ Day | Online Discussions | ½ Day | Assessment & Sharing

Benefits:
• Reduce face-to-face training time
• Learning & teaching can take place anytime anywhere
• Enrich classroom experiences
• Boost retention rates
SingHealth Academy

Blended Learning Framework

Instructional Design

Traditional Classroom

BLENDED LEARNING

Educational Technology

Learning Theories
• **Instructional Design** is the systematic approach to create a workshop, a course, a curriculum, an instructional program, a training session, or the instructional materials and products for educational programs.

• **Learning Theories** describe how people learn and help to understand the complex process of learning.
Instructional Design Example

ADDIE Model

- Analyse
- Design
- Develop
- Implement
- Evaluate

Diagram showing the ADDIE model with the five stages: Analyse, Design, Develop, Implement, and Evaluate.
ADDIE Model

Analyse

- Sample questions addressed during the analysis phase:
  - What is the Learning Outcome expected?
  - Who are the learners and what are their characteristics?
  - How is being done currently?
  - What are the problems faced?
  - What types of learning constraints exist?
  - What are the delivery options?
  - What is the timeline for project completion?
  - What are the Learning Theory considerations?
Instructional Design
ADDIE Model

Analyse
- Answers ‘what is the Learning Objective?'

Design
- Answers ‘How will Learners accomplish the Learning Objective?'

Develop
- Meeting the Objective

Implement
- Deliver the Solution

Evaluate
- Ensuring Quality
Team-Based Learning

Phase 1: Preparation

Phase 2: Readiness Assurance

Phase 3: Application

Learning Theory For Case Study
Team-Based Learning

Traditional Learning Model

Wishful thinking...

Before
Pre-work
During
Active Learning
After
Homework
Exam

Reality!

Before
Pre-work
During
Passive Lecture
After
Study
Exam
Team-Based Learning

Traditional Learning Model

Reality

Before

During

After

Pre-work

Lecture

Study

Exam

025
Team-Based Learning

Before

E-Learning

During

Team-Based Learning

Study

After

Based Learning

Review

Exam
Case Study: Team-Based Learning
Case Study
Office of Neurology Education (ONE)

• Deliver education and learning for:
  – Pre-medical students from top junior colleges
  – Medical students from NUS
  – Elective students from local and overseas medical schools
Case Study
The Challenge - Learning Neurology

You don’t need an elephant’s memory to learn neurology… by making it fun and memorable.
Case Study

Team-Based Learning

• An alternative to Lecture-Based Learning
• Class time is not spent on acquiring facts
• Class time is spent on
  – Reinforcing learning
  – Applying facts
• Teamwork and group discussion
Phase 1: Preparation Phase

- Individual study
- Pre-reading / e-Learning
- Reading materials emailed to students prior to classroom learning
Phase 2: Readiness Assurance

- Utilise Audience Response System (ARS) to enhance interactivity and engagement
- Individual Readiness Assessment
- Team Readiness Assessment
- Appeal & Corrective Instruction
Case Study: Team-Based Learning

Individual & Team Assessments Using ARS

Q3

Where is the lesion?

A 31y old Chinese female presented with horizontal diplopia x 2/7. Clinical examination revealed failure to abduct the right eye. Which statement is FALSE?

A. ENT review should be done
B. The lesion may be in the right pons
C. fatigueability should be assessed
D. thyroid eye disease is very unlikely to cause this pattern of ophthalmoplegia

Audience Response System (ARS)
Case Study: Team-Based Learning

Individual Readiness Assessment
Case Study: Team-Based Learning

Team Readiness Assessment
Case Study: Team-Based Learning

Appeal / Corrective Instruction

Learners can appeal if they feel that their answer is correct.

Trainer can focus on areas which need more attention based on readiness assessments.
Case Study: Team-Based Learning

Phase 3

Phase 3: Application of Learning

- Small-group assignments
- Question posed are clinical cases
- Learners facilitate the sessions
- Trainer act as content experts
Case Study: Team-Based Learning

Small Group Application Assignments

Group discussion  
Displaying the answers  
Justifying & Reasoning
Case Study: Team-Based Learning

Learning Outcomes

• Promotes Active Learning
  - Everyone participates
  - Work through answers
    ➢ Answer may be right for the wrong reasons, or by fluke
    ➢ Reasoning your way to the answer together is better for reinforcing knowledge
  - Defend your answer in front of everyone
  - Apply what you’ve learned on cases, like real patients
  - Foster critical thinking and problem-solving skills
• **Encourage teamwork**
  - Crucial for medical professionals who often function in teams
  - Builds ‘soft skills’ of
    - Listening
    - Respecting diverse opinions
    - Building consensus; must come to decision

• **Less manpower-intensive**
  - Higher Learner:Trainer ratio

• **Learning is measurable**
  - Better retention of knowledge
Case Study: Team-Based Learning

Learning Outcomes

<table>
<thead>
<tr>
<th>% change in test scores</th>
<th>Pre-Test (baseline)</th>
<th>Post-Test 1 (2 hours)</th>
<th>Post-Test 2 (48 hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team-Based Learning</td>
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<tr>
<td>Passive Learning</td>
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</table>
Case Study: Team-Based Learning
Duke-NUS v.s. US National Exam Scores

USMLE Step 1 Basic Science Exam Scores.
US National, Duke-NUS (n=26)

Source: Duke-NUS
Speech therapy is key to stroke rehab and for those with degenerative brain conditions and autism.

Joan Chew reports

Three days after hospitalisation, 64-year-old Mrs. Kwok, from Singapore General Hospital (SGH), told her husband that she could not utter a sound or move the right side of her body. He recalled her, thinking the loss of sensation was only temporary. Mrs. Kwok, now 84, smiled when she spoke of fear that she might not be able to speak again for the rest of her life. It made her even more determined to recover.

Recover she did, but it took months of physiotherapy and speech therapy to learn to speak her words - and when part of her brain was damaged.

Mrs. Kwok now tells her husband: “I have to tell you that I can only speak slowly. I’m not the same person I was.”

She now speaks fluently and he could share his story at the Asia Pacific Life Insurance Congress in July.

He told Mind Your Body that his signature hand, which he uses for writing and thinking, was no longer his. It is now a crutch on hand.

“Speech therapy is very important,” he said. “I think it’s more important than any other therapy I’ve had.”

Speech therapists put patients up on speech therapy in recent years.

SGH, which handles more than 19,000 patients each year for speech therapy, has seen an 8 percent annual increase in patient visits since the year 2008.

As hospitals nationwide are busy, SingHealth Academy (SAA), the training arm of SingHealth (the public healthcare group), is instituting a programme that helps patients improve their speech.

"Speech therapy is a vital part of rehabilitation. Without it, patients may be left feeling isolated and alone," said Mr. Lao, assistant manager of the department of speech therapy at TSH.

He said he has seen many patients with aphasia, a condition that affects the ability to express and understand speech.

Aphasia affects people of all ages, from young children to elderly adults.

Mr. Lao said that speech therapists must be able to tailor their treatments to each patient’s needs.

He added that the therapists must be able to work with different types of patients, from children with learning disabilities to adults with cognitive impairments.

As a result, speech therapists must be able to adapt their techniques to fit the needs of each patient.

The programme, which will run for six months, aims to help patients improve their speech, language, and cognitive skills.

The training will include the use of visual aids, games, and other techniques to help patients improve their communication skills.

The programme will also include a focus on improving patients’ confidence and self-esteem.

At the end of the programme, participants will be able to communicate more effectively, both in writing and speaking.

The programme will be open to anyone who has a speech impediment or who is interested in improving their communication skills.

The training will be conducted at the SingHealth Academy, and will be taught by experienced speech therapists.

The programme will be a great opportunity for anyone who is interested in improving their communication skills or who is looking for a challenging new career.
Dr. C. Sivathasan, who has been a part of almost all the heart and lung transplants carried out in Singapore, is amazed at this thing called life, he tells JOHN LUI in the Singapore Pioneer series.
SingHealth Academy

Staff Feedback on Blended Learning

• Learning anytime, anywhere.

• Improve interact more with the instructor and study group since there are numerous opportunities to do so both in class and online.

• Develop or enhance skills in critical thinking and problem solving. They have more time to reflect and refer to relevant course and other research materials online.
What’s Next?
Desperately seeking cadavers

By Poon Chian Hui

Ministry shows that last year, it received only 24 donated bodies, down from a five-year peak of 38 in 2008. In 2010, there were only 20 bodies. The shortage is already affecting students that use them. The number of cadavers received by the NUS fell to six last year, down from 32 in 2000. Medical educators say the supply crunch will become more acute as the number of medical students here - along with demand for these bodies - increases.

The number of first-year NUS medical students now has 12 bodies to work on, and that this number was "just right."

"Any fewer, and it wouldn't be optimal," said Professor Bay Boon Haat, NUS anatomy department head at the Yong Loo Lin School of Medicine.

Cadavers are obtained in three ways: They are unclaimed bodies, donations made by next of kin, or come from those who have personally pledged to give their bodies for scientific research. At NUS, most of its cadavers now come from those who have personally pledged bodies may be channelled for medical training, said Prof Bay.

Already, NUS has done away with the dissection of cadavers by first-year students since 2003, partly due to short supply. The bodies are dissected by staff to prevent wastage.

Medical and life sciences students interviewed in a recent NUS survey said they preferred cadaveric training to computer programmes introduced by the school that simulate the experience of exploring the inside of a human body.

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First-year NUS medical student

This figure pale in comparison to other Asian countries, said Associate Professor Ng Yee Kong of the NUS anatomy department.

In Japan, for example, more than 200,000 people have pledged to give their bodies for research, said Prof Ng.

That is why the school hopes to take things one step further - to encourage people to donate their bodies to science. One possibility would be to run awareness drives, such as the one held yesterday.

Prof Ng said people may not want
SingHealth Academy
Offer Services & Expertise outside of SingHealth

Integrated Education & Learning Solutions Provider

Partnership & Consultancy
Curriculum Development & Instructional Design
Blended & E-Learning
Digital Media
Publishing
Learning & Clinical Facilities
Healthcare Education Programmes & Events
Thank you