



康復治療科學系

Department of Rehabilitation Sciences



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Virtual Classroom: Observing Professionals at work in 'Real World' and 'Real Time'

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Background – The Need

- Clinical education is an essential component in undergraduate programmes associated with rehabilitation.
- However, there were some constraints and restrictions in the conventional clinical placement practice taking place in hospitals or rehabilitation centers in the community.
 - Traditional clinical placement
 - Can only afford a limited student number for clinical placement in each clinical setting
 - Students are usually assigned to a specific field or area or practice
 - Thus, limited their exposure to diverse case types
 - The cut-down of local university funding in the clinical placement other than hospital settings
 - No more guarantees in exposure to similar cases for all for any clinical placements
- Therefore, there is a need to explore other means to maximize student exposure to clinical cases.

Why using virtual classroom?

- New communication and information technologies have become major resources for teaching and learning in higher education.
- Communication technologies that increase access to faculty members and clinical therapists would enhance students to share useful resources, and provide opportunities for joint problem solving.
- A virtual clinical classroom in the format of videoconferencing allows shared learning and augments face-to-face contact among students, teaching faculty and the clinical therapists in different locations.
- This teaching-learning format can facilitate implementation of theories into the real clinical situation.
- Tele-learning was launched worldwide, such as in Faculty of Medicine at The University of Calgary and Faculty of Rehabilitation at University of Alberta.
- Instead of requesting a large group of students to travel to a number of clinical settings for clinical observation or demonstration, technology can help to bring the scenes to the classrooms and thus reduce travelling time and distance barriers to learning.

Method

- A tele-network consisting of PolyCom™, large projector and TV screens, and DVD recorders were set up between the university and a large general hospital like PWH.
- The set up allowed the students to gather in a classroom at the university to view the demonstration of patient management by the clinical therapists at the hospital.
- Before commencement of the demonstration session, patient consent was obtained.

Method

- The virtual clinical classes were scheduled as one of the teaching classes.
- Each semester, 2-3 classes for the subject ,Occupational Therapy management in Physical Dysfunctions were organized for Occupational Therapy students.
- All sessions last for about 1.5 hours.
- Prior to the classes, the students were given a summary of the patient's medical history, prepared by the clinical therapist.
- During the class, teaching faculty was accompanying the students to provide explanations and guidance to students when needed.
- Each site (PWH and PolyU) has a technician and an occupational therapist present for support and coordination of the technical running.

Schedule & Topics

Table 1: Occupational therapy virtual clinical classes during 2006/2007 semester one.

	Activity	Content	Date	Time	Venue
1.	Virtual clinical classroom I	Topic on "OT Assessment"	7/9/2006	11:00 am-12:30 pm	<u>Polyu</u> GH012 and PWH
2.	Virtual clinical classroom II	Topic on "OT for hand and upper limb injuries"	2/11/2006	11:00 am-12:30 pm	<u>Polyu</u> GH012 and PWH
3.	Virtual clinical classroom III	Topic on "Arthritic and rheumatic disease"	23/11/2006	11:00 am-12:30 pm	<u>Polyu</u> GH012 and PWH

Table 2: Occupational therapy virtual clinical classes during 2007/2008 semester one

Activity	Content	Date	Venue
Web case I	Topic on "OT for Geriatric <u>musculo-skeletal</u> conditions"	Week 7	<u>Polyu</u> GH012 and PWH
Teleconference II	Topic on "OT for hand and upper limb injuries"	Week 9	<u>Polyu</u> GH012 and PWH
Teleconference III	Topic on "Arthritic and rheumatic disease"	Week 11	<u>Polyu</u> GH012 and PWH

Table 3: Occupational therapy virtual clinical classes during 2008/2009 semester one

Activity	Content	Date	Venue
Teleconference I	Topic on "OT for hand and upper limb injuries"	Week 9	<u>Polyu</u> GH012 and PWH
Teleconference II	Topic on "Arthritic and rheumatic disease"	Week 11	<u>Polyu</u> GH012 and PWH



Direct communication among therapist, patient and students



- Patient's sharing on course of injury, personal feeling and expectation on rehabilitation

Direct communication among therapist, patient and students



- Illustration on etiology and most up-to-dated conditions by therapist

Direct communication among therapist, patient and students



- Illustration on interventions and clinical management by therapist

Direct communication among therapist, patient and students



- The interaction between the university side and the hospital side.

Difficulties encountered

- Difficulties:
 - Lack of cases and collaboration settings
 - High cost of installation of equipments
 - Technical limitations of the network and the equipment
- Suggested Solutions:
 - Explore different types of settings
 - Consolidation existing networks
 - Providing immediate technical supporting staffing and maintenance of equipment

Evaluation method

Student's feedback

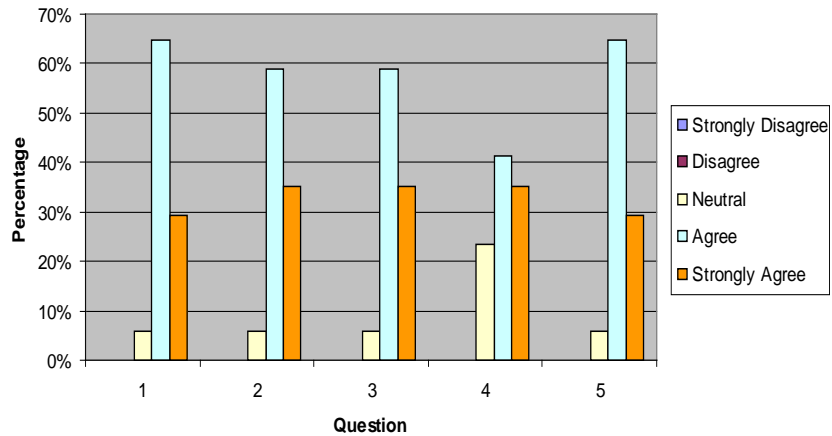
- A self-completed questionnaire
 - five-point Likert scale agreement statements & open-ended questions
 - comments on the **format of teaching**, **degree of interaction**, level of **clinical knowledge**, **professional skills** and clinical reasoning learned
- Focus group interview
 - semi-structured interview
 - Six to eight students
 - to explore further student reflection on this learning method and areas for improvements.

Teaching faculty and clinical therapists' feedback

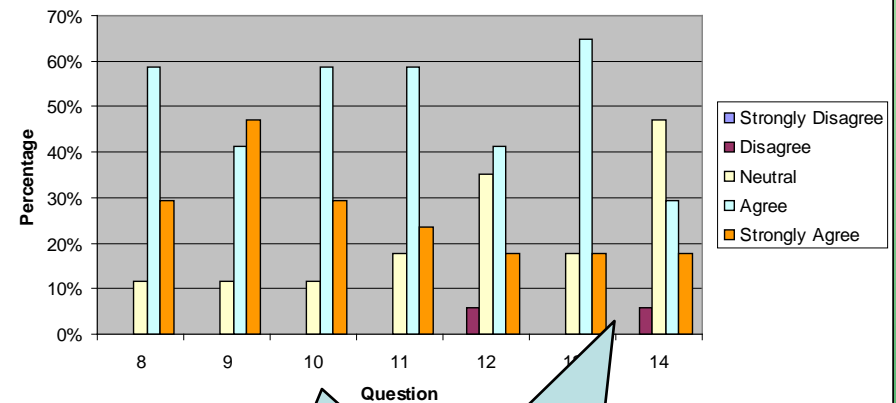
- A self-completed questionnaire
 - satisfaction level of on its time, duration, topic, cost effectiveness, and communication among the student, the clinical therapist and the academic faculty
 - open-ended questions
 - format of teaching, acquisition of clinical knowledge and skills, interactions, quality of audio and visual images, and difficulties in using this format of teaching

Students Questionnaire Results

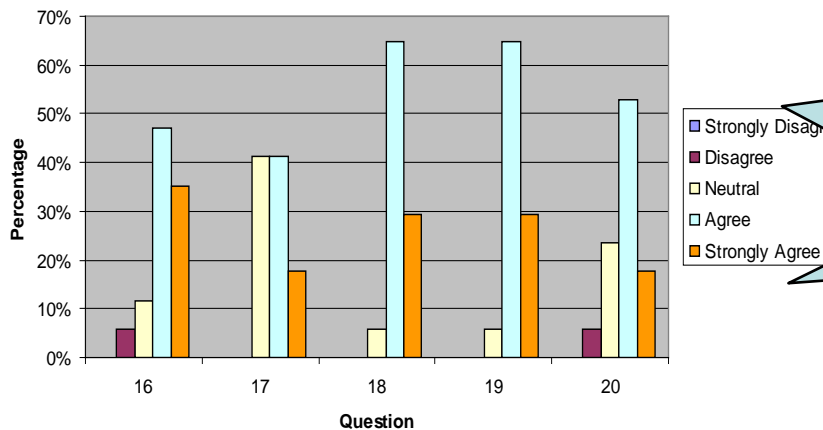
I. Format of teaching



II. Professional knowledge and skills

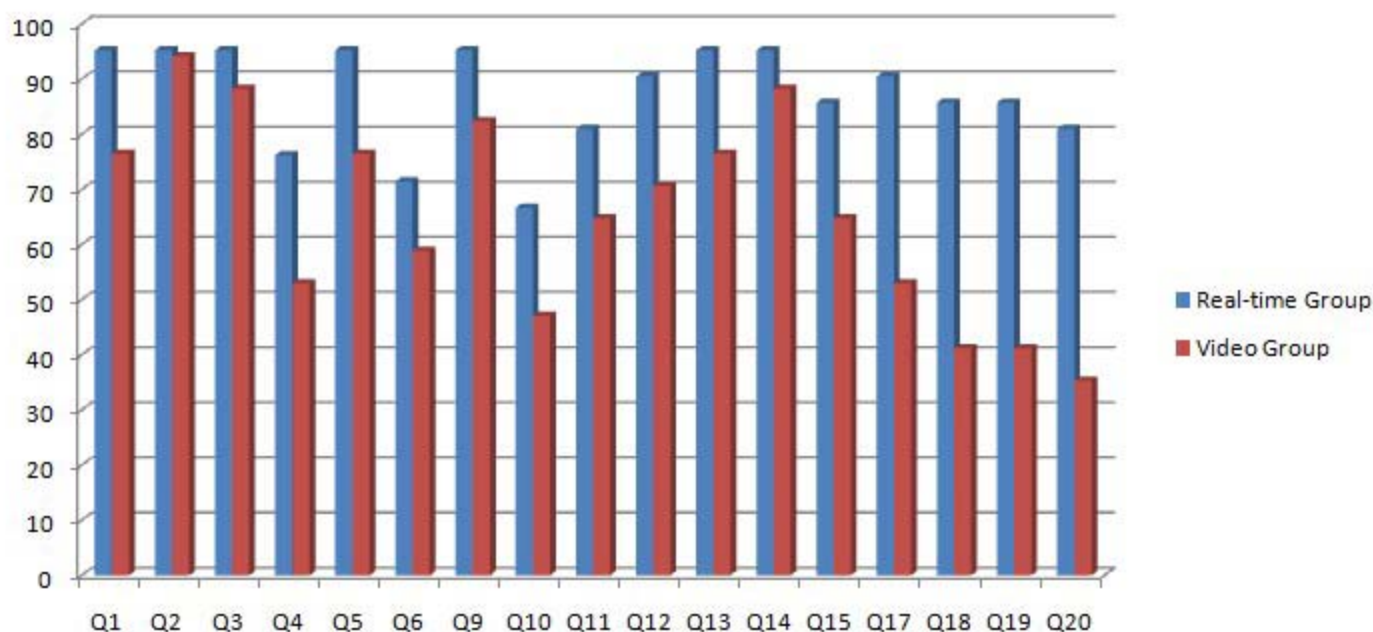


III. Interactions



**High overall
satisfaction in all
aspects!**

A comparison of the percentage of students from real-time group with those from video group in their level of satisfaction toward the teaching method



- The overall level of satisfaction of the students from the real time group (teleconference) is higher than those from video group (watching video playback), especially in aspect of interactions.

Students' feedbacks

From the questionnaires and focus group interview, in general,

- Students enjoyed the learning method and found the method was interactive
- Teleconference/ Virtual classroom enable students to have direct and instant communication with the case therapist and the patients
- It's a cost effective teaching-and-learning method to:-
 - provided real time case demonstration
 - let students have an idea of the common practice and clinical techniques used in actual clinical setting
 - help the understanding of the symptoms or clinical features for the kind of disabilities
 - improve students' critical thinking skills through the interaction with therapist
 - further enhanced students' professional manners through observing the clinical educator's interaction with patients during the demonstration.
- Finally, students expressed that the classes would help their preparation of clinical placements, and would be beneficial in learning in case of suspension of placements due to pandemics.

Teacher/Clinical Educator Feedbacks

- Both teaching faculty(from the university) and the clinical therapist(from clinical settings) believed that the teaching-and-learning method to be cost effective.
- It was found that teleconference could provide a good communication with students, therapists and academic faculty.
- The method also provided a favorable environment to students, patients and therapists as the patients and therapists could stay in the clinical setting while a large group of students could observe the demonstrations without travelling and would not disturb the clinical setting.

Conclusion

- After a few years of experience, the overall satisfaction of the students was maintained with minor variations between items.
- Each year, students expressed higher satisfaction on the usefulness of the learning contents and the interaction with the clinical educator.
- Most technical problems were highly improved each year
- Hence, the overall quality of delivery of contents had been improved.
- The teaching and learning method had been proved its value and it's worth to continue in the coming future.

Project Contacts

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The End

Thank you!



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