The use of Problem Based Learning (PBL) in teaching cognitive communicative disorders

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1a. Background

• Traditional teaching strategies in SLP education:
  – Relies on didactic and often passive approaches to learning
  – Focuses on memorizing vast amounts of information presented in static formats

• With ever-expanding amount of information available in the field:
  – SLP students acquiring fundamental knowledge is not sufficient
  – Educators should include training students to be problem-solvers and life-long learners as one of their goals

• In a PBL lecture, content is usually introduced in the context of a clinical problem

• Students are required to identify what they know, to explore what they do not know, and to generate questions (learning issues) on what needs to be investigated and learnt
1b. SPA6417

• Cognitive-Communicative Disorders
  – 3 credit hours graduate level elective course
    • Taken in 4th or 5th semester
  – Prerequisite: SPA 6410 Aphasia and Related Disorders
    • Taken in 1st or 2nd semester
  – One of the required courses for students to obtain Medical Speech-Language Pathology Certificate
  – Students have exposure to adult population through internal clinical placement
  – A service-learning component is also included in this class
This course will present the student with a framework in which to diagnose and treat persons with dementia, traumatic brain injury and right hemisphere lesions. This model is based on the disciplines of neuropsychology, neurology, behavioral neurology, and speech and language sciences. The course objectives are:

1. To equip students with the information to operationally define cognition as it relates to the above mentioned speech/language impairments.
2. To increase knowledge of the neuropathophysiology of the above mentioned impairments.
3. To equip students with the methodology to assess persons with cognitive communicative disabilities.
4. To equip students with various approaches and methodologies to design treatment for persons with cognitive communicative disabilities.
5. To acquaint students with professionals in other disciplines who treat persons with cognitive communicative disabilities and how to partner with them in designing treatment.
6. To acquaint students to the documentation required for persons with cognitive communicative disabilities.
Service-Learning

- Service-learning is defined by University of Central Florida (UCF) as “... a teaching method that uses community involvement to apply theories or skills taught in a course. Service-learning furthers the learning objectives of the academic course, addresses community needs and requires students to reflect on their activity in order to gain an appreciation for the relationship between civics and academics”

- **Internship program**: work primarily to gain career-related experience
- **Service-learning**: work to learn course material, making service-learning a good introduction or precursor to internship experiences
Service-Learning process

1. Form groups and contact with course instructor to select a service-learning project and agency

2. Research information on potential agency and prepare for meeting with agency representatives to determine content of service-learning project

3. Complete an outline for the service-learning project and submit a learning plan to course instructor

4. Deliver service-learning project (to acquire hours of service with their agency outside classroom)

5. Presentation of completed service-learning project at the end of the semester in a Service-Learning Showcase
2. PBL process

Students look for essential characteristics of the problem case, identify what is already known that is related to the case, make hypothesis of the symptoms present in the case, and set up specific learning issues for each member to explore.

A PBL problem usually ends by reviewing the case, evaluating the group dynamics and member performance, and making suggestions for improvement.

The PBL instructor provides suggested readings and directs students to look for appropriate resources. Students study independently (outside the group).

Students return and bring new knowledge or information they explored to the group, discuss relevant clinical tools, discuss with the assistance of the PBL instructor to cover important concepts, and clarify any unclear information.
3a. Methods

- Participants were 77 SLP students enrolled in this master level course between Spring 2008 and Spring 2011
  - All attended a weekly three-hour meeting for 12 weeks
  - There were four “PBL problems” for the duration of the semester
  - 3 meetings in average were needed to discuss and cover the contents for each problem
3b. Methods

• A descriptive analysis was used to examine the students’ perception of the inclusion of PBL in this course
• Reflective journals submitted at the end of each problem were analyzed by the method of content analysis (De Wever, Schellens, Valcke, & Van Keer, 2006)
• Common words or phrases in the reflection papers were identified. This was followed by grouping and coding these written responses into consistent themes or ideas and, subsequently, tallying them
4. Results

The analysis of the students’ journals yielded six major themes of their perceptions of the PBL approach of learning:

1. Gaining insight of the PBL process
   - “I think that the PBL approach is a better way of learning things compared to the traditional methods of lecturing.”
   - “Problem Based Learning (PBL) is different from traditional teaching methods in that it is student-led.”
   - “The benefit of this approach is that we are exposed to a new way of scrutinizing a case.”
   - “Students are required to lead the course themselves, requiring them to be active learners from the beginning. I feel like I learned so much through this process.”
   - “PBL makes the class time go by quickly and I feel as though I’m not interrupting when asking for clarification on specific issues because these people are my peers, not a professor.”
4. Results

2. Integrating acquired and new knowledge
   – “PBL has provided an opportunity for integration of both new and previously acquired knowledge.”
   – “It really helps me to take the information from my working memory and move it into my long term, declarative memory.”

3. Learning collaboratively
   – “I really enjoy that we are able to discuss the information.”
   – “I gained more understanding by doing my own research on the topics I was given to discuss and through my fellow classmates’ interpretations of the subject matter they discussed.”
4. Results

4. Gaining sense of achievement and autonomy

– “By having to present information to each other, we really had to know what we were talking about, and be prepared for any questions that came our way.”

– “Its advantages include independent learning, development of clinical problem solving skills and other critical thinking areas, identifying gaps in understanding of content area, active participant in the learning process and developing practical assessment and intervention plans.”
4. Results

5. Equipping students to become SLPs

- “While the PBL approach requires more effort and critical thinking than traditional lecture classes, it is what we should expect in the future.”
- “Students are required to read current research and select vital, appropriate information. This is an important skill for student clinicians to have for future clinical practice.”
- “As a whole, I enjoy this because we also get to talk not only about the information that they researched but we also get to present our sides to ethical and decision making issues too.”
- “The PBL approach seems to cultivate that higher level of critical thinking.”
4. Results

6. Enjoying class and becoming motivated in learning

- “I really enjoy this process of gaining information about different subject areas.”
- “I enjoy that everyone presents their information and then we discuss it.”
- “I feel more involved in what we are learning about by doing my own research and sharing it with my fellow classmates.”
- “I learned so much from these first two PBLs and I am anxiously anticipating the future problems.”
- “I think it is a great way to be able to actively participate in class.”
- “I feel like I have learned more than ever would have by just listening to the teacher lecture while I take notes.”
- “PBL has improved the quality of learning by placing the onus on the student to prepare and reflect more on the required areas as outlined in the arising learning issues.”
5. Discussions

• Different role plays by PBL instructors and ordinary faculty course instructor
  – To facilitate learning, good group dynamics, and efficient group function
  – To avoid lecturing to the PBL group
  – To ask non-directive, stimulating questions
  – To encourage students to make connections
  – To challenge students at the time of their discussion

• Students are expected to be the active learner in the process of the PBL
5. Discussions

• Generally positive perception from students:
  – Students were REALLY interested in this area
  – Combination of Service-Learning projects allowed application of knowledge
  – Students had more autonomy and were therefore more satisfied

• Negative comments came from:
  – Time restriction on a semester limited the number of cases for discussion
  – Uneven contribution from classmates
  – Student preferred information from professors instead of peers
5. Discussions

- Major limitation for implementation lies on the substantial manpower that is needed
  - A PBL group functions most efficiently with one instructor working with 7 to 8 students
    - 2008-5; 2009-20; 2010-34; 2011-18
  - May not be readily applicable to courses with a large number of students; modifications are needed
  - Student contact hours are three to fours time for PBL educators than for those in a traditional curriculum (Koh, Khoo, Wong, & Koh, 2008)
    - Especially the case for Problem 1 and 2 --- finding references or clinical resources
Reference