

Critical Thinking and Learning Commons: Initial Observations and Possible Applications

Thomas FAST, Caleb PRICHARD, Akemi MORIOKA, John RUCYNSKI

Abstract

This article reports on the first year activities and findings of the Learning Commons Study Group (ラーニングcommons活用分科会), which was formed to oversee the Okayama University Library renovation. Below is a description of our visits to other libraries, class, workshops and presentation observations. Pedagogically analysis was done through the lens of active learning, content-based instruction in language learning (CBI), and other related theories and approaches. Concluding thoughts on utilizing Okayama University's new learning commons and promoting critical thinking on campus is provided.

Keywords: Learning Commons, active learning, content-based instruction (CBI), critical thinking, Theory of Knowledge (TOK)

I. Introduction

Libraries in various forms play a crucial role for education, serving people in cities and schools. Okayama University's library has recently undergone a renovation, both physically and theoretically in terms of its function. A committee/task force named *Chuuu Toshokan Riyousha Saabisu Jisshi Kentou Working Group* (中央図書館利用者サービス実施検討ワーキンググループ) was formed in April 2013 including four sub-divisions: (1) Learning Commons Study Group (ラーニングcommons活用分科会), (2) *Gyararii Bunkakai* (ギャラリー分科会), (3) *Jinteki Shien Bunkakai* (人的支援分科会), and (4) *Kenkyuu Shien Saabisu Bunkakai* (研究支援サービス分科会). The members of the Learning Commons Study Group consist of the Director, Professor Makoto Tahara, and the authors of this article. According to Professor Tahara, a successful Learning Commons is a place where high quality instruction and activities take place. He believes that a primary mission of education is to facilitate students' critical thinking through active learning. Therefore, members for the Study Group were selected based on their research interests and knowledge of content-based instruction in language learning (CBI), active learning, and critical thinking. The study group's mission was to:

1. Research and report on the design and use of active learning spaces in other institutions
2. Study and observe teaching practices in critical and creative thinking, particularly with relation to the International Baccalaureate's Theory of Knowledge (TOK) course.
3. Develop and deliver a pilot course in critical thinking that combines best practices and utilizes the new active learning space at the library, to be held in the fall of 2014.
4. Develop online resources for best practices in active learning pedagogy.

This paper is a report on the committee's first year of research activities and observations, followed by implications for the 2014 pilot course and future uses of the Okayama University Library Learning Commons.

II. Overview of Research Activities

Over the 2013 academic year, study group members visited institutions with active learning spaces. There we observed the spaces in use, and conducted interviews with local staff. Other members investigated approaches to critical thinking by participating in training workshops, attending conferences, and interviewing experts in the field.

Miyazaki International College (MIC) is known as the first liberal arts college in Japan to offer their curriculum entirely in English. Over 80% of faculty members are English native speakers. Moreover, their curriculum is content-based and facilitates critical thinking skills, according to their school [homepage](#). Three of the study group members observed MIC classes on November 25th and 29th, 2013. In addition to class observations, they spoke with instructors, students, the President, Masaharu Nagata, and the Dean of Faculty, Michael Thompson.

Also high on our list of institutions to visit was Katoh Gakuen Gyoshu High School. Gyoshu is considered a pioneer in the field of bilingual education in Japan as it was one of the first secondary schools in Japan to make a successful English immersion curriculum. It was also the first Japanese school (not to be confused with international schools in Japan) to adopt the International Baccalaureate (IB) Diploma (DP) and Middle Years (MYP) programs. Three members of our group visited Gyoshu H.S. on February 12th and 13th, 2014 to observe IB classes, in particular the Theory of Knowledge (TOK), which is a pillar of the IB and takes a very thorough approach to critical thinking.

As Hong Kong has been a leader in reforming education in Asia, one member visited Hong Kong University (HKU) on the Feb. 19th, 2014 and the City University of Hong Kong (CityU) on the 20th. The study tour involved examining active learning spaces and interviewing several professors and support staff. At HKU, the following professors were interviewed: Dr. Joe Lau, a scholar who has authored critical thinking textbooks for university students, and Dr. Min Zeng, who trains graduate teaching assistants (GTAs) to utilize active learning activities in tutorials and discussions that they lead with students. At CityU, three staff members and two student workers provided a tour of their new active learning spaces in the Gateway Education (GE) Center and their reformed library. A professor who has helped administration ensure that teachers have adapted their syllabus to match their new "Discovery Rich" (active learning) curriculum was also interviewed.

University of Washington is only one year ahead of Okayama University in completing its own major library renovation project, which happens to include a learning commons. A visit to UW coincided with one of our member's participation in a TOK workshop in Seattle from March 22nd to the 24th, 2014.

The following week three of our study group members attended the TESOL International Conference in Portland, Oregon. In addition to various presentations on English language learning, many presentations on critical thinking were held. One of particular interest for this study group

was Advance Consulting for Education (ACE)'s "Teaching Critical Thinking Skills to English for Academic Purposes Students." Ideas from this presentation are described below.

III. Education for Active Learning

Learning Commons

Learning Commons have been appearing in academic libraries around the world since the early 1990s, when they were more frequently called Information Commons (Beagle, 2011). The emergence of the learning commons has brought a big shift in the function of libraries. Holmgren (2010) claims that the learning commons is a central element in contemporary library design, and transforms the library's role on campus from a provider of information to a facilitator of learning. Learning commons offer areas for group meetings, tools to support creative efforts, and on-staff specialists to provide help as needed (EDUCAUSE, 2011).

The newly constructed learning commons at the two Hong Kong universities included multiple group study spaces in the library and active learning classrooms and labs. The common features were moveable study spaces to accommodate collaboration and technology, especially computers for group use. CityU also had a 3D scanner, a 3D printer, lab equipment, and even a kung fu apparatus used for general education courses. The spaces were actually being used for discussions and collaborative projects. At CityU, the new learning spaces were regularly booked even though they only recently expanded their number. One key point to remember, however, is that these campuses are much more compact than Okayama University, and these spaces in the two Hong Kong universities are very central and easily accessible.

University of Washington's Odegaard Library Learning Commons is located in the center of its sprawling, main campus, similar to Okayama University. There are two rooms and each will hold up to 150 students. Many of the walls are whiteboard surface for writing quick ideas. There are circular islands with laptop plug-ins, mobile big screens that can be wheeled up to tables, and also booths like those at a restaurant diner, that have video screens. In other words, there was a wide range of working possibilities. According to staff, despite some initial technological hurdles, the learning commons are being used frequently by faculty in various departments. They added that the rooms seem to be particularly popular with Science and Engineering faculties, perhaps because their fields are directly linked to new trends in technology and instruction.

University of Washington staff also offered to provide our group various data demonstrating how the room has been used over the last six months, e.g. what subjects have been taught there, how the teachers utilized the space (even every place teachers stood while they were instructing), as well as the documented benefits of active learning. In 2013 University of Washington's learning commons received visits from Waseda and Nagoya Universities as well, so it would seem Okayama University is not the only Japanese institution interested in this trend.

Curriculum Adaptations to Promote Active Learning

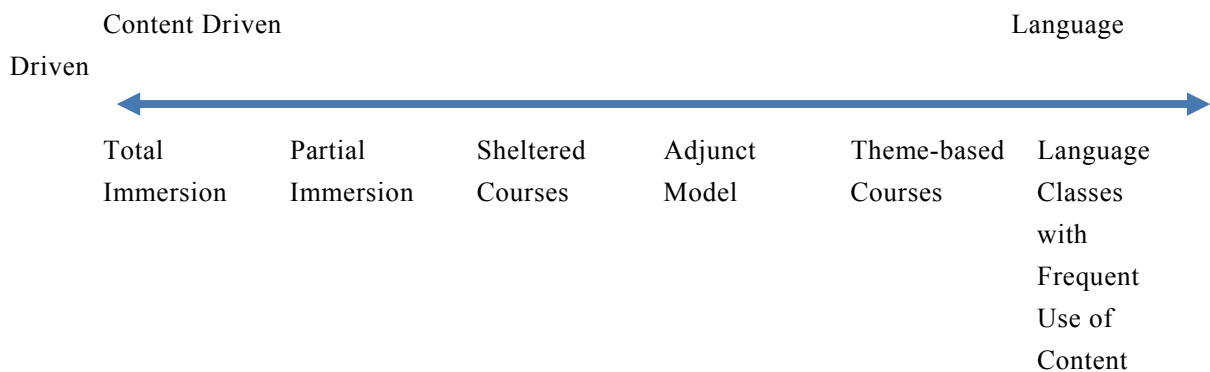
The institutions we visited have also been conducting major changes to their education systems, including increasing active learning pedagogies and the adoption of content-based

instruction for language courses (see below). These changes have also led to greater use of their learning commons.

Many of the professors and staff at the Hong Kong universities suggested that the new learning commons would not be fully utilized if it had not been for educational reform. After Hong Kong recently required all universities to expand from three to four years, both schools visited started general education courses to give students knowledge of a diverse range of subjects and to develop active learning and thinking skills. The objectives include critical thinking, self-directed learning, cooperative learning, and communication skills (see [CityU's Gateway Education expected learning outcomes](#)). Teachers at these schools are required to include these skills in their syllabus. In addition to coursework, students at these universities have tutorials or labs led by GTAs in which they can engage in more active learning, including case studies, discussions, labs for science courses, mock trials for law students, etc.

For language classes, content-based instruction (CBI), a pedagogical approach that integrates language teaching and content teaching, can increase active learning and critical thinking in the curriculum. There are a variety of definitions of CBI, and one of the most popular ways to look at CBI models is as a continuum of content and language integration (Figure 1; Met 1999). These different models were observed in the classrooms that the study group visited.

Figure 1: A Continuum of Content and Language Integration



CBI fosters a variety of thinking skills, and learning strategies which lead to rich language development:

- Information gathering skills: Absorbing and questioning
- Organizing skills: Categorizing, comparing and representing
- Analyzing skills: Identifying main ideas, identifying attributes and components, identifying relationships, patterns
- Generating skills: Inferring, predicting, estimating

(CARLA homepage, Met, 1991).

Miyazaki International utilizes CBI and English skills courses in order to prepare students for the College's unique curricular requirement: All of students must spend their full fourth semester at a university in an English-speaking country. Members of our study group observed

two of each of these types of classes. Students in the English skills-based classes were first-year students and the main focus was to develop their English fluency and accuracy. Perhaps due to this constrained focus, these classes themselves did not showcase the development of critical thinking skills. What was most impressive about these classes, however, was the active learning approach. Instead of a traditional classroom model where the teacher needs to call on individual students, all students took turns answering questions without direct prompts from the teacher. The active approach was expected from teachers, and according to one instructor, took a great deal of time and patience to implement. How exactly was never specified. Although the focus of one class was mastering grammatical forms, it was still designed in a way to prepare students for the active approach they would need to take if they hoped to succeed at a university in an English-speaking country. This active learning approach seems to be consistent across the curriculum, as the school's [homepage](#) asserts that such an approach has been implemented in order to “help students get used to studying in English and to build English skills.”

The content-based classes were also impressive in that all classes of this type have two teachers--one language teacher and one specialist in the content area, which is an adjunct model according to Met's (1999) classification (see Figure 1). We could thus call this a true CLIL (Content and Language Integrated Learning) approach. One course focusing on religion was not merely a passive lecture, but also employed the active learning approach, as students were expected to answer questions from the teachers to review the material. Additionally, at the end of the class one group of students gave a short PowerPoint presentation to show their understanding of the material. The teachers stated that they did these presentations on a rotating basis, with different groups presenting on different religions.

Training and Support for Teachers and Graduate Teaching Assistants (GTAs)

To meet pedagogical reform mandates, additional training and support is required. According to teachers and GTAs at HKU and CityU, who are required to address active learning in their syllabi. These reforms would be mere window dressing without extensive institutional support. HKU's Centre for the Enhancement of Teaching and Learning (CETL) employs over ten full-time staff (plus many support staff) for this purpose. CityU's EDGE also has several full time staff and six student workers. The support staff at CityU promote and guide students, teachers, and GTAs on how to use the learning commons equipment and technology in effective ways. For example, they train teachers and students how to utilize software and the 3D printer for task-based, collaborative projects in their GE courses.

At HKU and CityU, all GTAs must go through a training course on engaging teaching techniques. At HKU, the initial course is two weeks for three hours per week (www.cetl.hku.hk/certificate-courses). Next they teach tutorials for four to six weeks, and they finally end with two weeks of “reflective” instruction. The training is interdepartmental for some faculties, but others require field-specific GTA training. (This was challenging for the CETL trainers since they do not have specialized knowledge of each subject. However, over time they developed enough training materials for each field.) GTAs learn to lead discussions, case studies, labs, task-based teaching, etc. They learn questioning techniques and other methods to engage students and promote critical thinking. The CETL has also published a series of excellent online

tutorials (CETL, 2013) that describe these techniques clearly. If Okayama University wants to train teachers or GTAs to utilize active learning spaces, this could be an excellent resource.

All new faculty at HKU must take a similar course on instructional techniques, and CityU has planned many voluntary workshops for faculty on active learning. According to many of the staff interviewed, GTAs and new teachers are much more receptive to active learning techniques and spaces, and some experienced teachers have been reluctant to change their style. A consultant to CityU advised them not to pressure experienced teachers to change; rather they should focus on encouraging those who are interested and willing to utilize the active learning techniques and spaces.

At University of Washington, instructors can receive training on how to adapt their lessons to the active learning space from Instructional Consultants at University of Washington's Center for Teaching and Learning. The role of the Center is to:

- Orient all new staff and graduate students
- Facilitate cross-disciplinary projects between staff in other departments
- Provide Regular workshops on various teaching subjects including: Active Learning, Service Learning, Critical Thinking and more

Without a center to provide instruction and support, it is doubtful that the learning commons would have had such a successful start. Similar to the Hong Kong Universities, classes at the Center for Teaching and Learning are only required for new staff and GTAs, but experienced instructors who would like to try new methods are welcome.

III. Critical Thinking Education

Introducing active learning activities and spaces is expected to improve students' critical and creative thinking skills. However, a meta-analysis of 117 studies and over 20,000 participants suggests that implicit methods are not enough to improve students' critical thinking; rather, *explicit* critical thinking training is needed to produce significant results (Abrami et al., 2008). Therefore, the authors looked at several models for teaching critical thinking in the contexts we examined.

Hong Kong Findings

While the universities visited in Hong Kong generally do not teach critical thinking skills directly, Lau says it is possible and useful. He discussed three ways to improve students' critical thinking skills:

1. Direct training
2. Indirect practice (e.g. discussion, debates, case studies)
3. Developing a positive attitude (e.g. being open-minded, reflective)

Lau said that direct training (#1) is useful. Students can learn to identify logical fallacies, such as mistaking correlation with causation, and to diagram their logical reasoning. His textbook (Lau, 2011) and online teaching materials (Lau, 2014) explain more.

Lau explained that #3 (attitude) may be the most important point of critical thinking education. This involves being impartial, open-minded, curious, conscious, reflective, etc. It may be difficult for university students to change their attitude if their sociocultural and educational

background has not led them to critically examine ideas and media. However, Lau says it is not too late and there are some awareness activities that may be useful.

When the scholars at Hong Kong were asked if it is better to do critical thinking/active learning education in cross-departmental or field-specific classes/tutorials, they said that mixing different faculties has many benefits, such as developing broader, more diversified knowledge and skills. The students can learn from peers in other departments. Moreover, CityU students also reportedly like the chance to meet with students from other faculties. Also, diverse knowledge is a prerequisite for being critical and creative thinkers, Lau said, since they can make connections between ideas and have different perspectives. However, field-specific practice is also necessary for the students to become active participants in their fields. For more advanced and specialized discussions and tasks, it is problematic to have students from other faculties.

IB and the Theory of Knowledge

The IB is an educational system that spans from primary to middle and high school diploma (DP), and does not have a university component. Still the IB is of particular interest to this study group because of its inquiry-based approach to learning and in particular, critical thinking. “Thinker” is one of the ten traits of the IB Learner Profile, a list of the ideal qualities of an IB graduate. Critical thinking occurs throughout all subjects in the curriculum, but it is specifically taught in the TOK, a stand-alone course as well as an integral part of the IB Diploma program for high school students.

From March 22nd to 24th 2014, one of our members attended a TOK for Subject Teachers workshop in Seattle. The three day event was intended for high school teachers in who would like to incorporate more TOK learning into their subject classes. In attendance were language instructors (Spanish, Chinese and English), math, science and other subject teachers.

The TOK teaches students how to think by first recognizing what knowledge is. TOK has broken knowledge down into eight types or areas of knowledge (AOKs) that include academic subjects as well as other sources (see Figure 2). TOK also tells us that we have different ways of knowing (WOKs).

Figure 2:
TOK areas of knowledge (AOK)s ways of knowing (WOK)s

AOKs			
- mathematics	- human sciences	- ethics	- religious knowledge systems
- natural sciences	- the arts	- history	- indigenous knowledge systems
WOKs			
- memory	- language	- emotion	- sense perception
- reason	- imagination	- intuition	- faith

These AOKs and WOKs provide TOK students with a framework for understanding real life situations. While visiting Gyoshu High School, members of the study group sat in on a TOK class that was considering the case of a concert by Rage Against the Machine, a politically

outspoken rap-metal band. Their August 2000 performance led to a riot and clash with the police outside the Democratic political convention in Los Angeles. Students examined the incident from the perspectives of art and ethics (AOLs). Several questions came up during the class discussion: Was the band responsible for the damage and injuries that took place after the concert finished? Was it their artistic duty to protest politics? Should a role of art be to promote awareness of problems in society? Questions gradually abstracted from the original scenario being discussed, as the teacher introduced other examples of art versus politics. It seems TOK strives not necessarily for answers but deeper questions. According to the IB, TOK allows students to:

1. Make connections between critical approach to the construction of knowledge, the academic disciplines and the wider world.
2. Develop awareness of how individuals and communities construct knowledge and how this is critically examined.
3. Develop an interest in the diversity and richness of cultural perspectives and awareness of personal ideological assumptions.
4. Critically reflect on their own beliefs and assumptions, leading to more thoughtful, responsible and purposeful lives.
5. Understand that knowledge brings responsibility which leads to commitment and action.

From the IB Diploma Programme *Theory of Knowledge guide, 2013*

More often than not, one question leads to another and another and a very specific problem becomes more and more theoretical in the TOK classroom. In the Seattle workshop, participating teachers were asked to discuss problems from the points of view of their subjects. They came away with a better idea of how to introduce TOK discussions (and critical thinking) in their lessons.

Advance Consulting for Education (ACE)'s Approach

One of our members was able to hear ACE's presentation on "Teaching Critical Thinking Skills to English for Academic Purposes Students" at TESOL International in Portland Oregon, on March 30th, 2014. ACE is a provider of English language teacher training and teacher development, based in Ottawa, Canada. Of the various approaches to critical thinking instruction observed by the this study group, ACE's is one of the most applicable for our purposes, due to it's clear, concise and systematic nature which is described below.

ACE started out the presentation by asking "What is critical thinking?" They answered with words like, "active, systematic, rational, evaluative, evidence-based, reasonable, reflective, attitude, knowledge and skill" based thinking. Bloom's Taxonomy (knowledge, comprehension, application, analysis, synthesis and evaluation; Anderson et al., 2001; Bloom, 1956) was also introduced as a basis of ACE's approach to teaching critical thinking. Examples of how the levels of Bloom's Taxonomy can be applied to language learning were also given, (e.g. interpreting, paraphrasing, modifying and explaining equals comprehension). Attendees were encouraged to

take a second look at their teaching materials and approaches with Blooms Taxonomy in mind, and include more “higher order” thinking activities if necessary.

ACE stated that critical thinking skills are both receptive and productive. They presented on the importance of teaching students to be aware of the structure of arguments, providing different patterns for different situations. And ACE introduced different types of reasoning (including deductive, inductive and flawed) to equip students with the knowledge to make critical opinions for themselves.

ACE concluded by pointing out important vocabulary and phrases that students should learn in order to produce their own arguments, and gave several examples of receptive and productive critical thinking skill teaching activities.

Overall the ACE approach to critical thinking is one worth trying at Okayama University, particularly for its focus on teaching English language learners, who would be the majority of the students attending our pilot and future courses in the active learning classroom. But it’s clear and systematic approach to critical thinking would also be good guidelines for students studying in their native language, who are new to critical thinking in an academic environment.

IV. Implications

Education for Active Learning and Critical Thinking Education

Below are thoughts by various study group members on what methodologies we might want to incorporate at Okayama University. Regarding TOK: While it takes a very impressive and exhaustive approach to critical thinking with its systematic approaches to big questions, it may be difficult to fit this method into a sixteen week university course. There are simply too many difficult concepts and terms for the students to master before they can begin applying this brand of critical thinking. There are second language and Japanese cultural hurdles to consider as well. In the TOK classroom at Gyoshu High School, study group members observed that discussions were still often teacher-led, despite the Japanese students having received over four years of inquiry-based IB instruction, and being fluent in English. A greater deal of scaffolding (i.e. time for pair work to frame questions and responses) and teacher guidance seems necessary. That is not to say we should disregard TOK entirely. If instructors are trained in TOK, its methodologies may still have an impact on the way the class is delivered. And borrowing the TOK practice of looking at real life situations and seeking understanding from various knowledge points of view might prove useful.

The ACE approach and was created specifically for teaching critical thinking to language learners. Thus, it might serve our students well as an introduction to the concept and skills involved in critical thinking, before moving on to apply them to real life situations.

Research (Abrami et al, 2008) and materials by Lau (2011) suggests that the following series of activities might be effective for a short pilot course:

1. Awareness activities - Anecdotes, discussions, and case studies can change students’ attitudes and make them aware of the need to critically question one’s assumptions as well as ideas from academic content, the media, peers, colleagues, etc.

2. Explicit training - Instructors can introduce methods to think and communicate critically. This may include teaching students how to identify and refute logical fallacies and providing models to support one's ideas logically and effectively.

3. Practice activities and tasks - Specific activities can be introduced where students apply such critical and creative thinking skills. Such activities may be case studies, task-based projects, a discussion of a video or text, debates, collaborative essay writing, etc. The activities may include the following process: brainstorming and gathering a variety of ideas; comprehending and critically examining the ideas; selecting, organizing, and synthesizing ideas; creating and communicating effectively; and reviewing. The projects should end with reflective activities so students can evaluate their critical thinking skills.

V. Conclusion

In our effort to learn more about how to teach critical and creative thinking, we became aware of a variety of approaches, from the active learning methods used at Miyazaki International College, to the thorough and inquiring IB Theory of Knowledge. Overall, the visits showed how learning commons can be used effectively for the intended purpose to promote active learning, critical thinking, communication skills, etc. *if* teachers (or GTAs, outside of class) implement active learning activities, such as discussions, case studies, collaborative tasks/projects, or labs. This may require extensive support and training for teachers (or GTAs). At Okayama University, our group's pilot class and the development of online materials can be considered the first steps toward this end.

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