Learning Environment Evaluation Project

University of Lethbridge Teaching Centre

Fall 2012/Spring 2013

Executive Summary – Room L 1060

April 2013

Executive Summary – L1060
prepared by Victoria Holec, Elham Al-Omari, and Thabit Al-Omari
as part of the Teaching Centre Learning Environment Evaluation (LEE) Fall 2012/Spring 2013

Apr 30th, 2013

Table of Contents

Part 1: Room Use and Teaching Activities

L1060 is a large theatre classroom that accommodates 123 students (as per University of Lethbridge calendar). During the fall semester 2012 data collection, the student numbers in four out of five observed classes did not exceed half the capacity of the room, which renders the current room use questionable. During the spring semester 2013 data collection, two out of three classes participating in the study had student numbers closer to capacity. The room was divided into three wings of tiered rows, with the central wing facing the front of the room straight, and the side wings from an angle. None of the rows were curved. The central section consisted of eight rows, accommodating 75 students in total, while the two side sections each consisted of five rows, accommodating 24 students per side. Two main entry doors were located at the back of the classroom, with one door that was seldom used at the front. There was a large 20' x 4' whiteboard in the front of the room that centrally spanned a recessed alcove located within a setback space 5' behind the actual classroom front wall (between two pillars). The instructor workstation was located to the left of the room (when facing the front). The workstation contained a Crestron© control panel, desktop monitor, document camera, and slide-out keyboard, as well as other AV equipment. Two 84" x 48" (100" diagonal projection image) projection screens retracted from the ceiling; one was located behind the workstation, and the other was located in the centre of the room covering the centre portion of the whiteboard when pulled down. Hanging light rows were suspended approximately 17" from the ceiling and were oriented perpendicular to the rows of student desks. The light rows reached the first five rows of the room; the central three back rows were illuminated by in-ceiling panel lights. The light was indirect, i.e., shining upwards 70% to reflect from the ceiling and directly downwards 30%. Four-way light switches were located to either side of the room by the rear entrance doors.

As part of the Learning Environment Evaluation (LEE) research in the fall semester of 2012 and spring semester of 2013, a total of 333 students were surveyed and seven faculty members were interviewed regarding various physical factors of L1060 as a teaching/learning space. For faculty members, a short survey was orally administered prior to commencing open-ended interview questions. This survey contained mostly the same questions that were asked of students. This classroom was observed on 21 instances by three independent observers. Overall results for L1060 indicate that this classroom was considered an effective learning space. Diverse instruction methods were applied in this classroom, including lecture via projection, lecture via whiteboard, group discussion, student presentations, and occasionally smaller group work. Instructors in L1060 depended on classroom equipment for their teaching and never brought their own laptops. Both whiteboard and projection were used extensively in most observed classes, often in conjunction.

Part 2: Student Perspective

General Remarks

A total of 170 students participated in the classroom survey in the fall semester of 2012, and 163 in the spring semester of 2013. This classroom was observed on 21 instances by three independent observers. Two student focus groups with three participants were held in this classroom. When asked to rate their general feeling towards the room on a scale of 1 ("I love it") to 5 ("I hate it"), slightly over a third of students felt neutral about the room (37.2%, student survey). Roughly a fourth of students each liked (25.2%) and disliked (28.5%) the room. A majority of students agreed that the classroom provides an effective learning space (62.4%, student survey), and the majority of students also agreed that the room facilitates learning activities (61.9%, student survey) and engagement (61.6%, student survey). Students largely found the room physically comfortable (55.8%, student survey). In the following, details about physical comfort of the room as evaluated by the students will be discussed.

1. Physical Factors

1.1 Lighting

A majority of students surveyed reported being satisfied with the lighting in the room (60%, student survey). It was pointed out, however, that the room needs more lighting in the front, and a glare on whiteboard was reported (student focus group Nov 21). Sometimes, not all lights were turned on in the room (obs. 06 Sep 28, obs. 10 Sep 27). When asked about one thing that to be changed, a student mentioned that s/he would like to see a bar of lights above the projection (student focus group, Nov 21). The in-ceiling lights can give a glare on the whiteboard (obs. 06 Nov 30; student focus group Nov 21).

1.2 Sound

62.7% of students were satisfied with the sound quality in the room (student survey), but a student commented that sound does not travel well, especially during student conversation and from the back of the room (student focus group Nov 21). Insufficient sound quality and volume were also independently observed at numerous occasions (obs. 07 Oct 16, obs. 08 Sep 25, Nov 27). The noise level was rated as satisfactory, indicating absence of distracting noise (58.2% student survey). Students did report that noise was audible when the classroom doors were left open, which was also observed by the classroom observers (obs. 07 Sep 25, obs.08 Sep 25, obs. 09 Nov 29). Noise from the ventilation was observed, especially in the back of the room (obs. 06 Nov 30, obs. 07 Nov 29, obs. 09 Nov 29, obs. 10 Nov 29). Noise from students leaving and re-entering the room during the class period is distracting (obs. 08 Nov 27).

1.3 Climate

Interestingly, more than half the students rated the room temperature dissatisfying (52.8%, student survey). A student commented that the room was cold (student focus group Nov 21), which was also noted by the observers in several instances (obs. 06 Sep 28, Oct 22, Nov 30, obs.

08 Sep 25, Nov 27, obs. 10 Sep 27). Yet, a majority of students were satisfied with the air quality (62.1%, student survey). It was observed that the ventilation caused a draft, causing hair and paper to flutter (obs. 09 Nov 29).

2. Room Configuration and Furniture

2.1 Layout and Furniture
Survey responses indicated that a majority of students were satisfied with the room configuration (64.5%, student survey) and furniture (56.7%, student survey). They specifically liked the tiers and curvature of the rows and how spacious the room is (student focus group Nov 21). A student commented that s/he is able to spread out to feel more comfortable (student focus group Nov 21). It was noted that some students keep changing their seating positions, which might be related to the seat quality, class period, sightlines, or other student needs.

2.2 Sightlines and Colour
Most students reported not being impacted by sightlines (64.8%, student survey), but a student pointed out that it is difficult to see from the back (student focus group Nov 21). This was confirmed in nearly all observations (obs. 06 Sep 28, Oct 22, obs. 09 Sep 27, obs. 10 Oct 18). Students were largely satisfied with the wall colour (59.4%, student survey). It was observed that the pillars prevent seeing fellow students (obs. 06 Oct 22). The hanging lights and projector block parts of the projection screen, which is especially noticeable from the very back (obs. 10 Sep 27).

3. Technology

A student commented that sliding whiteboards would be useful so that instructors do not need to "waste time erasing the whiteboard" (student focus group Nov 21).

Part 3: Faculty Perspective

General Remarks
Faculty data in L1060 were collected based on eight faculty interviews and surveys. One of the faculty members taught two different classes in this room and he was interviewed once for both classes. As part of the interview, faculty members completed a short survey. In rating the classroom from 1 to 5 (1 = "I hate it" to 5 = "I love it"), interviewees generally liked this room (mean M = 3.38; range = 2-5). One faculty remarked: "I don't love the room. But I don't hate it, if I hated it I would not teach in it" (faculty interview 08).   Yet, this instructor did not believe that there was an option for him/her to change the room. On a 4-point Likert scale from 1 to 4 (1 = "strongly disagree to 4 = "strongly agree"), faculty members mostly agreed that the room was an effective learning space (M = 3.00; range = 2-4), and found that it was physically comfortable (M = 3.25 range = 2-4). About half the faculty members found that the room facilitated different teaching activities (M = 2.50, range = 2-3), and facilitated student engagement (M = 2.63, range = 2-3).

1. Physical Factors

1.1 Lighting
A majority of faculty members were dissatisfied with the lighting control (5/8 faculty M = 2.25; range = 1-3 on a 4-point Likert scale where 1 = "very dissatisfied" to 4 = "very satisfied").   The light control panel in this classroom was located at the entrance of the room, i.e., far away from the instructor location. Thus, instructors only occasionally paid attention to adjust the light in this classroom which left the room was improperly lit due to lack of lighting control enacted by the instructor (obs. 07 Sep 25, obs. 10 Sep 27). However, a majority of faculty members were satisfied with the *quality* of the lighting (5/8 faculty, M = 2.63; range 2-3).
One faculty member (faculty interview 09/10) elaborated on lighting in detail. He/she mentioned it was one of his/her main problems in this room, mainly pertaining to the light switch location and control. This instructor also considered the whiteboard drastically under-lit and complaints were directed at how there was no separate light (and lighting control) for the board. The instructor recommended that there should be light switches in the front of the room close to the instructor to facilitate lighting adjustment when needed. Other instructors agreed that the whiteboard was inadequately lit, as well as that the back of the room was too dark (faculty interviews 06, 16, 18), to which the low ceiling possibly contributed (faculty interview 16). Instructors were also confused about the orientation of the lights, which did not correspond to the transverse rows (faculty interviews 16, 18).

1.2 Sound
Seven out of eight faculty members rated sound quality as satisfactory (6/8 faculty). This was true for the students' ability to the professor (M = 2.63, range = 1-3, where 1 = "very satisfied" to 4 = "very dissatisfied") and for students to hear each other, as well as for the professor to hear the students (M = 2.50, range = 1-3). Since this was a large classroom, oral communication

between the instructor and some students (especially those who sit far away from the instructor) could be inaudible at conversation and lecture volume (faculty interviews 07, 08, 09/10). One instructor termed the acoustics in the room "terrible" (faculty interview 07). Another instructor remarked that the low ceiling contributed to the bad acoustics (faculty interview 16), explicitly stating that he/she "can't hear the students and they can't hear me from the back rows." Adding to that, the noise level that often occurred from inside or outside the classroom impacted the communication and the sound quality within the room. However, faculty members rated the noise level as satisfactory (M = 3.25; range = 2-4). It was observed that there were strange sounds that came from the ceiling ventilation outlets in the back of the room, as well as some distracting noise when opening or closing the room doors (obs. 07 Sep 25, 07 Nov 29, 08 Sep 25, 09 Nov 29). As mentioned previously in this report, some faculty members were satisfied with the sound quality in this room while others were not. Yet, this was not always observed in the classroom. According to observational data, the instructor sometimes had to move closer to the student in order to hear him/her (obs. 07 Oct 16)

1.3 Climate
Both temperature control (M = 3.00; range = 1-4) and air quality (M = 3.13; range = 2-4) were rated as satisfactory. One instructor remarked that air quality was dissatisfactory, because the carpet dust triggered his/her asthma (faculty interview 16). Nevertheless, it has been noted that the room was often cold, especially in the back. Some students did not take their jackets off or put their jackets on during the class period, and observers noted that the room is cold, which was especially evident in the back rows (obs. 07 Sep 25, 09 Oct 18, 09 Nov 29)

2. Room Configuration and Furniture

2.1 Layout and Furniture
Room layout was rated as satisfactory only by 50% of faculty members (M = 2.50; range = 1-4, where 4 = "very satisfied" and 1 = "very dissatisfied"). Furniture was rated as satisfactory (M = 3.13; range = 2-4). Instructors perceived that the wide gaps between rows in made movement comfortable for students: "One good thing about this room is the space between the rows and […]if a late student shows up, […] it's easy for him/her to access to his spot" (faculty interview 09/10). Instructors also liked the tiered nature of the room, and described, "U-shape works well, allows for student engagement" (faculty interview 07). Seeing all levels was described as a positive attribute, and so was the ability to walk through the room (faculty interview 16). However, it proved difficult to see other students in the first two rows from the back area of the room (obs. 09 Sep 27). It has been noted that, in some classes, several students were moving seating locations throughout the class period (obs. 07 Sep 25). One instructor mentioned that the vastness of the room might make students feel lost when the class only has few students (e.g., 20; faculty interview 09/10). This instructor recommended that class size should be better matched to room size. Faculty members disliked the wide area in the front of the room between students and whiteboard (faculty interview 09/10). One faculty member agreed on the fact that the room is often mismatched to class size and does not allow for flexible seating arrangement that might be required by instructors with small classes. This instructor preferred group work, which he described as impossible in L1060 (faculty interview

08). Several faculty members liked that doors were located at the back of the room (faculty interviews 08, 09/10).

2.2 Sightlines and Colour
The data showed that faculty members were unequivocally satisfied with the room colour (*M* = 3.25; range = 3-4). Upon being asked what an ideal classroom looks like, one instructor commented, "room colour probably would add value to the teaching environment" (faculty interview 08). There were multiple comments about the back area of this classroom. For example, an interviewee indicated that one thing he did not like about this room was that it was "dark in the back" (faculty interview 06). One instructor perceived that the large and ill-located workstation blocked students' view of the whiteboard (faculty interview 16). Another instructor commented that the wings as well as the pillars in the room were counterproductive to student engagement (faculty interview 18), as students could become easily distracted and difficult to engage from an instructor perspective. From the back, glares were observed on the whiteboard when the projection screen was not pulled down. Further, the projector and light strings interfered with the projected image (obs. 18 Jan 31).

3. Technology

Technology used in this classroom included desktop PC and projector, DVD/VCR, speakers, and document camera. Faculty members stated that all the above technology was easily useable and accessible, with the exception of speakers. Even though only three out of eight faculty members used speakers, these instructors reported that they had some difficulty with the use (*M* = 2.33; range = 2-3, where 1 = "with great difficulty" and 4 = "very easily"). Data from observation demonstrated the use of technology during several classes such as PowerPoint projection, where the projection screen appeared clear and readable from the back of the room (obs. 10 Sep 27, Nov 29). Faculty were largely dissatisfied with the whiteboard space and location in this room. It was indicated that there was not sufficient whiteboard space in this room (faculty interview 06), and that the projection screen often covers most of the whiteboard space when projection and whiteboard are used in conjunction (faculty interview 16). It was suggested to have two screens off to the sides of the whiteboard, rather than one single screen in the centre (faculty interview 16).
It was also remarked that the erasers in the room were not good and the board could not be cleaned easily (faculty interviews 09/10, 18). Observational data support the fact that it was difficult to see what was written on the whiteboard from the back seating area, sometimes due to the instructor writing on top of still visible previous writing that had been cleaned off, or different marker colours that are difficult to see from the back (obs. 06 Sep 28, Oct 22, obs. 10 Nov 29).
One instructor commented that the control panels on the workstation (i.e., computer, keyboard, Crestron©) are arranged awkwardly when one has to switch modes often (faculty interview 18); he/she recommended the Crestron© be located more towards the centre of the room, so that it facilitates teaching.

Part 4: Recommendations for Change

Based on data collected to date in L1060, the following deficits surfaced. Topics are listed according to the frequency with which they were mentioned during data collection.

Disclaimer: Throughout the fall 2012 and spring 2013 data collection, instructors always stated that it was important that any given room would accommodate their needs. I.e., if an instructor decided to lecture with projection one day, do group work or class discussion the next, and solely write on the whiteboard on a third day, the room should be able to accommodate all of these teaching styles. It must be noted that the below recommendations must not come at the expense of losing any flexibility for teaching styles. Renovations/modifications should be aimed at satisfying the majority of teaching styles used.

1. **Light control and quality**
    Deficits: Instructors were dissatisfied with the light control. This included access to light switches, the inability to control light above the whiteboard, the dark back rows, and the orientation of the string lights.
    Recommendations: Lighting control should be easily accessible for instructors; e.g., control panels should be located at the front of the room. Orientation of lights should be in accord with the orientation of rows, so that specific areas (front/mid/back) of the room can be dimmed. A set of light above the whiteboard is needed.

2. **Whiteboard/Projection**
    Deficits: Instructors complained about too little whiteboard spaces, the inability to project and write concurrently, as the screen blocks over 50% of the whiteboard, and that the whiteboard is poorly lit and difficult for students to read.
    Recommendations: The whiteboard should be separately lit. The whiteboard should not be recessed into an alcove; it should be level with the front wall of the room. There should be additional whiteboard space so that both projection and whiteboard can be used in conjunction, with still sufficient whiteboard space available.

3. **Sightlines**
    Deficits: Hanging lights and projector are blocking the view of the board/screen from the back of the room. From the back of the room, the whiteboard is difficult to see.
    Recommendations: Re-arrange lights or change type of lights so that light strings don't interfere with the projection image. Reposition the projector so that it does not interfere with the projection image/whiteboard.

4. **Class size**
    Deficits: Both students and instructors noted that the class size is often mismatched to the room size.

Recommendations: Reduce seating (eliminate 3 back rows). Match seating capacity to room capacity. Move smaller classes into different rooms.

5. **Workstation**
Deficits: The workstation was described as too large and at an awkward location. The teaching space in the front was described as too vast by some whereas others liked it. The controls on the workstation were described as too spread out.
Recommendations: Reduce the size of the workstation. Move technology controls closer together or elsewhere.

6. **Sound quality**
Deficits: Both instructors and students cited the inability to hear students or the instructor, respectively, especially from the back rows.
Recommendations: Eliminate 3 back rows, facilitate use of microphone.

7. **Climate**
Deficits: The back of the room was described as cold.
Recommendations: Make temperature controls easily accessible.