

Texas State University
Learning Spaces Rating System
Current State of Learning Spaces

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I. Executive Summary

Purpose of Report

Learning Spaces, a team within the IT Assistance Center (ITAC) in the IT Department, used the Learning Spaces Rating System (LSRS), a scoring system developed by EDUCAUSE to assess the potential of learning spaces, to assess the various learning spaces that the IT Department supports across Texas State University's San Marcos and Round Rock campuses. The purposes of this study are to:

- Evaluate the current state of learning spaces at Texas State University
- Suggest ways to improve the classroom experience for both faculty and students.

Methods

In order to create a consistent standard for scoring spaces, a sample room was done together to talk through the criteria in the LSRS and how to apply them to a space. After that, a series of spaces were done to help solidify consistency in scoring. After those spaces were scored, a review was conducted to ensure there were no lingering questions or concerns about criteria or scoring. Finally, all IT Supported space were scored by the same individual over a period of four months (Nov. 2023 – Feb. 2024).

Results & Conclusions

Part A of the LSRS consists of examining the relationship between the university and learning spaces from a planning, design, and support perspective. Since Part A examines aspects at an institutional level, all spaces received the same score. Overall, Texas State did not score well on Section 1 (1/5 points), relatively well on Section 2 (5/8 points), and average on Section 3 (5/12 points). Weaknesses in Part A were a lack of formal documentation regarding academic goals and learning space planning, lack of programs related to faculty development in relation to maximizing the usage of space capabilities, and maximizing ROI (Return on Investment) by allowing more diverse usage of spaces. Strengths in Part A included training and support for space users, research and prototyping components, and continuous training for learning space support providers.

Part B of the LSRS consists of four sections and looks at the space on an individual level in terms of the environment, furnishings, technology, and level of inclusiveness. Average scores within Part B were: 4.03 out of 11 points for Section 4, 4.65 out of 17 points for Section 5, 5.66 out of 12 points for Section 6, and 1.57 out of 7 points for Section 7. From a perspective of how many points were earned out of the total possible (percentage), Section 6 (47.17%) was the highest performer followed by Section 4 (36.64%), Section 5 (27.35%), and then Section 7 (22.43%). The university does a good job at providing basic technology such as speakers throughout spaces, some form of camera and microphone, and a way to control these devices through a touch panel. Inclusiveness – particularly from a cultural perspective – was a weak point for the university. Space environment, furnishings, and layout were mixed.

Recommendations

Recommendations focus on things that can be done by individual teams or a small group of teams rather than the university as a whole and can possibly be implemented in the short- to medium-term.

- A regularly offered program that orients new users to a learning space both in terms of how to use it as well as how to integrate pedagogy and activities.
- Add neutral and natural colors such as light green, blue, and brown. This can be in the form of wall paint, flooring, or furniture.
- Have adjustable (dimming) lights with easy-to-use controls.
- All furniture should have casters on them to allow for ease of movement.
- Increase the workspace size (minimum 600 sq. in.) or offer an optional larger size.
- Additional whiteboard space should be added to offer a secondary space to write on without interference from the projector screen.
- Cameras and microphones that can at least capture the full presentation area should continue to be added to learning spaces.
- Have two displays that can show two different contents.
- Floor outlets should also be installed as they do not interfere with desk/chair mobility and reduce the risk of trip hazard.
- Add displays that are currently displayed in common areas into learning spaces.

II. EDUCAUSE & Learning Spaces Rating System Background

EDUCAUSE is a non-profit organization that advocates for, “the strategic use of technology and data to further the promise of higher education” (About EDUCAUSE) and was formed in 1998 when two separate professional associations merged. EDUCAUSE is based in the US but maintains connections with other similar organizations internationally. EDUCAUSE lists its strategic priorities as to, “elevate technology professionals, technologies and data as strategic assets to transform higher education, build institutional capabilities to manage risk and build resilience..., influence the evolution of the higher education technology market...” (EDUCAUSE Strategic Priorities).

The beta version of the Learning Spaces Rating System (hereafter referred to as LSRS) was released by EDUCAUSE in 2014 with the first full official release coming a year later in 2015. In 2017, EDUCAUSE released version 2, and version 3 (the current version) was released in 2020. EDUCAUSE describes the LSRS as, “a framework to measure the potential performance of learning spaces—that is, to assess what activities physical spaces enable learners and instructors to do in them” (EDUCAUSE, 5). Version 3 of the LSRS is described as, “a way to measure progress toward designing flexible and inclusive learning spaces that support multiple modalities of learning and teaching” (EDUCAUSE, 5).

III. Format & Limitations of the Learning Spaces Rating System

The LSRS is broken down into two parts - A & B. Within Part A are three sections and within Part B are four sections. Part A focuses on, “measuring institutional readiness and development of a planning, operations, and evaluation process” (EDUCAUSE, 5). These sections include analyzing the institution’s broader strategies for the campus and how IT and learning spaces fit within, the level of research and engagement with stakeholders, and the level of support and development for learning spaces. Part B focuses on, “addressing the specific features and affordances of individual physical spaces” (EDUCAUSE, 5). These sections examine the overall environment, the layout and furnishings, the technology, and inclusiveness of the space.

The most notable change from version 2 to version 3 of the LSRS is the addition of section 7 – which covers the theme of inclusiveness. In version 2 of the LSRS, inclusiveness was limited to two points (with a weighted percentage of 20%) with one point being assigned to EQ Credit 4.7: Environmental and Cultural Inclusiveness and one point assigned to EQ Credit 4.8: Accessibility and Universal Design (EDUCAUSE, 36-37). Version 3 significantly expands these ideas to also cover cognitive inclusiveness and bring the total number of points available to seven (with no weighted percentages).

Version 3 of the LSRS attempts to standardize scoring practices by expanding their guidance on how to gain point(s) for each credit through the inclusion of “Verified by” and “Approaches and Considerations” sections with each credit. In the “Verified by” section, the LSRS gives examples of what kind of documentation or evidence can be provided to illustrate that the space meets the criterion. In the “Approaches and Considerations” section, the LSRS includes examples and descriptions of what can be considered satisfactory practices to earn the point(s) for that credit.

Despite these efforts, LSRS scoring is still ultimately a subjective evaluation. One individual may assess that a space meets enough of the “Approaches and Considerations” to warrant awarding a point while another individual may feel that it is not enough. As such, scores should not be considered absolute as others may score the same space differently. When using an LSRS score to assess a particular learning space, building, or the institution as a whole, it is important for the individual to look for broader trends or patterns in sections to identify areas that require further exploration.

The other significant limitation of the LSRS is that, while EDUCAUSE states in the introduction to version 3 that the LSRS, “does not seek to prescribe specific pedagogies” (5), it is clear through the scoring and points assigned that certain styles of pedagogies are considered to be preferential to others. These pedagogies are described in the LSRS as, “a variety of active learning practices and other forms of engaged learning, along with modalities such as the enhanced or interactive lecture” (5). Whether these types of learning practices do produce better student outcomes is not the point of this report (EDUCAUSE does provide research sources to support their view), but it is mentioned here simply because spaces that are not

designed with these types of learning practices in mind will score more poorly. Again, individuals using an LSRS score to assess a space should keep in mind what that space was designed to do.

IV. Learning Spaces Rating System Part A

Section 1 – Integration with Campus Context (ICC)

Section 1 Background

There are five credits in Section 1:

- ICC 1.1: Alignment with Campus Academic Strategy
- ICC 1.2: Learning Space Strategic Plan
- ICC 1.3: Compatibility with IT Infrastructure Strategic Plans
- ICC 1.4: Commitment to Evidence-Based Research and Assessment
- ICC 1.5: Campus Leadership for Learning

Section 1 focuses on ‘big picture’ aspects such as what level of research, assessment, and stakeholder involvement is included in the development of institutional level strategies and planning. Essentially it asks, “Has the institution – at a leadership level - worked with relevant stakeholders to develop a formal plan, that utilized evidence-based research, to the development of learning spaces to match academic strategies?” Since Section 1 examines the institution, all spaces scored received the same score.

Section 1 Discussion

ICC 1.1 looks at whether the development of learning spaces has been done in alignment, “with strategic academic plans or initiatives” (11). One point is available for this credit which can be given if it can be demonstrated that there is, “alignment of learning space planning with campus strategic academic plans” (11). This can be verified by strategic policy statements, reports, or planning reports that state how the space were developed to support specific objectives or strategies. No documentation could be found that showed any connection between learning space planning and strategic academic plans. As such, this point was not awarded.

ICC 1.2 is similar in nature to ICC 1.1. ICC 1.2 looks at whether, “learning spaces are designed in accordance with institutional strategic directions” (12). While both look at alignment between institutional plans and learning spaces, ICC 1.2 focuses more on learning

space design rather than the institutional plans. One point is available in ICC 1.2, and it can be awarded if, “evidence of close alignment of project planning... with an existing campus learning space strategic plan” (12). This credit is verified by learning space strategic plans or some form of planning or process documents. Similar to ICC 1.1, no documentation of this nature could be found, so the point was not awarded.

ICC 1.3 seeks, “to ensure that the planning, development, and operation of learning spaces is supported by the institution’s technology infrastructure” (13). One point is available for institutions that can, “demonstrate specific ways in which institutional technology infrastructure and strategic plans support learning spaces” (13). ICC 1.3 is verified by some documentation that shows how the IT infrastructure will support the learning space. While no official documentation was found, all the spaces scored are designated as IT Supported spaces which have an agreed upon level of support and commitment to maintain the technology in the space. IT Supported spaces also contain a standard technology package based on prior research, testing, and development. As such, the point for ICC 1.3 was awarded.

ICC 1.4 looks at whether there is, “a regular, iterative process of research and assessment that informs the development, renovation, and redesign of learning spaces” (14). This can be regular evaluations of learning spaces, stakeholder feedback, and engaging with other peer institutions. ICC 1.4 is verified by campus-level user research or some form of evaluation report. While user research and engagement with peer groups and stakeholders has been done in the past, it has not been done regularly. As such, the point for ICC 1.4 was not awarded.

ICC 1.5 looks at the level of involvement of leadership in the design of learning spaces. In the Intent section of ICC 1.5 this is described as, “through creative, innovative initiatives or projects” (15). The Approaches and Considerations section also includes things such as, “establish new benchmarks for renovation or new construction” (15) or the creation of “a campus learning space committee or similar body” (15). The point for ICC 1.5 is verified by institutional strategic reports or some form of policy document. No such documentation could be found, so the point was not awarded.

Section 1 Summary

Overall, the university did not score well on Section 1, one point out of five, due to the lack of documentation related to the alignment of academic strategies, space design, and space evaluation. Some documents, such as the University Master Plan, touches on aspects of these topics, but not in a detailed enough way to meet the criteria or approaches and considerations for these credits. It is possible that other forms of documentation do exist somewhere else in other departments, but they were not found after searching. If these documents are available, it would be beneficial for them to be hosted in a location where they are easily findable.

Section 2 – Planning and Design Process (PDP)

Section 2 Background

There are five credits in Section 2:

- PDP 2.1: Stakeholder Engagement
- PDP 2.2: Evidence-Based Planning and Design
- PDP 2.3: Pilots and Prototyping
- PDP 2.4: Learning Space Evaluation
- PDP 2.5: Dissemination of Findings

Section 2 takes a closer look at the planning and design process that goes into the learning spaces at the institution. It looks at the level of stakeholder engagement, whether evidence-based research is used, if devices/components are tested, whether spaces are routinely evaluated, and whether the results are shared with the broader community. Section 2, since it looks at the planning and design process for all learning spaces, all spaces scored received the same score.

Section 2 Discussion

PDP 2.1 examines the level of involvement of “stakeholders and strategic partners in the planning and design of learning spaces” (17). There are many things that can help earn the one point for this credit. These include things such as the inclusion of a wide range of space stakeholders, the inclusion of stakeholder involvement throughout the full process, the development of a plan to have continual communication with stakeholders, and to have engagement at a campus planning level. Similar to other credits in Part A, PDP 2.1 is verified by policy documents or evaluations reports that “demonstrate substantive stakeholder involvement in all the stages of planning” (17). The point was not awarded for PDP 2.1 as it was

determined that while there is stakeholder input in the planning and designing process, it is limited in amount and did not meet the threshold.

PDP 2.2 checks whether “research and/or documented best practices in learning space strategy and design” (18) is used in the planning and design. PDP 2.2 has up to three points available to award. To obtain the first point, there are two requirements which are to consult literature, resources, or experts on design as well as that “exemplary spaces” (18) are viewed. The second point can be awarded if either virtual or physical (in-person) benchmarking tours are done. The third and final point can be awarded if, “evidence-based planning as a campus standard for all projects” is used. Documentation should be provided that either evidences the consultation or benchmarking visit, or it should show how the best practices were utilized in the space design. Spaces scored were awarded two points PDP 2.2. Resources on learning space design, the viewing of exemplary spaces, and benchmarking tours have been conducted.

PDP 2.3 checks whether there is “a space or building to serve as a prototyping environment for ideas” (20). This credit looks for any sort of space that can be used to test either smaller components or fuller systems. There are two points available in this credit. One point is awarded if “prototype components or a space to test concepts” (20) is utilized. The second point is awarded if the institution has developed “a space as an institutional resource for human-scale prototyping... to be tested by learners and instructors” (20). Evaluation reports or some form of design documentation can be supplied as verification for these two points. While documentation is sparse, Learning Spaces does do prototype testing for components and does have a space (Derrick Hall 114C) for full-scale prototyping. As such, both points for PDP 2.3 were awarded.

PDP 2.4 checks if the institution (or some department) is conducting regular evaluations of learning spaces that have been built out. The intent of this credit is “to determine whether the potential of learning spaces has been realized in practice” (22). This assessment can take multiple forms such as comparing the space usage to project goals and user needs, various evaluation methods, and comparing the new space to an older space. Like with other credits in Part A, some form of documentation is used as verification for this credit. PDP 2.4 has one point available which can be given if “an ongoing program of learning space evaluation to determine

the degree to which design goals are met” is established. Given the usage of the LSRS, this point was awarded.

PDP 2.5 is intended to get institutions “to share findings and lessons learning from the research, planning, piloting, or evaluation of learning space design” (23). This can be done in various forms such as academic papers, social media, blogs, online repositories such as FLEXspace, conference presentations, and so on. If the institution is publicly making information available, the point for this credit can be awarded. Currently, the university is not doing any public publication of information regarding learning spaces, so the point was not awarded.

Section 2 Summary

Overall, Texas State scored relatively well, five out of eight points, for Section 2. Currently, continuous research and prototyping of components is a strength, and the creation of the human-scale prototyping space in Derrick Hall 114C adds to that. In the future, the release of this report as well as other data collected through the LSRS scoring, Faculty Classroom Technology Committee, and student data gathering efforts will help strengthen the university’s standing regarding this section. Learning Spaces’ commitment to researching devices and designs by consulting with experts and online resources and conferences as well as increased efforts to involve various stakeholders is another strength.

Section 3 – Support and Operations (SO)

Section 3 Background

There are seven credits in Section 3:

- SO 3.1: Operational Support
- SO 3.2: Space Orientation and Training
- SO 3.3: Training of Support Team
- SO 3.4: Faculty/Instructor Development
- SO 3.5: Financial Sustainability of Operations
- SO 3.6: Scheduling and Room Utilization
- SO 3.7: Diverse Patterns of Use

Section 3 is the final section in Part A, and it examines what level of support and what kind of usage the space has once it is in operation. In regard to support levels, Section 3 looks at

support for space users, training and professional development for space users, and training for space supporters. There is one planning-type credit in Section 3 which is SO 3.5 which examines financial planning regarding spaces. The final two credits in Section 3 deal with what information about spaces is available to individuals and whether spaces are available to use outside of standard hours.

Section 3 Discussion

SO 3.1 looks at the level and type of support available to space users with the intention that the institution provides “ongoing, timely, physical, and/or virtual support” (25). There is one point available for SO 3.1, but there are three requirements to earn that point: some form of documentation must be available to users that describes the room, users can contact support for assistance from the space, and support professionals can remotely support the space. Drawings that show the ‘default’ room layout, training documents, and images/videos of the space capabilities are forms of verification for this credit.

The point for SO 3.1 was awarded as all three criteria for this credit were met. The capabilities and usage of the space can be found in online documents on the Learning Spaces website as well as in the TXST Technology Online resource on Canvas. In the Help menu in the control panel on the media cabinet, the phone number for the ITAC Call Center is displayed. Users can call that number to receive assistance over the phone or to request a support professional come to the space to assist. Both Call Center employees as well as Learning Spaces employees have access to Extron’s GlobalViewer Enterprise system which gives remote access to a range of devices installed in spaces for remote support.

SO 3.2 is intended to help ensure that space users have access to “orientation and training on the features” (26) in order to ensure smooth operation of the space. There is again one point available in this credit with two criteria to meet. The first criterion is that users have access to – either on a regularly scheduled basis or on demand – to training or orientation that shows how to use all aspects of the space. The second criterion is that online tutorials or documentation be available to users to access. Through these orientation sessions or online resources, users should be given a range of examples showing how the space can be used in a

variety of different manners as well as to connect users with other professionals who can help bring alignment between the space and different pedagogies.

The point for this credit was awarded as both criteria were met, however there are areas where improvement can be made. Currently, on demand training is offered to faculty and staff through the Learning Spaces Training form, and workshops are offered on a regular (once a semester) to those teaching in DLP (Distance Learning Platform) classrooms as well. The same online resources that were mentioned in SO 3.1 – Canvas and online documents on the Learning Spaces website – are available to users.

SO 3.3 shifts focus away from the users and turns it towards the support team for these learning spaces. This credit is included to help “ensure that the learning space support team can troubleshoot, solve, and address commonly encountered problems” (27). The criterion to earn the point for SO 3.3 is that an internal training program be established and used for staff. Other things that can be considered for this credit include the creation and usage of UX tools such as user profiles and user journey maps, professional certifications, and data that describes staff competencies such as response times, incident volume, and so on. The point for SO 3.3 was awarded as Learning Spaces and the Call Center do perform internal training programs.

SO 3.4 seems similar to SO 3.2 at a glance, but it is slightly different. While SO 3.2 looks at training for users – so they can successfully utilize the space and system – SO 3.4 takes that idea a step further to see if there are systems in place that allows a user to maximize the capabilities and potential of the space through development. SO 3.4 seeks “to enable continuous instructional evolution and innovation through faculty development” (28) regarding technology, learning spaces, and instructional strategies. When implemented fully, SO 3.4 seeks to have institutions have a network of individuals such as instructional designers, faculty, and other related staff connected with each other to maximize the development of materials and activities that match the space’s capabilities.

There are four points available in SO 3.4. The first point is obtained if there are online resources for faculty to use that provides them with instructional strategies that are specific to a learning space. The second point can be awarded if there are either in-person or online ‘classes’ where faculty can meet and discuss instructional strategies. The third point is similar to

the second point, but those classes must be part of an ongoing and continuous program that is for faculty who are teaching in “flexible learning spaces” (28). The final point is awarded if training and support is given to faculty to implement inclusive teaching practices. This credit was slightly difficult to assess as the criteria fall more into the scope of the team at Faculty Development. However, from conversations with Faculty Development it seemed apparent that these types of programs are not currently being operated. As such, none of the points were awarded for SO 3.4.

SO 3.5 looks at whether a plan for financial supporting the learning space has been established. This credit is included “so that learning spaces can perform as intended... over time” (30). To earn the point for SO 3.5, two criteria must be met. The first criterion is that there must be a plan that deals with anticipating the amount of funding necessary to operate and maintain the space(s). The other criterion is that there must be a “clear process to annually update the resource management plan and equipment life cycle” (30).

The point for SO 3.5 was not awarded. While Learning Spaces does have a plan that looks at the cost and funding necessary to maintain technology and provide adequate support for operation, it is not always implemented due to funding levels from the IT Department/university. In practice, the plan is more of a suggestion that may or may not be taken.

SO 3.6 checks if there is a system that users can access to check what is installed in a space and the space’s availability. There are three points available in total. Two points can be awarded if two criteria are met. The third point can be awarded if an additional criterion can be met. The criteria for the two points are that there must be a system that allows “instructors to request teaching space aligned with their teaching practices and needs” (31) and that also can show space availability and basic attributes. The third criterion is that there is collaboration between relevant parties to work towards ensuring that spaces are renovated/created in alignment with curriculum and scheduling needs.

Texas State does utilize the Event Management System (hereafter EMS) that provides some basic information about each space on campus as well as that space’s availability. Information included in EMS are things like max capacity, setup types, the room type, and some

technology features. Due to this, two points were awarded. It should be noted that there are some aspects of the criteria, such as the ability to identify spaces that meet their teaching practices and the size/net area per student of the space, that are missing from EMS. The third point for SO 3.6 was not awarded.

The final credit in Section 3, SO 3.7, looks at whether the return on investment (ROI) of the space is being maximized “by allowing for learning engagements during times when classes are not in session, as well as outside normal hours” (33). To earn the point for this credit access to the broader campus community must be possible. Currently, classrooms are only usable during normal hours, and whether students or instructors can reserve usage of spaces for non-academic purpose is unclear. Support for these spaces for non-class usage is also limited. As such, the point was not awarded.

Section 3 Summary

Texas State earned five points out of 12 for Section 3. The university is doing well in regard to support and technical training for learning spaces. However, combining development opportunities for faculty with the technology in the space is currently lacking. Similar to Section 1, official documentation in regard to university policy regarding financial support and lifecycle policies is also missing. Room scheduling and utilization is an area where the university has basic services in place, but improvement is possible.

V. Learning Spaces Rating System Part B

Section 4 – Environmental Quality (EQ)

Section 4 Background

There are seven credits in Section 4:

- EQ 4.1: Daylight
- EQ 4.2: Visual Connection to Nature
- EQ 4.3: Interior Visibility
- EQ 4.4: Lighting Quality and Control
- EQ 4.5: Thermal Comfort and Control
- EQ 4.6: Acoustic Quality and Control

- EQ 4.7: Materials, Patterns, and Forms

Section 4 is the first section in Part B of the LSRS. Part B focuses more individual aspects of each individual space rather than institutional level aspects. Section 4 focuses on the overall environment of the space looking at things like lighting, temperature, and visibility to the outside.

Section 4 Discussion

EQ 4.1 looks at daylight in the space. This daylight can come in the form of “direct access (e.g., windows) or indirect access (e.g., skylights)” (36). Daylight has been shown to have “a substantial impact on mood, circadian health and productivity” (International, L05) and that “children performed better in daylighted classrooms” (Browning, 2014). Of the 248 spaces scored, 148 of those spaces had some form of external daylight. All those 148 spaces had a direct access source of daylight. The 110 spaces that did not have a direct source of daylight were located in interior sections of buildings.



Figure 1 - Window view in THH 205

EQ 4.2 is connected to EQ 4.1 in that looks to see if there is any visual connection to nature in the space. Spaces that have some form of access to daylight were also likely to have some visual connection to nature. EQ 4.2 has two point available to it. The first point can be awarded if there are “interior planted areas or a ‘green’ (planted) wall” (38). The second point is awarded if there are windows that have “natural landscape elements more than 25 feet from

the exterior of the window” (38). This is a requirement pulled from the USGBC’s (U.S. Green Building Council) LEED (Leadership in Energy and Environmental Design) rating system on their section for quality views. None of the spaces scored had any form of internal greenery. Of the 147 spaces that did have windows with external views, 110 of them had a view of natural landscape elements more than 25 feet away. The remaining 38 spaces had trees that were less than 25 feet away.

EQ 4.3 is concerned with visibility within the space. It seeks to ensure that there is “adequate visibility within a space from participants to presenters, to course content, to demonstrations, and to other participants” (39). Spaces were generally given the benefit of the doubt with this credit except for cases where there was either a clear obstruction or the layout of the space clearly would impact a student’s ability to see. Only two spaces did not receive the point for this credit. ASBN 150 did not receive the point due to the very steep incline in its tiered seating. While students could see any presenter or presentation, students seated in the back could not see students seated in the lower front rows and vice versa. The other space that did not receive the EQ 4.3 point was CENT 318. This is due to the fact that there were two columns in the seating area that blocked the view of approximately six students. While other spaces also had columns in them, seats had been rearranged or positioned so students’ views would not be blocked.

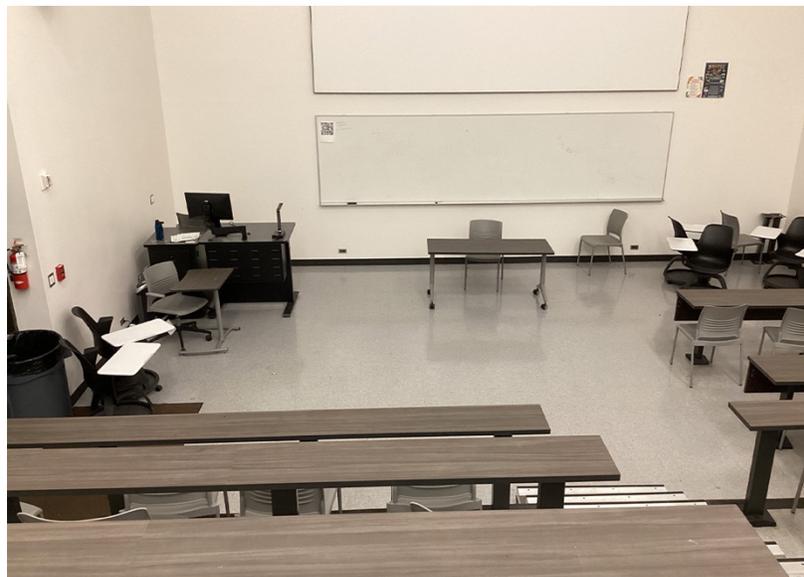


Figure 2 - ASBN 150 did not receive a point for sightlines due to a steep incline

EQ 4.4 looks at the level of control over lights in a space and whether there is a system installed that supports circadian rhythms. If there is sufficient control over the lighting system, a point can be given. A lighting system that supports circadian rhythms can earn a second point. The criterion for the first point is that the system should create “even illumination over work areas, minimizes potential for glare, and offers user-accessible controls with a dimming capability or preset brightness for separate zones” (40).

Only one space, FCS 183 had a system installed that supported circadian rhythms. All spaces did provide a lighting system that had even illumination and minimal glare. The key difference came down to dimming capability. A relatively small number of spaces had actual controls for dimming the lights with the vast majority opting for multiple switches to control zones or inner/outer lights in a set. In scoring these spaces, the key decision came down to a description in the Approaches and Considerations for EQ 4.4, “controls to accommodate a range of different activity use cases... enable users with controls to moderate the lighting to be appropriate to their activities” (41). Ultimately it was decided that if a space offered controls that allowed for light to be reduced, but students could still adequately see well enough to complete a task, that was sufficient to award the point. A reverse perspective would be, if turning off one light forced another to be on (because students could not see), then the point was not awarded. 124 spaces were judged to have sufficient controls over brightness to be awarded the point for the first criterion.



Figure 3 - FCS 183 is the only space to have a circadian rhythm supporting light system

EQ 4.5 looks at the level of control in the space over temperature and other thermal comfort conditions. Multiple research studies have found that temperature plays a key role in student achievement as “a significant positive correlation between student achievement and temperatures falling within the human comfort zone” (Earthman, 12). Researchers have found that “an effective temperature range of 67° to 73° is desirable” (12). A separate study found that while most students had a similar preference for temperature that is not ‘extreme’ in either direction, students that did have a preference for warmer or cooler temperatures did have “significantly (.10) higher levels of achievement when in a preferred thermal environment” (29).

EQ 4.5 has two points available to it. One point can be awarded if there is some form of control over thermal conditions – temperature, air speed, and humidity – through things “such as operable windows, a thermostat, or other” (LSRS v3, 42). The second point can be awarded if there are “supplemental means not only to improve thermal comfort but also to save energy” (42). This criterion describes this as the inclusion of something like a ceiling fan or the ability to have openings both to the interior of the building and exterior for through ventilation. All of the spaces observed did have thermostats installed in the space to control temperature. However, 19 of those spaces did not receive the point for EQ 4.5. This is because the thermostat was either clearly broken (parts missing) or were located behind a locked plastic box that prevented a space user from using it. In total, 229 spaces received the point for meeting the first criterion. No spaces received the second point as none of them had windows that opened or ceiling fans.

EQ 4.6 is concerned with the level of quality and controls of the acoustics in the space. The first point is for some form of passive acoustic controls in the space. This would include things such as treatments, drapes, carpeting or other form of system that is simply ‘there’. The other point is given if there is some form of active acoustic system in the space. Active systems are described in the Approaches and Considerations as a system that either adds a form of ambient noise (sound masking) that helps block out distant noise or helps synthesize sounds to create an even, balanced acoustic environment regardless of where an individual is located in the space.



Figure 4 - Larger spaces often had acoustic tiles installed

A majority (155 out of 248) of the spaces scored did not have either a passive or active system to control acoustic quality. These spaces largely had tile flooring and painted concrete walls with no special treatment. 93 of the spaces scored did have some form of passive system installed for acoustic quality. The vast majority of these spaces had some form of carpeting installed. Often larger, lecture hall type spaces had acoustic tiles installed on the walls. No space that was scored had any type of active system installed for acoustic quality.

The final credit in Section 4 is EQ 4.7 which deals with materials, patterns, and forms. The intent of this credit is “to provide materials, design patterns and forms... in ways that enhance engagement, improve cognitive performance, and reduce stress” (46). The Approaches and Consideration section details more about what kind of materials, patterns, and forms are usable. Materials are things like natural wood or similar things such as stone, leather, etc. Patterns are items that make use of things like the Golden Angle and the Fibonacci series – patterns commonly found in nature. Forms are similar in that they are looking for shapes that are curved as “nature abhors right angles and straight lines” (Browning, 38).

This credit was difficult to score. If looked at in an absolute sense, none of the spaces scored would receive the point as none of them had any natural objects nor utilized any forms or patterns. However, the Approaches and Considerations also states that “research has shown that an environment devoid of sensory stimulation and variability can lead to boredom and

passivity” (LSRS v3, 46). As such, spaces that had taken some measures to provide some sensory stimulation – often in the form of color – were awarded a point for this credit. The difficulty with this decision was, “how much is needed?” Should spaces that have gray furniture receive the point? If there was some blue or green in the tile, was that sufficient? Ultimately, spaces that had some combination of colors added were awarded credit for EQ 4.7. This was 48 out of all of the spaces scored.



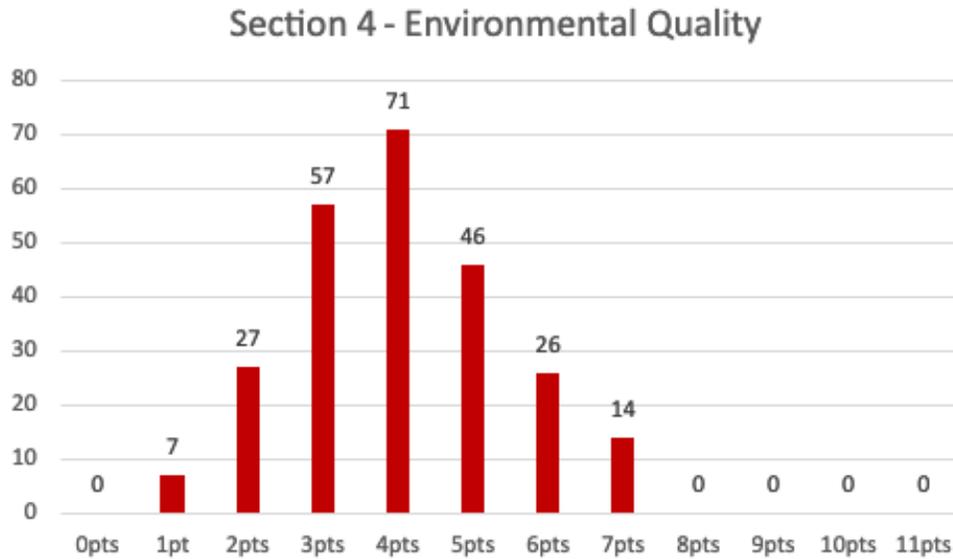
Figure 5 - JOW A205 has a green accent wall and wood-color tables

Section 4 Summary

In total, 11 points were available in Section 4. Overall, most of the spaces scored at or below average in this section. The average (mean), median, and mode for Section 4 was 4 points. The lowest score was 1 point, and the highest score was 7 points.

- 0 points: 0 spaces
- 1 point: 7 spaces
- 2 points: 27 spaces
- 3 points: 57 spaces
- 4 points: 71 spaces
- 5 points: 46 spaces
- 6 points: 26 spaces
- 7 points: 14 spaces

- 8-11 points: 0 spaces



The three weakest credits were Materials, Patterns, and Forms (EQ 4.7, average of 0.19 points awarded), Acoustic Quality and Controls (EQ 4.6, average of 0.38 points awarded), and Visual Connection to Nature (EQ 4.2, average of 0.44 points awarded). The two strongest credits were Interior Visibility (EQ 4.3, average of 0.99 points awarded) and Thermal Comfort (EQ 4.5, average of 0.92 points awarded).

Section 5 – Layout and Furnishings (LF)

Section 5 Background

There are 11 credits in Section 5:

- LF 5.1: Proximities within Space
- LF 5.2: Movement through Space
- LF 5.3: Seating Density
- LF 5.4: Furniture Configuration Flexibility
- LF 5.5: Work Surfaces
- LF 5.6: Seating Comfort
- LF 5.7: Transparency
- LF 5.8: Access to Adjacent Informal Learning Areas
- LF 5.9: Writable Surfaces

- LF 5.10: Physical Storage
- LF 5.11: Future Proofing

Section 5 looks at the furnishings of the space and the level of flexibility it has, the size of the space, the number of students it can hold, and what is nearby.

Section 5 Discussion

The first credit in Section 5 is LF 5.1 which checks if the room is set up “to optimize interaction among and between participants” (49). There is one point available in this credit and it has two criteria requirements. The first requirement is that students can face each other, and the second requirement is that the instructor can easily either have a 1-on-1 conversation with a student or be within 15’ of them. Most of the spaces scored (215 out of 248) received the point for this credit. Spaces that did not earn this point were often larger lecture halls or a similar format where fixed seating made it difficult for students to turn and face each other or for an instructor to be within 15’ of each student due to long seating rows.

LF 5.2 looks at the ability for space users to move throughout the space. Through the criterion for the point and the Approaches and Considerations, this credit has several aspects to it. The criterion mentions the ability to “easily circulate, interact, and form groups” (50) while the Approaches and Considerations also discusses spaces that have tiered floor configurations and universal design principles.

This credit was difficult to assess consistently as there are several different aspects and considerations to take. For example, what if there are pathways around the space or an aisle through the front and center, but if there isn’t much space to move between desk rows or desk columns? Is that “unobstructed movement to easily circulate” (50)? What if there is sufficient space to move throughout the room, but the furniture is not easy to re-configure? The Approaches and Considerations mentions the ability to form different teams and movement when the space is configured for groups. This goes back to the earlier point about the limitations of the LSRS as there are sections that ultimately subjective.

Ultimately, 161 spaces received the point for LF 5.2. The primary concern of this credit was adjudged to be the ability for space users to move throughout the space. As such, the primary consideration used when assessing spaces was the ability for a user to move to all parts

of the space. Examples of reasons why spaces did not receive the point are: narrow rows for users to reach seats, tiered flooring with only stairs, and spaces with furniture that blocked access to areas and were not easily movable.

LF 5.3 looked at the net assignable square footage (hereafter net ASF) per student. To calculate this number, the max capacity of the space was taken from the Texas State EMS. In certain situations when the max capacity of the space in EMS was either not listed or there was a clear difference between the actual max capacity and listed max capacity (e.g., a space that had a listed max capacity of 8 but the space had 30 desks in it), the max capacity in Learning Spaces' FileMaker records was used. The square footage of the space was calculated by measuring the space with a laser measurement tool. The calculated square footage was then divided by the max capacity to find the assignable net ASF.

Two points are available in LF 5.3. One point can be awarded if the net ASF per person is greater than 25. The second point can be awarded if the net ASF per person is greater than 30. Only 14 spaces observed had a net ASF per person greater than 30 and received two points. 23 spaces observed had a net ASF per person greater than 25 (and less than 30) and received one point. The remaining 211 spaces had a net ASF per person less than 25 and received no points for this credit.



Figure 6 - Few spaces afforded more than 30 net ASF per participant

LF 5.4 is concerned with the chairs and desks/tables installed in the space. There are four points available in LF 5.4 with each one concerned with a different aspect of the furniture. The first point is given if the chairs have casters (wheels). The second point is given if the desk or table has casters. The third point is given if the chairs and/or desks/tables are either stackable or nestable. The fourth point is given if there is either furniture at different heights or the furniture is height adjustable.



Figure 8 - Chair in FCS 216



Figure 7 - Standard chairs in new renovations

There was a relatively wide spread of scores for LF 5.4. 78 spaces did not receive any points for this credit. These spaces were largely either lecture hall-type spaces with fixed seats and desks or had older style desks where the desk and chair are attached to each other. 45 spaces received one point for this credit. These spaces largely met the third criterion of having either chairs or desks that are stackable or nestable. 75 spaces received two points for the credit. Most of the spaces had something that was stackable/nestable and chairs that had casters or both chairs and desks had casters. 48 spaces received three points. These spaces had casters on both chairs and desks and something that was stackable/nestable. Only two spaces received all four points. Both spaces had furniture that was also height adjustable in addition to the other three criteria.

LF 5.5 looks at how large the work surface area is for participants. To earn the point for this credit, the work surface had to be at least 720 square inches (30" x 24"). Spaces that had individual desks were simple measured for their width and depth. For spaces that had larger tables used by multiple participants, the full width and depth of the table was measured and then divided by the number of participants that used it. 189 spaces had desks or tables that provided less than 720 square inches of workspace. Many of these spaces had individual desks that were attached to the chair – these often offered the smallest amount of workspace. 59 spaces had workspaces larger than 720 square inches. These were almost always tables that offered more depth than individual desks.



Figure 9 - Standard desks in new renovations

The next credit, LF 5.6 looks if there is “seating that is comfortable for a variety of body types, heights, and accommodations” (54). The criterion for earning the point for this credit is that the seating provided in the space must be “adjustable in at least two dimensions, such as adjustability of seat height, armrest height, back support, right-left handed work surface, etc.” (54). Only 11 spaces observed had seating that was adjustable in at least two dimensions. Most of these seats had seat height adjustability and either armrest height or back support adjustability.

LF 5.7 sees if there is any visibility into and out of the space. The reasoning given for this credit is “to provide visual connections between adjacent but physically separate spaces to

enable exposure and visibility of learning activities” and that visibility into a space “can promote interest, curiosity, and serendipitous learning” (55). Two points are available in this credit. One point can be given if there are “views into and out of the space through the use of transparent materials or the introduction of openings” (55). The second point can be given if a space user has the ability to “control the degree of visibility of transparent materials” (55).



Figure 10 - FCS 179 is a departmental space but has good visibility into and out of the space

This credit was also subject to some level of subjectivity. This is due to the first criteria. What level of visibility is sufficient? If the space has some visibility into the space, but does not really have visibility out of the space, should the point be awarded? Most of the spaces observed had the same basic style of window located on the classroom door. This window was X inches wide and X inches tall. Individuals passing by the door would have some level of visibility into the space, but those inside the space would often have little to no visibility out of the space. Since the credit, in the Intention as well as the Approaches and Considerations sections, tends to have greater emphasis on views into the space, if someone can view what was happening in the space – they could see any presentation and what students are working on – the point for the first criteria was awarded. If only the front or back of the space was visible, the point was not awarded. 188 spaces did not receive the point for this credit. 58 spaces were awarded one point. Only two spaces were awarded two points as they had blinds installed that could control the level of visibility.

LF 5.8 examines the existence of informal learning areas nearby. What exactly constitutes an informal learning area makes this credit slightly subjective. In the Intent section, the credit describes it as a place that allows “learning activities and conversations to extend into adjacent areas, encouraging interaction and extension of the learning experience” (56). The Approaches and Considerations section further details that they should be able to support “short, ad hoc meetings and... collaboration” as well as “discussion before and after class” (56).



Figure 11 - An informal learning area in Ingram Engineering

Based on these descriptions it was decided that as long as there were sufficient chairs and a desk of some form that could be grouped together, that an area could be considered an informal learning area. Areas that just had chairs or benches were not considered an informal learning area since they did not seem capable of hosting meetings or collaborative activities. 180 spaces were adjudged to not have an informal learning area within line of sight from the classroom door. 68 spaces did receive the point for LF 5.8. These spaces were highly localized to certain buildings such as Ingram Engineering, Trauth Huffman Hall, Hines, Nursing, and some floors in McCoy Hall.

Credit LF 5.9 looks at the amount and nature of writable surfaces available in spaces. There are two points available in LF 5.9. One point is given if there are writable surfaces “on more than one wall surface” (57). Another point can be given if there are “multiple movable surfaces/displays... on which they can write physically and/or digitally” (57). 141 spaces did not

receive any points for LF 5.9 as they only had writable surfaces located on one wall surface. 91 spaces received one point for having writable surfaces on multiple wall surfaces (some of these spaces did not have fixed writable surfaces and only had movable surfaces). 16 spaces received two points for having both writable surfaces on multiple walls as well as movable surfaces.

LF 5.10 checks if there is any form of physical storage in or attached to the space. This storage area is intended to hold “auxiliary equipment, materials, or furnishings” (58). 39 spaces received the point for this credit. This number could have been slightly higher as there were more spaces that had closets in them, but they were often locked or blocked off by furniture – both indicating they are not for regular usage by space users.

The final credit in LF 5.11 examines the level of ‘future proofing’ done in the space. This credit is “to ensure that learning spaces can evolve to effectively support new teaching and learning models over time” (59). This idea of future proofing is another one that is highly subjective, and as such, examples given in the Approaches and Considerations served as the basis for judging whether a space had any level of future proofing done. There are five things listed in the Approaches and Considerations:

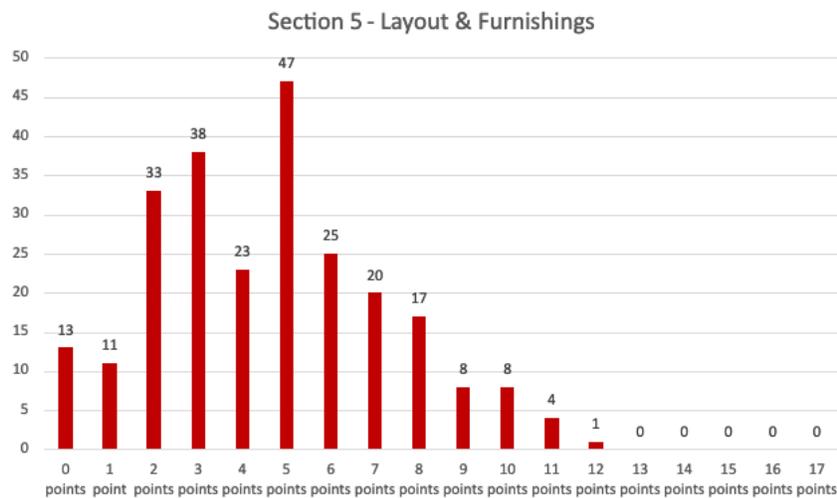
- The ability to reconfigure or change the function of a space
- Distributed power access across the floor area
- Easily accessible solutions to change equipment
- Mobile power solutions
- Wireless connections for technology

The presence of one or more of these things was considered sufficient for the space to have some degree of future proofing. All spaces observed had Wi-Fi available in them, however none utilized things like Bluetooth connections to remove wired connections. The spaces that earned the point for LF 5.11, 18 of them, earned it for having power outlets distributed across the floor area.

Section 5 Summary

In Section 5, there are a total of 17 points available. The average (mean) score was 4.65 points, and the median and mode score were both 5 points. The lowest score was 0 points and the highest score was 12 points.

- 0 points: 13 spaces
- 1 point: 11 spaces
- 2 points: 33 spaces
- 3 points: 38 spaces
- 4 points: 23 spaces
- 5 points: 47 spaces
- 6 points: 25 spaces
- 7 points: 20 spaces
- 8 points: 17 spaces
- 9 points: 8 spaces
- 10 points: 8 spaces
- 11 points: 4 spaces
- 12 points: 1 space
- 13 – 17 points: 0 spaces



The lowest scoring credits were Seating Comfort (LF 5.6, average of 0.04 points awarded), Future Proofing (LF 5.11, average of 0.07 points awarded), and Physical Storage (LF 5.10, average of 0.16 points awarded). The highest scoring credits were Furniture Configuration Flexibility (LF 5.4, average of 1.40 points awarded), Proximities within Space (LF 5.1, average of 0.87 points awarded), and Movement through Space (LF 5.2, average of 0.65 points).

Section 6 – Technology and Tools (TT)

Section 6 Background

There are eight credits in Section 6:

- TT 6.1: Electrical Power
- TT 6.2: Network Connectivity
- TT 6.3: Visual Displays
- TT 6.4: Sound Amplification
- TT 6.5: Audio/Visual Interface and Control
- TT 6.6: Conferencing and Distributed Interactivity
- TT 6.7: Session Capture and Access
- TT 6.8: Immersive Technologies to Support Experiential Learning

Section 6 examines what technologies are installed in a space, the capabilities they allow a user to have, and the level of connectivity and access.

Section 6 Discussion

TT 6.1 looks at whether participants have access to electrical power. There is one point available in TT 6.1 that is given if there is “safe and convenient access to electrical power for end-user devices” (61). The credit describes that this can be done in multiple ways such as floor outlets, wall outlets, portable charging systems, and overhead power taps. Overall, 44 spaces received the point for this credit and 204 spaces did not. While all the spaces did have some form of electrical power available the decision to award the point came down to whether the location of the outlets was accessible and there were enough outlets for a significant number (approximately half) of participants to use them. Most of spaces had a limited number of outlets (4-6) and were on the walls relatively far away from most of the desks.



Figure 13 - Table outlet in IGRM



Figure 12 - Mounted outlet in THH 105

TT 6.2 has to do with internet connectivity and network performance. The criterion to earn the point is quite detailed as it states that there must be “dedicated connectivity to strategic areas of the room that require high-bandwidth/low-latency connections and wireless connections... and capacity to support connections for all occupants, including guests, available in real-time without prior arrangement” (62). All the spaces observed received the point for TT 6.2. as there are two Wi-Fi networks (TXST-Bobcats and TXST-Guest) that can be used by students, staff, faculty, and guests. There is also a wired Ethernet connection available in all media cabinets that are installed in IT Supported spaces.

TT 6.3 is concerned with the number and type of visual displays in the space. There are three points available in this credit. The first point is awarded if there is a “visual display of contemporary standard, appropriate in number and size to the room layout and dimensions” (63). All spaces observed were able to meet this criterion and 216 spaces received one point. The second point is awarded if the display(s) in the room are “capable of simultaneously presenting two or more sources” (63). 31 spaces received two points for this credit. These spaces were primarily DLP classrooms or classrooms in the Ingram School of Engineering. The third point is given if the visual displays in the space are “capable of supporting small-group and collaboration activities for all participants and small-group reporting to the entire class” (63). Only one space received all three points for TT 6.3 as it had displays that connected to each group table.



Figure 14 - Displays in DERR 333

TT 6.4 is about sound amplification and if “all participants in the learning space... hear and communicate clearly in support of teaching and learning activities” (64). There are two points available in this credit. One point can be given if there is “a solution that enables all participants... to clearly and easily hear presenters and one another” (64). The second point is awarded if there is something that “ensures conversations within groups can be easily heard without distraction” (64). This credit is slightly difficult to score as it is subjective to what “clearly and easily” means.

All of the spaces received the point for meeting the first criteria as all of the spaces have a system that can enable all participants to hear a presenter clearly. Systems have a control for an attached microphone if needed and all rooms have speakers placed throughout. Most spaces that may not have a microphone in the room are small enough that it is not necessary (but again there is the ability to use one if desired). Larger rooms usually will have a tabletop microphone or clip on microphone available. No space received the second point that is available in this credit as there is no system in any space that would assist in reducing distractions from other groups or ambient noise.

TT 6.5 checks if there is some form of audio/visual control interface that “enable[s] instructors and learners to seamlessly manage audio/visual content across multiple output systems” (65). There is one point available in this credit with a criterion of the need of “an intuitive interface for device and room settings that allows for the control of A/V technology by instructors and learners” (65). The Approaches and Considerations section further outlines that the interface should be a standard used across campus and it should be able to manage content across multiple devices – both personal and room.



Figure 15 - Gen4 touch control panel

All of the spaces received this point as there is a touch control panel installed in every space that can control the input and output devices connected to the system. The interface on the touch panel also was designed with UX testing with a select number of faculty, although there have been some issues with faculty stating that the current version is not highly intuitive. In newer systems (Gen3 and Gen4) this touch panel is also controllable remotely for support purposes.

TT 6.6 examines the level of support in the space for remote conferencing and distributed interactivity. The first point is given if there is a “room-integrated A/V solution that supports local and/or remote students at multiple locations” (66). The second point is given if the A/V solution “supports faculty-to-student, student-to-student, and student-to-faculty interaction” (66). The Approaches and Considerations also mentions “for hybrid uses, any media created in shared physical space (electronic, dry erase or chalkboard, etc.) should be immediately reflected to the entire group” (66).

All spaces received the point for the first criterion as all rooms have at least a document camera (hereafter doc cam) that is capable of at least capturing video and audio within a limited range (approximately 5 feet). This at least allows remote participants to see and hear an instructor or presenter clearly as long as they stay in that range. Other spaces have upgraded systems such as room camera and ceiling mounted microphones to increase the range. The second criterion was difficult to assess as it hinges on one’s interpretation of what constitutes a “room-integrated AV solution”. Texas State’s DLP (Distance Learning Platform) spaces are the closest to meeting this criterion as it has Zoom integrated into the overall room system and as such, Zoom Breakout Rooms are usable for different types of groups. However, this requires that participants bring their own personal device to utilize it. As such, no space received a point for the second criterion.

TT 6.7 examines whether classes/presentations can be captured and uploaded somewhere. The Intent section lists that users should be able to “record presentations, group interactions, or conversations with local and remote participants” (68), and the criterion for the point states that the user should be able to “capture presenter audio and displayed content and have the ability to record whiteboard, electronic whiteboarding application, or chalkboard

annotations” (68). The Approaches and Considerations section also mentions that these recordings should be available via an LMS.

This credit also was difficult to assess as spaces often met some aspects of the criteria listed, but not all of them. As such, it became a decision, again, on what level of satisfaction was enough to award the point. The university does use an LMS (Canvas) and a platform for uploading and hosting video (Yuja) that is integrated into the LMS. Doc cams do allow for the capture of presenter audio as long as they are in the microphone’s range. All faculty, staff, and students are given a Zoom account which can be used to record a screen when presenting. The key thing missing is that the doc cams are fixed to the desk and have a relatively limited range of motion in the arm – resulting in a relatively limited range for filming. Due to the limits on the microphone and the ability to record whiteboards, spaces that only had a doc cam did not receive the point for this credit. Spaces that had a room camera and ceiling microphone installed, 87 out of 248 spaces, did receive the point for this credit.

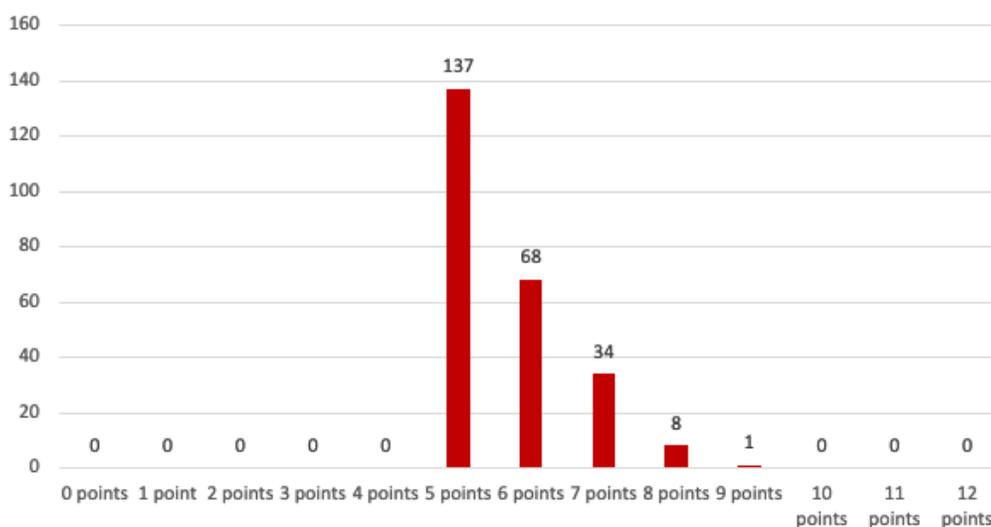
The final credit in Section 6 is TT 6.8 which sees if there are any immersive technologies installed in the space. These technologies included things like AR (augmented reality), VR (virtual reality), MR (mixed reality), and so on. No spaces observed had any form of immersive technologies installed in them.

Section 6 Summary

Section 6 has a total of 12 points available. The average (mean) score was 5.66 points, and the median and mode scores were 5 points. The lowest score was 5 points, and the highest score was 9 points.

- 0 – 4 points: 0 spaces
- 5 points: 137 spaces
- 6 points: 68 spaces
- 7 points: 34 spaces
- 8 points: 8 spaces
- 9 points: 1 space
- 10 – 12 points: 0 spaces

Section 6 - Technology & Tools



The two highest scoring credits in Section 6 were Network Connectivity (TT 6.2, average of 1 point awarded) and Audio/Visual Interface and Control (TT 6.5, average of 1 point awarded). Sound Conferencing (TT 6.4, average of 1 point awarded) and Conferencing and Distributed Interactivity (TT 6.6, average of 1 point awarded) also were high scoring credits, but both had no spaces that received the second point in either credit. Visual Displays (TT 6.3, average of 1.13 points awarded) also had all spaces receive at least one point, but few received any additional points from this credit. Immersive Technologies (TT 6.8, average of 0 points awarded) was the only credit that no spaces received any points. Spaces also did not score well for Electrical Power (TT 6.1, average of 0.18 points awarded).

Spaces in Section 6 scored mostly at or just above average. Compared to other sections, spaces had a narrower range of scores in Section 6, likely due to the standard technology installation package utilized by the university. All spaces have technology that provides similar functionality with newer and specialized spaces having slightly upgraded features and capabilities.

Section 7 – Inclusion (IN)

Section 7 Background

There are three credits in Section 7:

- IN 7.1: Physical Inclusion and Universal Design
- IN 7.2: Cognitive Inclusion

- IN 7.3: Cultural Inclusion

Section 7 is a newly created section that brings out and expands credits that are related to inclusion. In version 2 of the LSRS these ideas in these credits had been included in other sections. EDUCAUSE decided to give these ideas more weight and prominence by creating their own section for them in version 3. The three credits in Section 7 deal with inclusion from a physical, cognitive, and cultural perspective.

Section 7 Discussion

The first credit in Section 7 is IN 7.1 which looks at whether a space is physically inclusive. There are two points in this credit, but they are supposed to either be given or not (there is no one point option). The criteria for this credit are that the institution must be in compliance with all necessary laws (ADA and other authoritative bodies) and that the seven Principles of Universal Design (hereafter referred to as UD) are implemented. These seven principles of UD were originally developed by the Center for Universal Design at North Carolina State University.

- Equitable use
- Flexibility in use
- Simple and intuitive use
- Perceptible information
- Tolerance for error
- Low physical effort
- Size and space for approach and use

It was assumed that the university is in compliance with all laws regarding accessibility, so that criterion was not considered when assessing spaces. As such, spaces were assessed by how many of the seven UD principles they met, with spaces that met a majority (at least four or more) of them being awarded the two points. There was still subjectivity in a lot of spaces as many clearly met 2-3 of the UD principles and partially met another 1-2. Is the ability to partially meet a principle the same as meeting it or does that mean that it does not meet it since it does not meet it completely? It was decided that that since these are checking if something is possible or offered, then it should meet the principle completely to be counted.

Only 32 of the spaces observed were awarded the two points for IN 7.1. These spaces had both chairs and desks that had casters to make them easy to move, desks that supported both left- and right-handed users, and enough space to be able to move the furniture if needed. These spaces also needed to have pathways or enough space to be able to easily reach any section of the space.

IN 7.2 looks at how the space helps make delivered content more cognitively inclusive. IN 7.2 utilizes the guidelines for Universal Design for Learning (hereafter referred to as UDL) as the basis for its criteria. UDL has three items at its base: engagement (why), representation (what), and action & expression (how). Similar to UD in IN 7.1, EDUCAUSE has slightly modified the three to better align with the goals of the LSRS and this credit. Engagement is to “provide diverse and flexible spaces for individual learning, collaboration, and teamwork” (73). Representation is to “provide alternatives for learners to receive and share visual and auditory information” (73). Action & expression has been shortened to just Expression and is to “provide access to assistive technologies; provide abundant writable surfaces and computer displays” (73). These three items are used as a criterion to award a point (total of three points) for IN 7.2.

All the spaces met the criteria for multiple means of representation as spaces have speakers installed throughout them to help with sound amplification, doc cams to help share written content (which can also be shared to a personal device via Zoom or Teams), and the doc cam can also be used to record lectures (with some restrictions) and uploaded or shared. 48 spaces also met the criterion for providing multiple means of expression or multiple means of engagement. DLP classrooms, through their integration with Zoom Rooms, allow students to engage with each other in potentially a variety of different ways. The classrooms in the Ingram School of Engineering, which are designed as active learning spaces, have multiple whiteboards – both fixed and mobile – for students to write on. Only a small handful of spaces, eight of them, received all three points for IN 7.2.

The final credit in Section 7 is IN 7.3 which is about cultural inclusion. The intent of this credit is “to ensure that spaces are welcoming and inviting for all people, regardless of their cultural background or social group identities” (75). There are two points available in IN 7.3. The first point has two criteria to it. One is that the space itself “contributes to a shared sense

of dignity, respect, and community through cleanliness, updated lighting, fresh paint, and well-maintained furnishings and equipment” (75). The second criterion is that the space has “current signage that is positively worded and that respectfully identifies safety, technology, accessibility, and teaching and learning resources” (75). Many spaces were able to meet the first criterion, but very few could meet the second criterion. Those that did (five of them), had limited signs related to student health or were positively worded. The second point in IN 7.3 is that there is “specific visual design and content elements in the form of room décor, signage, art and artifacts, physical and digital displays, and other room features—that affirmatively reflect the community’s diverse cultural backgrounds” (75). There were no spaces that met this criterion, so no spaces were awarded the second point for IN 7.3.



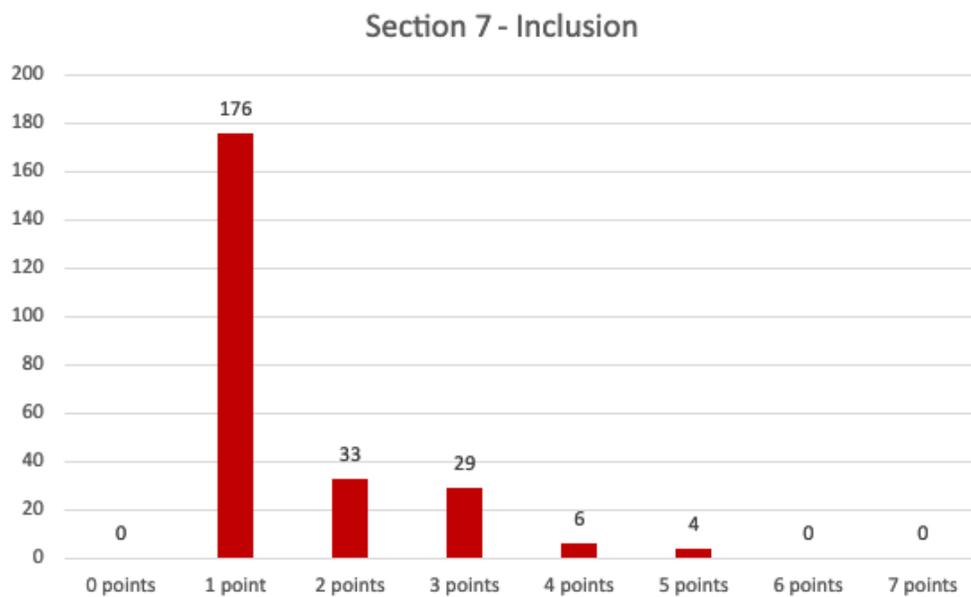
Figure 16 - A board in the hallway in Jowers

The number of spaces that performed poorly in IN 7.3 is related to EQ 4.7 (Materials, Patterns, and Forms). Virtually all of the spaces observed are very plainly decorated, if at all. White walls, generic tile floors, and an accent color here or there is the standard in most classrooms. Many spaces do have a corkboard or some place to post signage, but the vast majority simply do not. It is more common to see the type of signage that IN 7.3 is looking for in the hallways on community boards.

Section 7 Summary

There are seven points available in Section 7. The average (mean) score was 1.50 points. The median and mode scores were both 1 point. The lowest score was 1 point, and the highest score was 5 points.

- 0 points: 0 spaces
- 1 point: 176 spaces
- 2 points: 33spaces
- 3 points: 29 spaces
- 4 points: 6 spaces
- 5 points: 4 spaces
- 6-7 points: 0 spaces



The only credit in Section 7 that scored relatively well was IN 7.2 (Cognitive Inclusion, average of 1.23 points awarded). The other two credits, IN 7.1 (Physical Inclusion, average of 0.26 points awarded) and IN 7.3 (Cultural Inclusion, average of 0.02 points awarded) scored relatively poorly.

Part B Summary

The average (mean) score for Part B was 15.85 points out of 47 total points. The median and mode scores were both 15 points. The highest score was 27 points and the lowest score was 8 points. The average scores for each section in Part B were:

- Section 4: 4.03 points out of 11
- Section 5: 4.65 points out of 17
- Section 6: 5.66 points out of 12
- Section 7: 1.50 points out of 7

Overall, there weren't any sections that scored especially well in Part B. Section 6 – which covered technology – was the highest overall scoring section in Part B (47.17% points earned). Section 7 – which covered inclusion – was the lowest overall scoring section (21.48% points earned).

VI. Current State of Spaces Conclusion

Overall, the average score for spaces across both campuses was 26.85 points out of 72 total points. The average score for the San Marcos campus was 26.89, and the average score for the Round Rock campus was 26.52. The highest and lowest scoring spaces were all located on the San Marcos campus (highest score was 38 points and the lowest score was 19 points). The highest and lowest scoring spaces on the Round Rock campus were 33 points and 22 points respectively.

From an institutional perspective (Part A), Texas State's largest weakness is the lack of a clear strategy, and documentation articulating as such, regarding the academic mission – in terms of the classroom experience – and how learning spaces will aid in helping achieve that. There is also a lack of programs – either short- or long-term – that help faculty or space users maximize a learning space's potential. Training and resources are available that detail how to use a room and its basic functionalities, but these are designed more to just get users up to speed on what to expect.

The décor, or lack thereof, is an interesting point of discussion. Studies on classroom stimulation, which covers the shape/height of the space, amount of décor, and colors of the walls/furniture, have produced differing results, but do seem to agree on a main point – too little is not good and too much is not good. Certain buildings at Texas State, such as Trauth Huffman Hall (THH) and Ingram Engineering (IGRM), seem to do a good job at meeting this middle-ground. THH is not extremely bright or highly decorated but does feature maroon-

colored chairs and carpeting to contrast the white walls. IGRM has a light brown/goldish accent wall at the front and brown-green carpeting. However, most spaces have white walls and white or gray tile floors with limited other colors.

Other environmental factors are hit-or-miss in spaces. Research has indicated that temperature is an important factor in student success. While all spaces observed did have thermostats installed, anecdotal evidence from students and faculty indicated that many either do not function or are not usable for other reasons. Lighting is generally good, but the level of control over the lighting varies greatly from building-to-building. Some buildings such as IGRM, have a high-level of control over the lights but the controls themselves are difficult to use. Acoustics are generally good in spaces, but some larger rooms do suffer from echoing.

There were a large range of furnishings used across spaces – particularly at the San Marcos campus. There were spaces with older individual chairs with attached tablet desks to newer mobile versions. There were spaces with fixed tables, movable tables, tables with power outlets, and just about everything in between. The Round Rock campus, for better or worse, was fairly consistent in its furnishings having larger tables (no casters). Beyond that spaces did not have much else in the way of furnishings. Newer spaces often had more writable surfaces in them. Storage for space users was inconsistent and often seemed inaccessible.

Technology in spaces was relatively consistent across spaces. All spaces provided basic functionalities that one would expect in a classroom. An appropriately sized projector or display, Wi-Fi internet connectivity, some form of camera and microphone to do remote conferencing, speakers to ensure participants can hear, and a single source for controlling the technology. However, spaces don't have much technology beyond that. Power outlets were sparse in most spaces, and those that did have them were often located on walls that were not accessible to most. There was nothing particularly 'advanced' or 'modern' in any of the spaces.

There was not a lot of 'inclusivity' in most spaces. Some principles of Universal Design are included in spaces, but a lack of easily movable furniture – particularly desks/tables – limits options. Many larger spaces isolated those with mobility-related disabilities to sitting in the back or front (usually depending on where the entrance to the space was). The technology

installed in spaces allows for an increased number of methods for users and participants to receive information, but ways to engage with the material or express themselves is often limited due to a lack of writable surfaces. Signs or displays related to cultural inclusivity is virtually non-existent in spaces due to the general lack of décor and signage. Displays related to cultural inclusion can be found on campus, but they are largely found in hallways or other common areas.

VII. Recommendations

There are areas to improve learning spaces across the board. While increasing the level of coordination across the university in terms of academic goals and plans and learning spaces is something that is ideal to have, it is also something that is difficult to achieve in the short-term. As such, recommendations will attempt to focus more on areas that can be achieved in the short-to-medium term and through one or two departments.

Support Recommendations

As new technology is introduced into spaces and become more standard, having a program to aid faculty and other space users in not only learning how to use the technology, but also how to maximize and integrate their lesson ideas with the technology would be hugely beneficial. Having regular opportunities for space users – both new and experienced – to discuss how to use and how to integrate with the space's technology would likely foster a solid environment for faculty to share ideas and form a learning community related to learning spaces.

Environment Recommendations

Adding some color to spaces would likely help with increasing focus and motivation. Using a neutral brown with texture as the primary color along with a green wall for focus can help introduce a simulated visual connection to nature in spaces that do not have any external views. Alternatively, if wall painting is not possible, installing flooring that mimics a natural pattern and color (brown-gray wood feel). For furniture color, light greens and blues, are also things that can improve the environment feeling. Additionally, if there is space available, adding fake plants could also help in place of real plants.

Most spaces currently have a low-level of control over lights in the space. Usually, 2-3 switches that control either front or rear lights or inner-outer lights. A small number of spaces have presets for brightness, but the controls are not intuitive and are not easy to use. Having a dimmer switch to control the overall brightness, that is simple to use, is recommended. This would allow the brightness be able to match screen usage needs but not completely darken the space.

Furniture Recommendations

Furniture – both chairs and desks/tables – that have casters on them are recommended for all standard classrooms. While many spaces have chairs with casters, desks/tables with casters are more mixed. Many recently renovated spaces have light, relatively easily movable desks, but they can still create unwanted noise when pushed across the floor to move them. Those with some form of physical disability may also struggle to push or lift these desks if needed to do so.

Due to the above recommendation, while increasing workspace available is desirable due to the increasing number of devices and items used by students, it is recommended to be a secondary choice to furniture mobility. Most newly installed desks are for one user and have a workspace area of 600 square inches (30"x20") which is 120 square inches lower than the LSRS' recommendation. While it would be beneficial to increase the workspace, this amount is probably sufficient for most 'standard' use cases. For spaces that are connected to departments that have a higher need for space, larger tables with casters can be utilized.

Increasing the number and location of whiteboards is also recommended. Currently, most spaces have whiteboards installed in the front of the space. However, they are often blocked by the projector screen when it is down. As such it is recommended to install at least one more whiteboard on one side of the space to give a secondary option for usage. Movable whiteboards would also be an ideal addition to most spaces, but again they take up space if there is no storage room for them. A possible alternative would be to have a wall where smaller boards can be hung up when not used and taken down and distributed for individual or small group work.

Technology Recommendations

Learning Spaces is adding video conferencing technology – ceiling mounted microphones and room cameras - to spaces as they receive technology upgrades. This should continue until all learning spaces are 'VC Enabled'. While a Point-Tilt-Zoom (PTZ) camera would be ideal as it allows for more flexibility and greater ability to share what a presenter wants, a stationary camera that captures the general presentation area and allows the presenter to move away from the lectern should be sufficient. It is a similar situation with microphones. Ideally the microphone would be able to 'smartly' capture audio from the entire space and

possibly integrate with some form of voice lift system, but at a minimum it should at least capture the presentation area to allow the presenter to move freely without needing to worry that they are moving out of the microphone's range.

Increasing the number of displays in the space to two at a minimum is also suggested. Currently most spaces have one display installed in them. While there are spaces that have two displays (or more) installed in them, these displays show mirrored content rather than allowing for separate content to be shown. The Gen4 system, when used with a Windows-based PC, allows for the presenter to take advantage of a dual display system (the room projector and the computer monitor), but this is not extended to what participants can see or interact with.

Given the increasing usage of personal devices – laptops, tablets, and smart phones – it is advisable to increase the availability of electrical power sources. While most spaces had outlets on the walls, they were often limited in number and more limited in how many participants could access them before it becomes a tripping hazard with cables running across the floor. A battery mobile power towers would be the ideal solution as they allow a group of participants to use them without creating safety issues. However, they require someone to take responsibility for charging them between usage. They would also take up space as they would need to be stored somewhere. Desk-mounted power outlets also offer an alternative, but they generally make the desks fixed in location which is not desirable. Floor outlets would likely be the best compromise solution as they bring the power source closer to more participants, don't take up space, and don't prevent movement of desks or individuals.

Inclusion Recommendations

The addition of casters to the desks and chairs will help increase the amount of physical inclusiveness by reducing the difficulty of moving furniture. The increased ease of movement will also allow participants of different body sizes to easily adjust the furniture as needed. Adding floor power outlets will also help as it allows participants to sit anywhere in the space without confining them to a specific location.

Cognitive inclusiveness will be increased by the addition of more whiteboards or writable surfaces as it gives participants more ways to express themselves. Adding room

cameras and microphones to all learning spaces will also increase/assist with having multiple modes of representation as well.

A recommendation for improving the cultural inclusiveness is to move (or copy) the flyers and materials posted on communal boards in hallways in classrooms. Most spaces have a cork board on some place for flyers to be posted, but the majority are blank or have one posting on them.

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