

Society for College and University Planning SCUP Fellow Research Project Final Report

Using Alumni Surveys to Assess the Impacts of Active Learning Spaces on Development of Collaboration Skills

Jeffrey Ashley, PhD
SCUP Fellow 2018–2019



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Society for College and University Planning

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Our community includes colleges and universities (two-year, four-year, liberal arts, doctoral-granting research institutions, public, private, for-profit, and private sector). Individuals we serve include planning leaders with institution-wide responsibilities, such as presidents, provosts, and other senior roles, to those who are in the trenches, such as chairs, directors, and managers.

WHAT IS INTEGRATED PLANNING?

Integrated planning is a sustainable approach to planning that builds relationships, aligns the organization, and emphasizes preparedness for change.



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MEET JEFFREY ASHLEY



WHAT PROMPTED YOUR CHOICE OF RESEARCH TOPIC?

According to the National Association for Colleges and Employers (*Job Outlook 2016*), today's employers highly rank the ability to work in teams (i.e., collaboration skills) as one of several essential soft skills that graduates need for successful employment. Higher education institutions have adopted evidence-based pedagogical approaches that foster collaboration and other soft skills such as leadership, problem-solving ability, and effective oral communication. To optimize those approaches, campus planners have reconceptualized learning spaces from traditional "row-and-column" classrooms to more innovative physical environments that foster collaboration through affordances such as flexible furniture and digital/analog technologies. But what is the evidence to support that those non-traditional physical spaces (often called active learning spaces) enhance collaboration skills and build career-readiness in graduates?

My SCUP research project addressed that critical question by assessing development of collaboration skills with relation to the physical attributes of active learning spaces. To do so, I formulated and implemented a recent-alumni survey and analyzed responses. What really prompted me was that although current students are often targeted in those types of post-occupancy assessments (e.g., Weber-Scott et al. 2013), alumni have largely been overlooked due to many factors, including the daunting nature of contacting them and historically low response rates from that cohort (e.g., Cabrera et al. 2005). However, I hypothesized that their feedback as former end users of active learning spaces could build further evidence to support links between learning spaces and career-ready, soft-skill development.

THE PROJECT

HOW DID YOU APPROACH AND CARRY OUT YOUR RESEARCH PROJECT?

There is a growing interest in examining the relationship between active learning spaces and development of soft skills. The overall goal of my SCUP research was to evaluate the gains, if any, in the collaboration skill development of students who experienced part of their undergraduate or graduate learning within our campus' active learning spaces (termed Nexus Learning Hubs), and to attempt to pinpoint the factors contributing to that.

To meet the goal, my approach was to design a study to assess perceived impact of use of our campus' active learning spaces by targeting alumni. Although many such studies rely on reflections from current students during or shortly after their use of learning spaces, the unique contribution of my research is that it gathered impact perceptions of learning spaces from persons after they experienced collaborative work activities in their career settings beyond academia.

WHY TARGET ALUMNI?

I created and employed an alumni-specific survey to quantify and qualify important attributes of active learning spaces that may foster collaboration skills. Alumni who graduated two to three years ago and had some courses in our active learning spaces—as well as in traditional classrooms—were the target cohort for my study. You may ask: *Why alumni?* I have spent several years using assessment tools such as ethnographic observations, pre- and post-surveys, and journals of students and faculty to measure potential gains in outcomes of our current students. One day the adage “you don't know what you don't know” made me realize that impacts of learning may take time to sink in for our students—perhaps beyond their life as a student. I've often heard graduates relaying their aha moments to me years after graduation. Time for reflection and appreciation of their learning experiences at college, prompted by working in the real world, seems to instigate more rich contemplation and, sometimes, epiphanies. I wanted to capture those seasoned and well-reflected comments with regard to their experiences in active learning spaces. If our institution's real-world approaches to teaching and learning were to be fully appreciated, our students would need to fully appreciate the outside real world first.

DEFINING THE SOFT SKILL OF COLLABORATION

Hard skills versus soft skills can more easily be measured through tests, projects, and other summative assessment tools. Because our university, like many others, values development of soft skills to increase career readiness, I wanted to assess by surveying alumni how the soft skill of collaboration was fostered in learning spaces that were specifically designed for collaborative teaching and learning.

To date, no alumni survey has been developed to relate soft-skill development to attributes of learning spaces. Therefore, my project began with constructing a survey that would attempt to address the attributes of learning spaces important to development of collaboration skills. To prompt survey respondents to fully understand what was meant by collaboration skills, I first defined collaboration skills through five abilities (figure 1) and ultimately included those on each page of the electronic survey.

Figure 1. Collaboration Was Defined for Alumni Survey Responders to Include Five Abilities.

Communicate effectively, respectfully, and productively with peers and instructor
Manage conflict and build consensus as a team
Listen with empathy to understand and value the views of all
Recognize that collaboration leads to better outcomes
Think differently through sharing of knowledge and approaches

SCREENING ALUMNI FOR THE SURVEY

In order to assess the impact of learning spaces on development of collaboration skills, three necessary traits in respondents were needed. The first was that it was essential that respondents had some experience in the real world (i.e., they were employed shortly after graduation) in order to accurately reflect on their acquisition of career-relevant collaboration skills within our active learning spaces. Second, alumni who recalled having courses in our campus' active learning spaces were needed. Prompted by visuals of our small set of active learning spaces, alumni were asked to recall how many courses they had in those spaces; those recalling never to have had classes in those spaces were not allowed to continue with the survey. Finally, to ensure that alumni could accurately reflect on their recent

experiences (capitalizing on shorter-term memory) within active learning spaces, only those who had graduated two to three years ago were asked to take the survey.

DEFINING ACTIVE LEARNING SPACES THAT OPTIMIZE COLLABORATION

At this point, many readers may be wondering what the campus spaces that foster collaboration skills actually look like. For the current research project, collaborative spaces such as studios, laboratories, and maker spaces, while very effective as learning spaces, were not included. Rather, classrooms that had been overhauled from their traditional row-and-column configurations to active learning spaces were the focus of this study. Although our university has prototyped different iterations of those environments (figure 2), the common features of all of the learning spaces remain constant. They are comfortable and have flexible (movable) furnishings that have multiple configurations so as to optimize student-student and student-instructor interactions; areas that maximize working space per student and capitalize on sufficient space between collaborative groups; an abundance of white-boarded surfaces that allow for analog creation and presentation of content and ideas; and mindfully implemented digital technologies that promote co-creation and sharing of ideas and/or content. On our campus, those spaces, although relatively few in number compared to more traditional classrooms, are well-known (and designated as Nexus Learning Hubs). They are highly sought after by faculty who value learner-centered teaching and learning pedagogies.

Figure 2. Examples of Thomas Jefferson University East Falls Campus's Active Learning Spaces (Nexus Learning Hubs)



DESIGNING AND IMPLEMENTING THE SURVEY

As no known assessment tool existed to survey alumni with respect to learning space attributes and collaboration skill development, my first challenge was to design one. An electronic survey composed of a mix of open-ended and multiple-choice questions was created. The survey was partitioned into six sections with questions targeting specifics in each (figure 3). As predicted by those who have implemented alumni surveys previously on our campus, my response rate (10 percent) was relatively low (n=49), despite the promise of a chance to win a \$50 gift card for participating. Regardless, the responses (a discussion follows) were valuable in their own right.

Figure 3. Alumni Survey Questions Were Designed to Instill Reflection on the Role of Active Learning Spaces in Fostering Collaboration Skills.

<p>Section I. Preliminary Question</p> <ul style="list-style-type: none"> • Do you agree to participate in this study under these terms and conditions? (<i>conditions stated</i>)
<p>Section II. Background Questions</p> <ul style="list-style-type: none"> • Did you attend PhilaU/Jefferson as an undergraduate or graduate student? • What was your major? • Are you currently employed in a position related to the major you studied? • Approximately how many courses did you have in Nexus Learning Hubs during your undergraduate/graduate experience? (Refer to the photos)
<p>Section III. Nexus Learning Hubs + Collaboration Skills</p> <ul style="list-style-type: none"> • To what degree do you agree with this statement? “Nexus Learning Hubs developed my collaboration skills in ways not provided in traditional row-and-column classrooms.” • In the courses you had in Nexus Learning Hubs, what approaches did your instructor(s) use to develop collaboration skills? • Apart from your instructor, what in particular (provide examples) allowed collaboration skills to be developed in Nexus Learning Hubs differently from how they were developed in traditional row-and-column classrooms? • Apart from your instructor, what in particular (provide examples) hindered development of collaboration skills in Nexus Learning Hubs as opposed to traditional row-and-column classrooms?

Section IV. Ranking Attributes that Developed Collaboration Skills

- In your opinion, which was the most important attribute of Nexus Learning Hubs in developing your collaboration skills? (pick only one)
- In your opinion, which was the second most important attribute of Nexus Learning Hubs in developing your collaboration skills? (pick only one)
- In your opinion, which was the third most important attribute of Nexus Learning Hubs in developing your collaboration skills? (pick only one)

Section V. Final Reflections

- Describe your current workspace environment with respect to its ability to foster collaboration?
- To what degree do Nexus Learning Hubs emulate (look like and function as) your current collaborative environments at your workplace.
- What specific aspects of your workplace environments emulate (look like and function as) Nexus Learning Hubs?
- How have your collaboration skills changed (or not) from your undergraduate/graduate experiences to your current workplace? Please explain.
- Do you think your experiences in Nexus Learning Hubs developed your collaboration skills?

Section VI. Closing Questions

- If you could improve on the development of collaboration skills within Nexus Learning Hubs, what would you suggest doing? Please explain.

HIGHLIGHTS OF SURVEY RESPONSES

To engage the reflective process on how learning spaces may have developed collaboration skills, I asked the following open question: *Describe your current workspace environment with respect to its ability to foster collaboration?* Work spaces and their descriptions varied considerably, though around 40 percent of the responses pointed to a lack of collaboration opportunities because of cubicles or isolated desks and closed offices. The remaining responses described varied spaces like retail, open offices, labs, and clinics. To further develop reflection in survey takers, I asked: *What specific aspects of your workplace environment emulates (looks like and functions as) Nexus Learning Hubs?* While 21 percent responded that their current workspace did not look anything like the active learning spaces they experienced on our campus, the remaining respondents mentioned the furnishings and configurations that were conducive to collaboration and enhancing teamwork abilities.

Near the beginning of the survey, alumni were asked: *To what degree do you agree with the statement “Nexus Learning Hubs developed my collaboration skills in ways not provided in traditional row-and-column classrooms”?* Eighty-four percent somewhat or fully agreed with that statement. Toward the end of the survey, I asked a similarly worded question: *Do you think your experiences in Jefferson’s active learning spaces developed your collaboration skills?* Eighty-six percent of respondents felt that their experiences in our campus’ active learning spaces developed their collaboration skills, but responses varied from “a little” to “entirely.” Although worded slightly differently, the responses to those two questions were consistent. The slight increase may be due to the power of the survey in instigating more deep reflection on their past and current collaborative experiences. Regardless, it was promising to observe consistent responses to those questions: Eighty-five percent of alumni respondents felt that their experiences in active learning spaces developed (to varying degrees) collaboration skills.

But what was fostering those developments? Active learning spaces such as our Nexus Learning Hubs were mindfully designed. The objective was to coalesce space, active pedagogies, and technology to ideally result in a sweet spot that would optimize teaching and learning experiences toward embracing collaboration among students and instructors. What had vexed assessments during the past was how to tease out the relative importance of the three forcing functions in the students’ experience within those spaces. A series of questions attempted to solicit those answers.

Responses to the open question—*What approaches did your instructor use to develop collaboration skills?*—were detailed, but most pointed to instructors using group activities and projects, team-based learning, and collaborative group discussions. Some responses detailed the classroom’s attributes, such as the movable chairs, table configurations in groups of four, and the use of personal and large whiteboards. There was an obvious lack of comments about digital technology, which we had consistently noticed in past ethnographic observations and user surveys. Over the past several years, we have observed that analog technologies, namely the abundance of white-boarded surfaces, ranked much higher in importance than digital technologies, such as monitors, computers, and interactive whiteboards.

To gain insight into the non-instructor attributes of the spaces that allowed collaboration skills to be developed, alumni were asked: *Apart from your instructor, what in particular (provide examples) allowed collaboration skills to be developed in Nexus Learning Hubs differently from how they were developed in traditional row-and-column classrooms?* Responses were rich in detail, and, again, like past surveys that polled our current students had indicated, the lower density of furniture, furniture configuration and orientation, and ability to connect with fellow students through those configurations were high on the list of space attributes.

To counter the previous question that referred to space attributes other than the instructor that had benefited collaboration skill development, alumni were asked: *Apart from your instructor, what in particular (provide examples) hindered development of collaboration skills in Nexus Learning Hubs as opposed to traditional row-and-column classrooms?* One fifth of respondents listed “none.” A relatively large number of responses (second after no hindrances) cited technology problems such as digital technology not working, improper placement of monitors, or lack of other digital technologies, e.g., personal monitors (despite the fact that we have a requirement on our campus that every student must have a laptop). The third most prevalent comment focused on the physical space and its attributes as being distracting. Because our campus’ active learning spaces embrace the notion that those spaces should be visible from the exterior, to some degree, some alumni found that that was distracting. As well, colors of furniture and accent walls were mentioned as being distracting. Some alumni pointed out that the decentralized nature of the rooms, and the non-row-and-column furniture configurations, made it difficult to concentrate on the instructor.

While open-ended questions can provide rich details that could feed back into the assessment and refinement of those spaces, more quantitative data addressing the relative importance of space, pedagogy, and technology could be garnered through ranking questions. A pre-survey administered to alumni and current students surfaced seven attributes that were said to be important in developing collaboration skills (figure 4). The attributes were incorporated in the alumni survey where respondents were asked to sequentially rank those in an attempt to quantify their relative importance through the following question: *Which were the first, second, and third most important attributes of Nexus Learning Hubs in developing your collaboration skills?* Attributes that were space related dominated the importance in developing collaboration skills, while pedagogical

methods and the instructors themselves surfaced as the second most important attribute. Technology, largely digital (interactive whiteboards, computers, monitors), consistently ranked as third most important.

Figure 4. Summary of Pedagogical, Space, and Technology Attributes that Pre-Survey Respondents Listed as a Factor in the Development of Collaboration Skills

Pedagogical attributes	Space attributes	Technology attributes (digital and analog)
Instructor’s teaching and facilitating style	Orientation of furniture (being able to face other people and engage in discussion)	Digital technology (computers, wall-mounted monitors, projectors)
The assignments/group projects	The space between furniture allowed for easy movement throughout the room Room aesthetics and comfort level (color/type of furniture, accent walls, flooring choices, etc.)	Whiteboards and white-boarded surfaces

The final question asked was: *If you could improve on the development of collaboration skills within Nexus Learning Hubs, what would you suggest doing? Please explain.* Pedagogies and the instructors utilizing them ranked very high in the open-ended comments. The comments were very insightful, surfacing the greater need for more pedagogical faculty development and/or other faculty support structures for those teaching in the spaces. Suggestions on improvements with technology followed pedagogy. Again, some comments focused on digital technology not always working, indicating a need for technology assistance right when it is needed. Other comments centered on the accessibility of technology. The third most prevalent type of improvement revolved around the physical attributes of the space—namely furniture, light, room temperature, and aesthetics. Those comments will be important when iterating our existing active learning spaces and designing and implementing new prototypes.

SURVEY TAKE-HOME MESSAGES

The study was helpful in building further evidence that active learning spaces foster collaboration skills and identifying a number of important factors to further consider when designing and using those spaces. According to polled alumni from our institution:

- The majority (<80%) felt (to varying degrees) that our active learning spaces developed collaboration skills
- Space attributes (e.g., furniture, furniture configuration/arrangement, aesthetics) ranked highest for fostering collaboration skills (over pedagogy and technology)
- Further faculty pedagogical professional development and/or other faculty supports should be considered to further develop mindful and effective collaborative pedagogies
- Analog technology (namely the abundance of white-boarded surfaces) continues to be highly valued, while digital technology often results in frustration

REFLECTIONS AND FUTURE DIRECTIONS

While alumni surveys proved to be insightful and will drive further enhancements to our active learning spaces, there are obvious limitations to their use. One limitation is that responses are self-reported perceptions of one's acquisition of skills and may not represent actual skill acquisition. One way to build in more power to this survey may be to concurrently survey the employers of alumni regarding the collaboration skills of their employees. That follows the process that educators use where students reflect and then quantify their skills learned while instructors simultaneously evaluate those skills through various course assessments.

Another confounding issue when using alumni surveys may be the halo effect (e.g., Pike 1993). Applied to the current study, that is when an alumnus' responses may be an artifact in which the assessment of a few items halos the entire evaluation. For example, an alumnus who had a very favorable experience as an undergraduate

student may give more positive comments about their institution on any survey related to their experiences at their alma mater.

Finally, there is likely difficulty in separating out acquired competencies, such as collaboration skill development between experiences in active learning spaces versus other learning experiences, in a student's undergraduate time at the institution (Pascarella 2001). For example, we have a general education curriculum that hones soft skill competencies, including collaboration in courses within students' majors and their general education core courses and co-curricular experiences.

While those and other limitations do not nullify the value of alumni surveys, they do point to a need to perhaps augment self-reported perceptions of gains with other assessment tools. In the future, I would like to investigate other assessment options to increase the power of the research for effective planning.

WHAT SPECIFICALLY DID YOU LEARN FROM YOUR RESEARCH THAT OTHER PLANNERS SHOULD KNOW, AND WILL BENEFIT THEM IN THEIR WORK?

While the study was centered on our campus' active learning spaces, the alumni survey developed from the current study could be used, knowing the aforementioned limitations, at other institutions. It could be administered to begin to quantify the relationship between space and the acquired skills that embrace active learning spaces over traditional row-and-column learning environments. By coupling the results of the survey with current student pre- and post-occupancy surveys, ethnographic observations, and faculty surveys and/or journals, a more complete assessment of the power of those spaces to optimize collaborative skill development could be made. Too often campus planners feel the need to "design, build, and move on" to the next project. I would suggest a "design, build, and assess" methodology to amass the evidence that changes have been made to positively move forward in meeting student learning outcomes.

LAST WORDS

HOW DID YOUR SCUP COACHES SUPPORT YOU IN YOUR PROJECT?

I was assigned two SCUP coaches: Nancy Sturm (principal consultant at The Sextant Group, Inc.) and Danuta Nitecki (dean of libraries and professor of computing and informatics at Drexel University). Nancy offered guidance infused from her practical and successful experiences in implementing planning initiatives by planners, and also her superb understanding of the resources of SCUP and its membership. Danuta greatly expanded my existing knowledge of scientific, applied research to an emerging interdisciplinary field that relies on social science, learning science, and space design research perspectives—realms that were entirely new to me, a classic “benchtop” researcher.

The SCUP Fellowship provided me with the time for deep professional development and enrichment, as well as knowledge/expertise to build and disseminate new information for SCUP planners and designers and the tools/understanding to apply to their work. Finally, judging by the interest in my SCUP research project at the SCUP National Conference, I feel that a research-based approach to assessment of campus planning illustrates the need for and interest in further evidence-based approaches for campus planning assessments. Both of my coaches, along with constant and thoughtful guidance from SCUP staff, provided me, someone new to the realm of campus planning, with tremendous support to ramp up my knowledge and abilities in a very short time.

HOW DID THE SCUP FELLOWS EXPERIENCE IMPACT YOU PERSONALLY?

I recently shifted my research interests from environmental chemistry to campus planning issues that focus on the design, implementation, and assessment of active learning spaces. While I managed to quickly navigate campus planning initiatives involving both campus and external stakeholders in a sink-or-swim method, I greatly enhanced my knowledge base, leadership and innovation skills, and strategic planning and assessment methods. I did so by interacting with SCUP members while attending two SCUP Annual Conferences, and working closely with my two mentors, SCUP staff, and many SCUP members who reached out to me based on their interest in my project. Prior to the fellowship, I really had not known much about SCUP. After my year as a SCUP Fellow, I feel that I have finally

found an organization where my knowledge and love for learning space planning is appreciated, valued, and enhanced through discussions with members and dissemination through the organization.

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