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Prologue

by **Tom Shaver**

Higher education has always had a love affair with space. Iconic buildings define campuses and—for many institutions—have become somewhat of a visual brand. Alumni gifts are often earmarked for new buildings, allowing schools to expand their missions. Allocation of space is one of the most passionately debated topics on campuses.

My family's obsession with academic space began in the 1950s when my father, John Shaver, decided to morph his father's architectural firm from a general design practice to one specializing in higher education facilities. In the mid-1950s he was introduced to a Ford Foundation project at Stanford University that cemented the firm's direction. He enthusiastically joined the project and helped shape its contribution to our industry: a framework that quickly became (and remains) the standard by which we assess space utilization and conduct facilities master plans. He was still very focused on space utilization studies and master planning when I joined the firm in 1987.

When we launched Ad Astra in 1996, we knew that space management was both critically important and incredibly complex. Measuring space utilization wasn't enough. First, and most obvious, was that measurement didn't improve utilization; it simply confirmed the need to improve. Second, space was only part of the equation. As my father would say, we use the word "facility" because space *facilitates* something even more important than the instruction that happens in that space. Thus, in a broader sense, scheduling must be embraced as a way to allocate not only space but also faculty to deliver instruction and (ideally) enable students to graduate on time.

We've recently created a peer-comparison database wherein we have analyzed how well 100 colleges and universities allocate their faculty and space. There is significant opportunity for improvement. This book highlights many of the best practices in higher education that can lead to improvement in this critical area. The creative team at The

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University of Texas at El Paso (UTEP) demonstrates in the following pages how to balance resource utilization, student success, and academic freedom in practical ways. In doing so, they help expand our thinking about what is possible—and, arguably, essential—for our industry.

Fundamentally, the big ideas in this book are that:

- Capacity to support academic programming properly—not statistical utilization—must be the focus of strategic space management; and
- What we schedule (that is, the courses we offer) must be part of the resource management (and student success) conversation.

Capacity, Not Utilization

While efficient space utilization is important, focusing on it as a primary goal can be counter-productive:

- It's not effective; you can't improve overall space utilization by measuring it; and
- An institution may not need to improve utilization. Only growing campuses can or need to improve utilization.

Without enrollment growth, a focus on utilization may lead to increased costs (*i.e.*, offering more course sections than are needed and paying adjunct instructors to teach them). Prioritizing the utilization of fixed-cost resources (space) over the efficient allocation of variable-cost resources (part-time faculty) is a classic "win the battle and lose the war" strategy.

A utilization focus is not effective.

Higher education focuses primarily on room-hour utilization when measuring academic space usage. This is the number of hours a typical room is in use divided by the number of hours in the scheduling week. Assuming that the scheduling week for a school doesn't change, the only two variables are the number of hours scheduled and the number of rooms. Thus, improving space utilization means scheduling more hours of activities or taking rooms off line. Clearly, seat fill utilization (the percentage of seats occupied when a room is in use) is another matter (as well as being a strategy that can increase a campus's capacity).

Most institutions and their boards focus on utilization, not capacity. Ironically, the only way to improve utilization is to focus on capacity. A capacity focus addresses primetime bottlenecks, the real capacity limiters. By carefully managing the allocation of those few bottleneck rooms during prime time, a typical campus can support up to 20 percent higher full-time equivalents (FTEs) without adding space. It is worth noting that poorly utilized rooms are usually unpopular for good reasons, and forcing heavier usage of them compromises pedagogy and the quality of teaching and learning.

Improved utilization may not be needed.

Today, most campuses are experiencing flat or decreasing enrollments. This begs the question "why, then, do we need to improve space utilization?" Institutions already own and pay to maintain and operate those buildings. Un-

less we are considering shutting down buildings in order to decrease operating costs, there is no real advantage to increased utilization. In this case, campuses should focus on quality, not utilization, by aligning instructors' pedagogical needs with available room attributes.

Don't forget the students.

Allocating academic rooms should have the end goal of supporting degree completion and affordability. Again, facilities should *facilitate* these greater objectives. This can be accomplished principally by building student-friendly, efficient course schedules.

At a typical college or university campus, only 32 percent of the courses taught are balanced with student course demand. The biggest group of courses (43 percent) is under-filled (*i.e.*, fewer than 70 percent of the offered seats are taken) while 25 percent are over-filled (*i.e.*, one-quarter of students who want to enroll in those courses can't do so because not enough seats are available). While some schools are more efficient whereas others are more student-friendly, all could better align what is taught with students' needs.

Over-filled courses represent a key opportunity to improve student success and satisfaction. Every year, Noel-Levitz confirms that registration is the number-one challenge reported by students at public and private institutions. We need to follow UTEP's lead and redress pent-up demand for required, gateway courses as a first priority.

This is also why we must consider removing unneeded course offerings from the schedule. On a typical campus, approximately 20 percent of the offerings in a major academic term are not needed. The majority of these are "reduction candidates" (*e.g.*, there is demand for seven sections of course X yet we continue to offer ten). For growing campuses, removing unneeded offerings can dramatically improve the ability to meet students' course needs and increase the capacity of academic space, as well as faculty and programs. For campuses where enrollments are flat, it can reduce reliance on part-time instruction, as well as related operating costs.

The Bottom Line

- **Capacity is elastic.** Most institutions that believe they are out of space really are not. Addressing capacity bottlenecks increases most campuses' capacity by 20 percent or more, leading to greatly improved space utilization. Consider the millions of dollars in new construction (not to mention the annual costs to maintain that space) that are spent—needlessly—because of a false belief that capacity is fixed.

- **Scheduling has a significant impact on affordability.** More than 50 percent of the core operating costs at a typical institution relate to instruction and academic space. Even more is devoted to capital costs for academic facilities (*i.e.*, new construction and renovation). Instructional and construction costs can be contained through effective scheduling.

- **Completions are affected by scheduling.** The most direct way to improve time to completion is to ensure that students can get seats in the courses they need. This is

complex, so it won't happen accidentally. Nevertheless, we've seen this happen at UTEP and on many other campuses.

About the Authors

Araceli "Arci" Fleet

Araceli "Arci" Fleet holds B.A. and M.A. degrees in political science from The University of Texas at El Paso. She is an independent space consultant whose main area of expertise is effective space management within the college and university environment. She is well-known for constructing robust spatial databases that aid in strong data analysis as well as for building effective partnerships with campus leadership to successfully adopt new space policies and educate campus customers about increased space usage and efficiency. She is the former Space Manager at UTEP, where she was responsible for the activities described above, as well as spatial reporting/accountability to the Texas Higher Education Coordinating Board.

Elizabeth "Liza" Flores

Liza Flores is Associate Provost for Resource Management at The University of Texas at El Paso. Liza began her career at UTEP in January 1992 as an Undergraduate Student Assistant in the Office of Auditing and Consulting Services. Upon graduating from UTEP in May 1992 with a B.B.A. in accounting, she was hired on a full-time basis as an Internal Auditor I. Flores became the department's first female, Hispanic director in September 2000.

Following her tenure as Director of Auditing and Consulting Services, Flores was named Interim Director of Information Technology and Assistant to the Vice President. In this role, she reorganized and restructured UTEP's Information Technology Department to better serve students, faculty, and staff. In September 2004, she began to prepare for UTEP's Reaffirmation of Accreditation Process, working closely with academia, as well as administration in demonstrating compliance with the Southern Association of Colleges and Schools' standards and requirements.

In June 2005, Flores was appointed UTEP's Associate Provost for Resource Management. She matriculated in UTEP's acceler-

ated M.B.A. program and earned her degree in summer 2010. As the primary intermediary between the Office of the Provost and the Finance Division, Flores' responsibilities include managing all fiscal-related matters for the provost and establishing a mechanism by which resource allocation, including space, is more closely aligned with UTEP's mission and vision. Flores co-chairs the Committee on Space Allocation and Utilization.

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Nohemi Gallarzo is a graduate of The University of Texas at El Paso and serves as Catalog and Analysis Coordinator. Gallarzo enjoys working with campus staff and administrators to maintain data, monitor reports, refine academic schedules, publish the academic catalog, and train faculty and staff regarding scheduling policies and procedures.

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Junius J. Gonzales was Provost and Vice President for Academic Affairs at The University of Texas at El Paso for four years (2011–15). He was founding Dean of the College of Behavioral and Community Sciences at the University of South Florida and was Executive Director of the De la Parte Florida Mental Health Institute from 2007 until 2011. His perspective on space was also informed by his professional service at Georgetown University, the National Institutes of Health, and the consulting firm Abt Associates. He received an A.B. from Brown University, an M.D. with honors from the University of Pennsylvania,

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Jeff Rhodes

Jeff Rhodes serves as University Registrar at The University of Texas–Pan American. He holds a doctorate in higher education administration from Texas Tech University and has served in the student services field for 20 years. In addition to his administrative posts, he serves as an adjunct instructor in the higher education programs at Wayland Baptist University and The University of Texas–Pan American. He is a firm believer in relationships as the key to successful cross-campus collaboration.

Tom Shaver

Tom Shaver is CEO of Ad Astra Information Systems, which he founded in 1994. He has been responsible for the strategic direction of much of the development of Ad Astra's software and reporting systems that have been licensed to more than 800 college and university campuses. In 2004, he authored a successful U.S. business process patent application that protects Ad Astra's inventions in the scheduling software market. Shaver also led Ad Astra's efforts in developing the Higher Education Scheduling Index, a peer database that enables institutions to benchmark their faculty and academic space allocations against peer institutions and track them longitudinally.

Amanda Vásquez

Amanda Vásquez earned B.A. and M.A. degrees in political science from The University of Texas at El Paso and a Ph.D. in educational administration from New Mexico State University. Her research interests center on equal access to higher education for historically underrepresented student populations and sense of belonging for non-dominant groups on college campuses. She currently serves as Senior Director of Enrollment Services at UTEP, overseeing undergraduate admissions, registration and records, financial aid, and testing and assessment. Prior to this role, she served as Associate Registrar, overseeing academic scheduling, management of the course catalog, and office activities related to UTEP's student information system. She also served previously as Curriculum and Academic Reports Coordinator in the Office of the Provost, managing selected accreditation reports, new program proposals, and curriculum revisions, and serving as a contact for internal and external units, including the Southern Association of Colleges and Schools, The University of Texas System, the Texas Higher Education Coordinating Board, and UTEP's Enrollment Services and Undergraduate Studies. As a result of her work with Ellucian's Curriculum, Advising, and Program Planning (CAPP) degree audit tool in the Banner Student Information System, Vásquez was asked in 2011 to serve on Ellucian's CAPP Steering Committee. She also serves on Ad Astra Information System's Client Advisory Board. Prior to her career at UTEP, Vásquez was a teacher in the Ysleta Independent School District in El Paso, Texas.

Craig Westman

Craig Westman began his career in higher education at Florida State University, where he served as Registrar for the Center for Professional Development. He then worked at Ferris State University for nine years in a variety of positions—as Registrar, Interim Director of Admissions and Recruitment, Associate Dean for Enrollment Management, and finally as Interim Assistant Vice President for Student Affairs and Dean of Enrollment Management. Westman currently serves as Associate Vice President for Enrollment Management Solutions at The University of Texas El Paso. He is a frequent speaker at conferences in the United States and abroad. His research has focused on strategic enrollment management, the gamer and millennial generations, customer relationship management strategies, communication management systems and strategies, online communications, and the role of user-generated content. Westman has authored and edited numerous books and articles and has been a consultant to numerous colleges and universities on issues related to strategic enrollment management.

Introduction

by **Amanda Vásquez** and **Craig Westman**

Webster's New Collegiate Dictionary defines "space" as

- a period of time
- a blank area separating words or lines
- a limited extent in one, two, or three dimensions
- area, room, interval of space or time
- a boundless three-dimensional extent in which objects and space are independent of what occupies it—called also *absolute space* (Webster's 1977).

It is interesting that these definitions all apply in the college or university setting.

Time as a Period

Academic space deals directly with the definition of "a period of time." Scheduling officers are well-versed in this definition as they continually place class sections into time period(s) on a scheduling matrix. Indeed, "space as time" is very important to scheduling and to using academic space appropriately. As Frank Lloyd Wright noted, "Form does follow function"—especially when "form" is "a period of time" and "function" is course sections that need space.

Time as a Blank Area

Academic space is a "blank area between words or lines" insofar as it should not have any area that is not being fully utilized or that is "blank." "Blank areas" are often discovered when a new (or even well-seasoned) scheduling officer or registrar decides to inventory all space within academic buildings. Often these inventories, which are important to any academic space or facilities officer, yield additional "hidden" spaces (often hidden by an industrious departmental office) that could be used as classroom space and so relieve primetime compression issues (primetime being

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between 9 a.m. and 3 p.m. at most campuses). "Blank areas" are rare and valuable three-dimensional teaching space(s) often not found within the space officer's inventory and cannot be accessed using the building's master key. These spaces present both opportunities and challenges for academic space officers; emails arguing for access to and clarifying who owns such "found" space typically are exchanged among vice presidents, deans, chairs, the registrar, and scheduling officers. "Blank areas" can also be found within the matrix's Tetris-like puzzle pieces. These spaces are created by courses that do not adhere to the matrix's back-to-back scheduling rubric, and they contribute to the loss of effective room utilization across a scheduling week.

Space as Dimensions

Academic space exists across multiple dimensions. One dimension is within the institution's student information system (*e.g.*, PeopleSoft, Banner, etc.), or space scheduling software used to calendar and manage its academic space. This dimension may also be exemplified by the reports academic departments use to "roll" a new term or to "update" their course section attributes, *e.g.*, professors, times, days, locations, etc. Academic space also exists as a two-dimensional entity within either an SIS or space scheduling software as photos. Photos provide a two-dimensional representation of a classroom's set-up in terms of its physical elements or inventory, such as seating, technology, tables, configurations, lighting, etc. Space as a three-dimensional entity is most important: It is what others

within the institution "own." Space as a one- or two-dimensional unit is superfluous to its actual existence and ultimate ownership. Its three-dimensional existence defines space as "real." In academic scheduling terms, "Please schedule my independent study in which four students are enrolled in the 500-seat auditorium across from my office. You know—the room *it has always been in*" (that is, "the room I own between 11:00 and 11:50 a.m. on Mondays, Wednesdays, and Fridays").

The dimensional definition feeds into the notion that space is truly defined as an "area" or a "room." It is here where academic space meets the primal desire to control or "own" a piece of real estate. History is replete with examples of the need to own and create space: From the pyramids of ancient Egypt to the movable teepees of Native American cultures, space mattered. And, when space already exists—for example, in the form of a cave—humans decorate it to make it their own. (Consider the cave paintings that exist from Africa to Australia to North America. Some of the most famous—in Lascaux, France—date from 30,000 to 10,000 years ago [Sayre 2013].)

This brief history of space is included here to help the academic space officer understand that when he encounters resistance to "opening up" space that is under- or mis-utilized and/or "owned," there is a historical basis for such opposition. Knowing this can help the careworn academic space officer manage the last troublesome definition of space: a "boundless three-dimensional extent."

Space as a Boundless Three-Dimensional Extent

Many a space officer has jokingly referred to academic space at his institution as "the final frontier." Often, he will also mention "exploring strange new worlds" when referring to the "boundless" nature of physical space on campus: a "boundless three-dimensional extent in which objects and space independent of what occupies it—called also *absolute space.*" "What occupies it" is what academic and non-academic space is all about. Try telling deans or department chairs that their space exists "independent of what occupies it." To do so would result at best in being laughed out of the office. "Absolute space" is a concept that many administrators may not wish to entertain. That said, higher education institutions that work within a state system or a strong/intrusive legislative environment that has defined usage/capacity metrics are more willing to accede to the idea of "absolute space"—especially when the funding of new buildings is linked to a space utilization index/score that demonstrates the need for more space. (*See* Chapter 4 for a discussion of this type of scoring of academic space.)

At some institutions, "absolute space" exists when the provost and/or president "pulls space in," noting that all space belongs to the institution. Often, such action is driven by the need to comply with space scoring dictated by the state, system office, and/or internally by the president or provost who seeks to better utilize the institution's physical capital. "What occupies it" carries significant metaphorical and realistic weight, as when space is carved out or repurposed for new grants, academic programs, revenue-generating professional programs (*e.g.*, summer camps), and faculty/staff hires. In such cases, having a well-tuned space management plan with related processes and policies is vital to handling competing needs for limited "absolute space" (*see* Chapter 5).

About this Book

This book is part case study in that it examines how The University of Texas at El Paso has adopted and implemented some best practices to manage its competing academic space needs. Part how-to book, it includes many helpful reports, plans, policies, and procedures. Part guide, it is a comprehensive resource on how to begin space planning on campus. This book begins with the role of the provost/vice president of academic affairs in managing academic space: As the chief academic officer, she must manage the many competing priorities (new grants, new programs, etc.) that have an impact on space. An important aspect of changing an institution's culture is having an effective "space committee" of vested institutional leaders—typically vice presidents.

Chapter 2 explores the role of vice presidents as committee members and stakeholders of all "absolute space." When this collective agrees about space usage, priorities are clarified and conflict is dispelled. Chapter 3 discusses the critical role of the registrar in managing academic space—particularly in terms of outreach to facilities. Ultimately, facilities is responsible for ensuring the optimal functionality of all space on campus in terms of HVAC,

lighting, and, often, technology. The chief facilities officer, in concert with the registrar, is often also responsible for reporting space utilization data to a system or legislative office.

In Chapter 4, the authors explore how academic and facilities coordination works at the functional level. A strong working relationship between facilities and the registrar's office is critical to effective space management, from classifying rooms to ensuring proper technology in academic and non-academic space to meeting teaching, research, and/or general operational/office needs. Chapter 5 addresses the changing of space culture. Data are the key to eradicating oral traditions and focusing on true institutional needs. The chapter considers how a scheduling office can effectively work with (not against) deans, department chairs, and faculty in order to effectively manage academic space.

Chapter 6 describes how a scheduling office can help departments create and maintain term-based schedules. The scheduling office helps negotiate the variety of space management issues—for example, rolling terms versus zero-based term scheduling; web scheduling versus native SIS (*e.g.*, Banner, PeopleSoft, etc.); SOP (standard operating procedures); and, finally, fall/winter term versus summer scheduling. This includes moving scheduling from the at times "clunky or cumbersome" Internet native environment to a more user-friendly interface.

Chapter 7 explores what is needed to enact an effective external/internal audit and/or assessment of overall academic space management. Properly supporting the academic

space office is also discussed, as is making full use of student information system technology and third-party interfaces. Leveraging one's current SIS and purchasing a third-party tool should be paramount and should be viewed as an institution-wide decision with the end goal of using data to inform space-related decisions. Absent these, effective space management is a nearly impossible task. Finally, in Chapter 8, the authors consider the implications of big data for managing academic space in the future: Advances in degree audit systems, scheduling based on students' course needs, and surveys of students' commitments outside the classroom (*e.g.*, work, family obligations, etc.) could all factor into scheduling. It is hoped that readers will take away from these chapters strategies that might help them more effectively manage space on their campuses.

Managing Academic Space— Not a New Topic

Will the authors consider everything related to academic space management? Of course not. Space takes on the "spacific" (misspelling and pun intended) nature of the institutional environment in which it exists. A 1960 AACRAO study entitled "Normative Data on the Utilization of Instructional Space in Colleges and Universities" notes this fact. (The study is reproduced in its entirety in Appendix A.) The report's authors, Doi and Scott, note a few other salient issues:

...[T]wo generalizations can be made about the relative efficiency of use of instructional space between large and small

degree-granting institutions and between private and public colleges and universities.

The first is that, among degree-granting institutions of higher education, those with larger enrollments make more efficient use of their instructional facilities than do those of small enrollments....

The second generalization is that, among degree-granting institutions, privately controlled institutions use their instructional space about as efficiently as do publicly controlled institutions of comparable size. There appears to be some difference in efficiency, but the degree of difference does not justify a separate set of norms for publicly and privately controlled institutions of comparable size groups.

The major conclusion to be drawn from the comparisons of the median scores reported in this study...is that...[the analysis of the numbers] have a high degree of

stability. ***It might also be said that many institutions have yet to make really efficient use of their institutional facilities*** [emphasis added] (pp. 12–14).

Has much changed since 1960? Though beyond the scope of this work, it would be interesting to see what finding one could unveil given the ubiquity of data extraction abilities into flat files. As institutions, we have access to more computer-based software tools to help us utilize facilities more efficiently. But the big question is whether we are in fact more efficient today. Software alone cannot maximize an institution's limited resources. Rather, it takes collective will, starting at the top, and proper processes and policies to maximize the efficient use of capital. We hope this work will help higher education institutions better utilize one of their most valuable commodities: space.