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# Academic Library Seating: A Survey of Usage, with Implications for Space Utilisation

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# Academic Library Seating: A Survey of Usage, with Implications for Space Utilisation

## **Abstract**

Between June and October 1996 the University of Wollongong Library conducted a survey of patron seating usage with the aim of a) quantifying such use; and b) identifying areas where seats could be removed to accommodate the growth of the collection. The survey indicated that maximum usage of the 648 seats available for study was 66%. This supported a conservative reduction of seating numbers by 12%, resulting in minimal impact on patron usage. The removal of seats enabled the installation of additional shelving and a compactus. The findings have facilitated collection expansion for a further five year period.

## **Keywords**

space utilisation, library seating

## **Disciplines**

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# Academic Library Seating: A Survey of Usage, with Implications for Space Utilisation

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**ABSTRACT** *Between June and October 1996 the University of Wollongong Library conducted a survey of patron seating usage with the aim of a) quantifying such use; and b) identifying areas where seats could be removed to accommodate the growth of the collection. The survey indicated that maximum usage of the 648 seats available for study was 66%. This supported a conservative reduction of seating numbers by 12%, resulting in minimal impact on patron usage. The removal of seats enabled the installation of additional shelving and a compactus. The findings have facilitated collection expansion for a further five year period.*

## Introduction

In a post-Keating environment of budget cutbacks, campus-wide reshaping and an ongoing need for academic institutions to maximise static resources - whether they be people, equipment or buildings - Australian university librarians are being called upon to reassess the management of resources, with the aim of making improvements and generating savings. From the provision of services, collection management and the utilisation of space within the work environment, all aspects of library operations are receiving critical evaluation. In the course of such activities data analyses will become an issue, assisting in validating or disproving impressions of 'how things are' and how they can be improved. It is with the aid of statistical information that recommendations can be made to the funding bodies and administrators responsible for building extensions, equipment upgrades, staff hiring and retention, and bookvote increments.

Increasingly librarians will be called upon to justify management of operations within their organisations, whether as a result of Quality assessment requirements or the aforementioned budget cutbacks and changes brought about by the new coalition government. Performance statements must be backed up by facts, not by anecdotes or assumptions. As part of the challenge to quantify what they are doing and who they are serving, librarians must identify the appropriate type of information necessary to plan for the future and better serve their clients. Unfortunately it is often the case that little in the way of relevant information is at hand, for data collection and presentation is a task that did not historically receive much emphasis within library organisations, though the gathering of loans and collection statistics has long been a standard practice. Statistical literacy then becomes an important issue. These problems will also need to be addressed as Quality processes are developed within an institution.

As part of the ongoing process of critical evaluation and forward planning, and arising from a realisation that space for collection expansion at the University of Wollongong Library would become critical by the year 2000, the University Librarian formed a Quality Team, the Space Exploration Team, in early 1996. The mission of the team was 'to review current utilisation of space in the Library and recommend strategies to accommodate future growth and development'.<sup>1</sup> The Team was to report back by the end of the year with realistic and achievable recommendations for space savings for a decade.

As the Team went about its work, it very quickly realised some baseline data exercises would be required in order to fulfil its mission. Primary data was sorely lacking in a number of space related areas within the Library and a general audit of floor space was required. During the previous building expansion program in 1985-87 a detailed analysis of space needs had been carried out,<sup>2</sup> and recommendations were included in the final design brief which would provide the necessary space to accommodate growth of the collection to 1996 assuming a) EFTS enrolment did not exceed 6,000; b) the University did not introduce teaching or research programs which would require special physical resources to be provided in the Library; c) the building would only be used for Library purposes; and d) the rate of book acquisition would continue at the rate of 16,000 to 20,000 volumes per year. Of these four basic premises, only the last was applicable. By 1996 EFTS numbers had nearly doubled to 11,000; a Law Faculty was created and required a specialist Law Library service, which is now housed in the Main Library; the Library was heavily involved in teaching information literacy; and the building had a number of tenants, including Information Technology Services and Student Equity. As a result, by 1996 there was an urgent need to find space to accommodate short to medium term collection expansion and changes in Library use associated with the introduction of new technologies such as CDROM databases and the Internet. Specifically, the Library needed space for the expansion of the Main Monographs Collection, the Law Library and installation of a multimedia laboratory.

With no recent hard data available inhouse on basic space requirements for areas such as the collection, staff facilities or patron seating, the Quality Team was unable to answer the basic questions such as: How many people are using the Library daily during session and out of session? To what degree was Library seating being overutilised or underutilised? Which areas of shelving would face critical space shortages over the next five years? Which areas of the Library could accommodate collection expansion?

In order to answer these questions and in line with the space planning process, detailed Library floor plans were prepared and a shelving survey carried out to ascertain present capacity and future needs based on known and projected collection growth.<sup>3</sup> An audit of space utilisation within the building was also compiled within the report. While this data was critical in revealing the current environment and how space was allocated, the audit did not necessarily provide direction for the future, or clearly reveal how Library patrons were making use of this space. For example, patron seating was one functional use identified as consuming a substantial amount of space within the Library. At the time of the survey the Library provided 648 study carrels or tables, plus additional seating for catalogues, CDROM workstations and computer laboratories and teaching rooms, bringing the total number of seats available for use by Library patrons to 951. The Quality Team looked for some space savings to be made in this area, however, in order to achieve this it would be necessary to determine the degree to which present seating was being used and the amount of seating required to best service the campus population. Information on accepted seating standards and world best practice was also sought.

## Patron Seating Standards

Seating is clearly recognised throughout Australian and overseas academic libraries as an important element of library design and client service; with the primary function of any library building being to accommodate collection materials, staff and clients. Ideally a seat would be available for every library user at peak times and the 'Full' sign would never go up. But the determination of the number of seats necessary to satisfy demand is problematic. How many users require seating in an academic library at any one time: 20%, 50%, 80% of total enrolments? What of non-enrolled clients, how are they to be factored in?

K.D. Metcalf, in his classic text on academic library space planning published in 1965, identified five groups of users requiring seating for study and research: undergraduates, postgraduates, academic and general staff, academic visitors and others such as the general public.<sup>4</sup> In a detailed discussion on seating, he noted examples of American academic institutions providing anywhere from 10 to 50 seats per 100 students, before concluding that 'no definite formula can be proposed to determine the percentage of undergraduates whom the library should be prepared to seat at one time.'<sup>5</sup>

The British Library Association, in standards issued during 1968 for polytechnic colleges, though applicable to universities, recommended 1 seat for every 4 students studying science, 1 for every 3 studying the humanities and social sciences, and 1 for every 10 part-time students. J.M. Orr, in discussing these findings, suggested a generous 35 square feet to be allocated per study area and that ideally seats be located in areas which are quiet, isolated from visual distraction, accessible to study materials, comfortable and light and airy.<sup>6</sup> The University Grants Committee in 1974 modified the ratio to 1:5 for arts students and 1:7 for science students, inclusive of academic staff and postgraduates,<sup>7</sup> while the Atkinson Committee suggested one place for every six students as a general norm.<sup>8</sup> This figure was deemed too low by the library profession and criticised accordingly.<sup>9</sup>

American librarians have wavered between allocating precise quantitative standards and endorsing generalised common techniques. During 1994 the American Association of College and Research Libraries issued draft standards for patron seating in the following terms

Space for users: The seating requirement for the library of a college when less than 50% of the FTE enrolment resides on campus shall be one for each five students. That for the library of a typical residential college shall be one for each four FTE students. Each study station shall be assumed to require 25 to 35 square feet of floor space, depending upon it's functions.<sup>10</sup>

No specific seating standards have been set in Australia. The National Special Libraries Committee guidelines in 1993 merely stated that 'Adequate table space shall be allowed in a quiet area for those who are reading or undertaking research. In addition it may be necessary to provide separate carrels or study rooms for individual readers.'<sup>11</sup> The Higher Education Council's 1990 report on Library Provisions in Higher Education Institutions was the most useful in identifying standards applicable to Australia.<sup>12</sup> It included specific sections on study space (6.12-6.13), with discussion on both general and quantitative considerations. The report noted that 'A common guideline in Australia has been one seat for every five full-time equivalent students, with a space allocation of 2.75m<sup>2</sup> per seat', however there was a qualifier, namely that 'it is unlikely that any formula will provide a suitable guide for all campuses.'<sup>13</sup> The HEC came to the conclusion that a pragmatic approach to seating planning,

based on actual demand, was the most appropriate path to take. However it failed to define 'actual demand' or suggest a method for its calculation. It further recommended: a) The Australian Vice Chancellors' Committee develop a standard methodology for measuring the use of seating, based on the method described by the Cambridge University Library Management Research Unit;<sup>14</sup> and b) all libraries conduct surveys, using the Cambridge method, of the use of seating at no more than three year intervals and make appropriate variations of seating based on the results.<sup>15</sup>

Though no specific standard had been adopted in Australia, relevant data on the subject of seating in academic libraries was available. Since 1960 the University, College and Research Libraries section of the Australian Library and Information Association had annually published detailed statistics on seating in Australia and New Zealand academic institutions, reproduced in *Australian Academic & Research Libraries* (AARL) since 1970. The 1995 edition contained data on 'formal study seats, casual seats and classroom seats' and ranked the thirty nine major Australian universities according to seating places available per 100 full-time equivalent (FTE) population members (Table 1).<sup>16</sup>

Table 1. Seating Places - Australian University Libraries

<b>Institution</b>	<b>Seats per 100 pop. member</b>	<b>FTE Population</b>
Murdoch University	38.11	7295
Bond University	32.06	1653
University of Western Australia	20.27	13485
Avondale College	18.69	712
Southern Cross University	16.91	5500
Macquarie University	16.25	14585
Flinders University	16.15	9976
Australian Catholic University	15.50	7491
University of Adelaide	15.42	13450
James Cook University	14.25	7988
University of Queensland	14.11	25301
University of Tasmania	14.06	11516
Ballarat University College	13.33	3999
Australian National University	13.27	12090
University of Sydney	13.07	30192
Victoria University of Technology	12.44	12102
Monash University	12.39	34635
Edith Cowan University	12.25	13505
Charles Sturt University	11.78	12803
Swinburne University of Technology	11.69	8146
University of Melbourne	11.44	29630
University of Newcastle	10.47	15186
La Trobe University	10.31	18680
University of Technology, Sydney	10.12	17247
Curtin University of Technology	9.78	17574
University of Western Sydney	9.71	20114
Queensland University of Technology	9.48	23269

University of South Australia	9.21	18803
University of Wollongong	9.13	10414
University of New England	8.84	9616
Deakin University	8.82	19059
University of New South Wales	8.77	26152
Griffith University	8.49	16730
University of Canberra	8.22	7291
Australian Defence Forces Academy	8.08	1659
Royal Melbourne Institute of Technology	6.60	21822
Northern Territory University	5.67	7230
Central Queensland University	4.35	6228
University of Southern Queensland	3.13	9490

The figures range from a low of 3.13 seats per 100 FTE population members at the University of Southern Queensland to a high of 38.11 at Murdoch University, with a mean of 12.85. The University of Wollongong Library was ranked twenty ninth, with 9.13 seating places per 100 FTE population members, serving a population of 10,414 (ranked 24th).

While this information is significant, it does not indicate usage trends or explain the variations between individual institutions. In the case of Wollongong University Library, a figure of 10-12 seats was considered desirable when planning extensions to the present Library building during 1985-87. The AARL statistics reinforce this is as the approximate norm. While it is obvious the removal of seating would detrimentally affect the AARL ranking, this may not necessarily reflect the quality of the service the Library provides to its clients, especially if the seating was being underutilised and by its removal much needed space could be acquired for collection expansion and other prioritised uses.

The Quality Team therefore considered a seating survey necessary to clarify usage patterns at Wollongong. Arising from the Team's initial findings a general Library client usage survey was also implemented. The methodologies employed and preliminary findings of the surveys are outlined below. It is envisaged both surveys will be repeated during 1997.

### **The Seating Survey**

A survey of Library seating was conducted from 20 June to 30 October 1996. The primary aim was to quantify client usage patterns and identify areas where seating was underutilised or deficient. Depending on results, space would be made for alternative uses or otherwise improved. Surveys of seating use within the Library had not been conducted since the current Library building was completed in 1988. Previous information was based on anecdotal evidence as to whether seating places were being used and if usage had varied over time. Library staff, in discussion with the authors, generally considered the present seating numbers were adequate, though no data was available to verify this. A recent client survey revealed clients wanted more quiet study areas, but did not indicate more seats were required. It was noted during the decade of 1970 to 1980 and prior to the expansion of the Library building to its present form, that there had been complaints made in regards to the lack of sufficient seating for study purposes, though during this period the Library building was recognised as small and these concerns were substantially addressed with the building extension.

## **Methodology**

The survey was conducted in the Main Library building. Loans and Information Desks, Reference, Reserve, main photocopy room and Special Collections are located on the ground floor; the Main Monographs collection, Law Library and ITS Computer Labs are on the first floor and the Serials Collection on the second floor. Staff work areas and patron seating is present on all levels. The survey was a baseline exercise, with no recent data set to build upon. The approach involved an investigation of the 648 seats which as of the 20 June 1996 were available within the Library for use by clients in association with study or research. The majority of seating was in the form of individual study carrels, though multi-seat tables are also available. Seating associated with computer workstations, e.g. CDROM machines, catalogues, and seminar rooms, was not included in the survey, though it was noted these were heavily used during session and brought to 951 the total number of seats available for use by Library patrons.

The 648 study seats selected for the survey were distributed throughout the floors as follows: ground floor - 155 seats (24% of total); first floor - 281 (43%) and second floor - 212 (33%). For the purpose of the survey, each floor of the Library was divided into sections according to location, i.e. ground floor, sections A-C; first floor, sections A-I; and second floor, sections A-F. Attempts were made to link sections with functional use areas such as Reserve Collection, Special Collection and Law Library. Daily surveys were timetabled to occur at 10am, 1pm and 3.30pm, during which the occupancy rates were recorded for seats for each section. Occupancy was defined as a client physically located in the seat, or evidence of occupancy such as papers, bag and work materials if the client was absent from the seat. All data was recorded on a standard survey sheet and analysed using Excel software.

The Higher Education Council (1990) had recommended the Cambridge method as the basis for any Library seating survey, though this did not come to the attention of the Wollongong team until after its survey had been completed. The Cambridge survey was not totally applicable to the Wollongong situation as it was primarily concerned with qualitative aspects of seating usage, such as why students used the library, and what they did once seated. It was initially deployed concurrently at eleven different British libraries over a two week period, with 14-18 observations taken daily and employing two people full-time per library to conduct the survey. The Wollongong survey varied in that it was extended over a five month period, and only three observations were taken daily, though a survey did not necessarily take place each day. Staff involved in collecting data came from the Quality Team and data collection time did not exceed one hour per day.

## **Findings**

In assessing the results of the Wollongong survey, each of the three floors of the Library was considered separately, then collectively. The ground floor seating was located in three distinct sections: Reserve, Reference and Special Collections and was the most heavily used floor of the Library. Possible reasons for this included: a) close proximity to the main entrance to the Library and no stairs; b) access to primary service points - Information Desk, Loans Desk, Reserve Collection and Special Collections; c) proximity to the main photocopier room and d) the light and airy nature of the seating in the Special Collections and Reference areas. The ground floor Quiet Study area was also popular and heavily used, though it tended to be noisy and exposed to distractions due to the nature of group study.



The upper floors were generally quieter and more conducive to study. The survey revealed the following trends for the ground floor:

- Reserve and the adjacent Quiet Study area were consistently the most heavily used, followed by the Reference Section and Special Collections
- On a single occasion during session (1pm, 27 August 1996) 100% usage was recorded for ground floor seating
- Individual occupancy rates for the three sections of the ground floor ranged from 4% (Reference section during mid-year recess) to 100% (Reserve/Quiet Study and Reference during mid-session).

The first floor contained 281 seats, located in two distinct areas; Main Monographs and the Law Library. Nine sections were identified for survey purposes and the following trends were recorded:

- Maximum recorded usage of the first floor during the survey period was 63%, with an average of 45% during session
- Seating along the eastern wall, adjacent to large windows and an open balcony, was consistently the most highly used on this floor (approximately 75% of the time). All other popular areas were located adjacent to windows and were light, airy and quiet.
- A section of seating located adjacent to the glassed-in computer laboratories was poorly used due to noise leakage and visual exposure

It was possible the ground and first floors were most popular with the undergraduates, while the postgraduates tended to use the second floor, which was quieter and housed the Serials Collection, though this impression was not based on any statistical data.

The second floor contained 212 seats, divided between the Current Serials and Bound Serials sections. The survey revealed the following usage trends:

- Second floor seating was generally underutilised, with a maximum recorded average daily usage of only 48%, and average during session of less than 40%
- A large area of seating along the northern wall had an maximum average daily use of only 28%. The wall is unpainted brick, with no natural light or windows. It is well lit and quiet, though isolated from major traffic areas and service points
- Seating in the Current Serials area was relatively well used, with a maximum average daily use of 50%. It was a popular lounging and reading area, with large windows to the north.

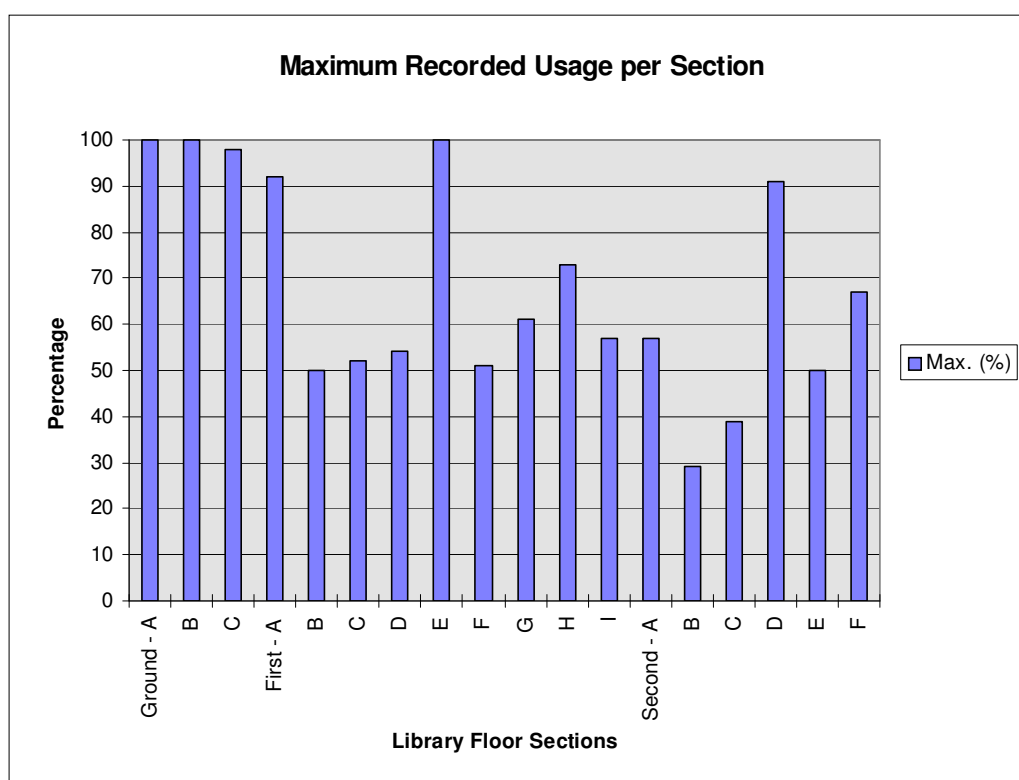
## **Summary**

The seating survey provided significant information for the Space Team. It became obvious that areas of seating which were quiet, well lit and adjacent to windows were most popular, as was ground floor seating generally. The survey clearly identified a number of usage patterns and opportunities for space savings.

- Maximum recorded usage for the ground floor was 100%; first floor 63%; and second floor 48%
- During quiet periods of the academic year, such as mid-year recess and holiday breaks, average daily seating use ranged between 5 - 10% on all floors

- Wall seating was preferred to the more exposed areas or aisle seating, with seats located adjacent to windows and on the sunny eastern or northern aspects being the most popular
- Library seating was most heavily used during the middle of the day; 65% of the maximum readings were recorded at 1pm, followed by afternoons, then mornings
- Maximum recorded use per surveyed section ranged from 100% (ground floor, sections A and B) to 28% (second floor, section B). Opportunities existed for the removal of seating from the low use areas and the installation of shelving or compactus storage
- During the maximum recorded use event (1pm, 27 August 1996), only 66% of the available seating in the Library was used. This represented 428 seats used and 220 seats unused.

Chart 1: Seating - Maximum Usage per Section



Arising out of these findings, a number of issues relating to space utilisation within the Library were identified, such as the popularity of ground floor seating, the minimal use of certain sections of the first and second floors, and various opportunities for space savings.

It was interesting to note that the 1996 academic year saw an increase in loans issued by the University of Wollongong Library and record enrolment figures for students. However this increase in the use of materials was not reflected in the use of available seating in the Library. Does this suggest that patrons are no longer working for extended periods in the Library, but instead merely sourcing material and references, or photocopying, then taking this material home where they could work with the assistance of computers and online access to Library facilities? Had study and research patterns changed with the introduction of computer technologies and word processors during the late eighties? Were students using the library less for study and more for accessing online resources? These questions would

need to be addressed in the future, remaining unresolved during the period of the initial survey.

The survey also identified the desirability of relating seating use figures to overall client use of the Library. Was Library seating most heavily used during times of maximum client use, i.e. when the largest volume of clients entered the Library? Or did the maximum use occur at other times such as during study breaks and examination periods? To answer these questions more data was required.

### **Library Exit Gate Survey**

Figures on individual clients exiting the Library were gathered from the electronic counter on the exit gate. This type of data had been collected monthly in the past, except for special event days such as Open Day. Regular daily figures were not available to the Space Team. It therefore commenced gathering daily traffic data from the 9th of October 1996 (week 11 of Spring session) and continued through to the end of the examination period in early December. Preliminary results revealed that during the last four weeks of session, the number of clients exiting the Library ranged from 6,000 to 7,000, Monday to Thursday (peak lecture times) and 4,000 to 5,000 on Fridays. Approximately 2,000 people used the Library on weekends. These figures dropped significantly during study recess, examination period and holidays.

An attempt was made to correlate these gross client figures with the results of the seating survey, by comparing the gate tally with the maximum use recordings on particular days. For example, during week 11 of Spring session the gate tally for Wednesday, 9 October 1996 was 6,642 clients and a corresponding maximum seating use figure of 42.1% at 1pm; while on Thursday, 10 October, the gate recorded 5,391 clients and the survey recorded a 38.4% maximum seat occupation. These figures, though preliminary, indicate a correlation between gross client numbers and seating use. In order to validate these results, a more thorough study needs to be conducted over a longer period and at peak times, such as at the commencement of the academic year and during mid Autumn session.

### **Conclusion**

The aim of the seating and exit gate surveys was to quantify Library client usage and identify trends impacting upon space restrictions within the Library. The results indicate space savings could be made in some sections of the Library due to low seating occupancy rates. Any changes will be dependent on several assumptions: the University does not experience major increases in student enrolment numbers (budget cutbacks and increased HECS liability may have some impact); minimal variations in Library use trends (this will be difficult to predict, though online external access to the Library catalogue and databases may influence Library contact hours); and maximum use as recorded in the initial survey is similar to repeat surveys in 1997.

If these assumptions are realised, then approximately one quarter of the present available study seating in the Library could be removed to allow for expansion of the collection. This is a conservative figure as the survey indicated up to one third of the available seating was not being used during peak periods. However a 25% reduction in seating is equivalent to 162 seating places throughout the Library and, due to the preliminary nature of our studies, this

figure may prove excessive. Any changes to present seating arrangements within the Library would need to set this figure as a maximum.

Despite the preliminary state of the survey results, they nevertheless proved useful. When the Space Team concluded its deliberations in December 1996, it was able to make specific recommendations to Library management to create space for the expansion of the Main Monographs, Law Library and Serials Collection, along with the installation of additional photocopiers and a compactus (to store 20,000 volumes). This was achieved with the loss of approximately 80 study seats (12% of surveyed seats), a figure considered acceptable due to the urgent need for additional space.

If the seating survey had not been conducted, members of the Space Team would have been loath to make any recommendations regarding the removal of client seating, as the present AARL rating of 9.18 seating places per 100 FTE population members is below the Australian average of 12.85. Similarly, Library management required evidence that any reduction in seating was warranted and would not unduly affect client service.

The findings of the University of Wollongong Library indicated present seating is under utilised and elimination of some seats can be validated. However these results do not necessarily carry over to other Australian academic libraries. In fact, informal discussions between the authors and fellow academic librarians pointed to a variety of existing situations. Some felt the need for additional seating within their institutions; some were unclear as to present circumstances and saw the need for a seating survey; whilst others concurred with the general findings of the Wollongong study, that perhaps their seating was being underutilised.

Individual surveys would need to be conducted in a number of academic libraries to reinforce or repudiate the findings of the seating survey conducted at the University of Wollongong Library. The results would obviously depend on local circumstances, such as whether the university was city, urban or country; the mix of full-time, part-time, external and residential students; the size of the institution; and any funding constraints. The Wollongong study does however question the validity of setting 10 seats per 100 students as a standard. A lower figure of 8 seats per 100 students may be acceptable or even a higher ratio of seats per student population. Much will depend on the needs of the campus population. The Wollongong experience has clearly revealed the usefulness of such a survey, whether an academic library is looking to create space or rearrange existing floor plans to accommodate alternative uses.

## **Acknowledgments**

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## Notes

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<sup>1</sup> The findings of the Space Team are contained in the Space Audit Report (November 1996) and Final Report (November 1996).

<sup>2</sup> *Draft Primary Specifications - Michael Birt Library Extensions* University of Wollongong 17 April 1985.

<sup>3</sup> *Annual Report* University of Wollongong Library 1990-5; *Prospect 2001: Strategic considerations affecting the development of library and information services for the University of Wollongong 1991 to 2001* University of Wollongong Library 1991; *Prospect 2005: University of Wollongong Library Strategic Vision 1995 to 2005* University of Wollongong Library 1995.

<sup>4</sup> K D Metcalf *Planning Academic and Research Library Buildings* New York McGraw-Hill 1965.

<sup>5</sup> *ibid* p97.

<sup>6</sup> J M Orr *Designing library buildings for activity* London Deutsch 1972 pp30-3.

<sup>7</sup> University Grants Committee 'Planning Norms for University Buildings' *Capital Provisions for University Libraries* London HMSO 1976 Annex C p26.

<sup>8</sup> University Grants Committee *Capital Provisions for University Libraries* London HMSO 1976.

<sup>9</sup> H Bryan 'The Perpetuation of Inadequacy - A Comment on the Atkinson Report' *Australian Academic & Research Libraries* vol 7 no 4 1976 p217; H M Edwards *University Library Building Planning* New Jersey Scarecrow Press 1990 p14.

<sup>10</sup> 'Standards for college libraries, 1995 edition, draft' *College & Research Libraries News* vol 55 May 1994 pp261-72 294.

<sup>11</sup> *Guidelines for Australian Special Libraries* Working Party for the Australian Special Library Standards National Special Libraries Committee 1993.

<sup>12</sup> Higher Education Council, *Library Provisions in Higher Education Institutions* Commissioned Report No 7 National Board of Employment Education and Training Canberra December 1990.

<sup>13</sup> *ibid* p134.

<sup>14</sup> University of Cambridge Library Management Research Unit 'Factors affecting the Use of Seats in Academic Libraries' *Journal of Librarianship* vol 7 no 4 1975 pp262-87.

<sup>15</sup> Higher Education Council *op cit* p136.

<sup>16</sup> 'Library Statistics 1995' Supplement to *Australian Academic & Research Libraries* vol 27 no 3 September 1996.