

UNIVERSITY OF EDUCATION, WINNEBA

DIVISION OF ACADEMIC AFFAIRS

SPACE MANAGEMENT IN HIGHER EDUCATIONAL INSTITUTIONS: THE CASE OF THE UNIVERSITY OF EDUCATION, WINNEBA

BY: KENNETH ABBAN

(EXAMINATIONS UNIT)

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1.0 ABSTRACT

Over the last decade space utilization and management have been subjects of concern to faculties, staff and students of the University of Education, Winneba. The survey carried out at the University of Education, Winneba campus revealed that the problem is a seemingly one due to over utilization of space at certain peak periods. It was also noted that no space management policy was in place. It is therefore recommended among others a space management policy, the restructuring of the space allocation committee and the utilization of the computer tabling feature on the OSIS II to enhance tabling of courses at the departments.

This paper examined some issues at the University of Education, Winneba campus with the objective to highlight space utilization problems. It employed a survey method. One of the major findings was that, there was no policy on space management in the University.

1.1 INTRODUCTION

Space Management is an aspect of the institutional management that has to do with the allocation or scheduling of appropriate space to the various functional faculties, departments and units as well as the arrangement of furniture, equipment and work stations within the functional faculties, departments and units to facilitate their work.

In order to manage space effectively at the University of Education, Winneba, there is the need for academic, financial, environmental and operational purposes: The availability and quality of space for teaching learning, research and other University activities contribute significantly to the quality of student and staff experiences at any University such as UEW. Space-related costs account for a significant proportion of the University's budget for the year. The more space the

University has, the more it must spend on non discretionary items such as cleaning, maintenance, security, academic activities and student support services. This means that there is a direct relationship between availability of space and academic activities. Pattern of space utilization across the University of Education has seen a lot of changes over the twenty (20) year period of its establishment. New and expanding programmes, research works, and staffing establishments have placed new demands on the available space at the University. It is important therefore that, accurate and current information on space utilization is explored to enable surplus space to be reallocated to address shortages and minimize waste. One must note that reallocation of existing space can be much quicker than construction of new space, as well as being much less expensive. Space is very expensive to construct, maintain and service.

The space at the University of Education, Winneba contributes significantly to the total environmental impact. It is environmentally costly to construct new buildings and operate them, and dispose of and replace them at the end of their useful lifespan; typical examples are the female block at Amu Hall and the old administration block at the North Campus were pulled down and reconstructed at an additional cost to the University. The University has a responsibility to minimize its environmental impact and ensure that the space available is well utilized, designed and operated to energy-efficient level if possible.

Effective space management can provide measurable benefits to the University in terms of academic experience of students and staff; hence the use of tools of automated timetabling and space utilization measurement provide universities including the University of Education, Winneba and other higher educational institutions with some very sophisticated ways of managing teaching space. Space management relies upon the management of tools such as planning, organizing, controlling, directing supervising and co-ordination to function effectively.

It is the responsibility of the officer in charge of space to put all efforts together to ensure that the maximum use is being made of the existing space and also ensure that adequate plans are being put in place to meet the future space requirements of the University.

Improving space is simply not an estate issue. The involvement of Senior Management, the University and other users of the academic facilities and interested parties is essential if maximum benefit is to be gained. Also, managing space is a complex process. Mechanisms or measures can be put in place but these mechanisms need to be actively and intensively managed in order to get real improvement in the use of space.

1.2 PROBLEM STATEMENT

While many Departments in the University of Education, Winneba complain about the lack of space for academic activities, it seems utilization peaks are within certain days of the working week. With the expansion in programmes, coupled with increment in student numbers and staff, it seems there is a hue and cry for space to carry out both teaching and learning and other support services activities. Whilst this may be the picture, the problem that arises is that the utilization peaks are at certain days of the week, only which in the process adds recurrent cost as rooms are kept clean, powered and refurnished even though their overall utilization rates are quite low.

1.3 OBJECTIVES

The objective of this study is to propose an effective space management and utilization plans which would provide measurable benefits to the University.

2.0 LITERATURE REVIEW

The success or failure of managing space functions depend upon the officer managing space availability and his/her attitude to plan at the right time. According to Jerry Gal (2010), planning is the selection and relating of facts and the making use of assumptions regarding the future in the visualization and information of proposed activities believed necessary to achieve desired results. The space manager uses the information and the facts available to him/her to carry out his/her day to day operation as well as his /her short and long term plans. The space manager must evaluate the existing space to ensure that it meets the standard of the national building codes. He/She must collect and analyze the space management information that may be required and make the information available to individuals and groups that have the right to know the current as well as the future space needs of the institution. Such individuals and bodies may include the Registrar, the council of the institution, Deans, Heads of Department, and Dean of Students Affair. The space manager keeps building room inventory and analyzes how schedule or allocated space is being used.

In organizing space management, if a certain way worked 'in the past, the institutional administrators are less likely to change the practice even though the present situation may suggest an alteration in the practice. The force of tradition, therefore, is one of the factors that militate against an effective organization of the space management functions in institutions of higher learning.

The personality of each institution affects the organization of space management. Generally, the bigger the institution, the more likely it is that space management function will be systematically organized. In a multi-campus institution, the need to respond quickly to local conditions may

force the institutional administrators to decentralize the space management function. In a medium size institution, the space management activities are always centralized. Organizational structures often have financial or budgetary implications. Administrators in institutions often evaluate and analyze the effect of organizational arrangements on their financial resources before making decisions on how a particular activity should be organized. Cost benefit analysis is often conducted to justify the need to organize an activity in a particular way or fashion. Despite accumulated skill which an administrator may possess, there are significant constraints on effective space management; for instance:

- (i) Special and measurable targets are rarely found. The link between space management and academic and financial planning is patchy and inconsistent. For space management to be effective, objectives need to be linked to over all institutional resource planning. They need to be specific and to relate not only to general-purpose teaching space but to specialist space research, office and support space.
- (ii) The management information needed is sometimes dispersed within higher educational institutions. It is difficult both to get an overview and to have the necessary details for effective space management.
- (iii) There are gaps in available data particularly about room capacities. The lack of functional suitability data makes it hard for individual institutions and the sector as a whole to assess the impact of space management practices on the quality aspect of space use.
- (iv) Data collected from utilization surveys for example, are not always integrated into space management policy or decisions. Utilization surveys often concentrate on general

purpose teaching space, but this makes up of fifteen (15%) percent of the net internal non-residential area of the higher education institutional estate.

- (v) The absence of sector-wide and up-to-date space standards or norms was repeatedly higher lighted as a problem by some survey respondents. Some high educational institutions have developed their own standards or norms, while forty five (45%) percent of the respondents continue to use norms from the now-defunct University grants committee and polytechnics and colleges funding council or space weightings, in some case modified by the particular institution. None of these norms have been updated since 1990, and space standards underpinning them are even older. Weightings only provide relatives in terms of space needs, and do not provide recommendations on areas required by specific activities.
- (vi) Communication of space management guidelines and policies are sporadic, and users are not often involved in space management policy. Also cultural issues revolving around ownership of space, resistant to change and lack of trust remain barriers to implementing change. (source: Learning spaces for the 21st century-A review of the literature ,U.K by Peter Temple, 2007.)

There is no universally accepted method of organizing the space management function in institutions of higher learning. However, the method of organizing for the Space Management functions may take any of the following forms:

- (i) ***The Committee Approach:-*** This requires the formation of a Committee charged with the responsibility of making decisions with regard to the space needs of the various functional Departments and Units in the institutions. The Committee draws its membership from all the constituent Departments and Units in the institutions. The

common practice in most institution of higher learning is for the committee to operate on an ad-hoc basis. That is, the committee meets, discusses the matter before it submits its recommendations.

- (ii) ***Special Office of Space Management Approach:-*** A central office of space management may be set up and given the responsibility of gathering information on space and allocating or scheduling the available space to the various functional Departments and Units that require it. The head of the office normally should be responsible to the top administrator of the institution for the day to day operation of the office. In a multi-campus institutions where the space management functions have been decentralized, the central office may make broad general policies that are intended to be uniformly adopted and implemented while the detail of the policies may be worked out by the individual campuses concerned as the local conditions dictate. The central office should, however, co-ordinate all their space management efforts.
- (iii) ***A Single Individual Approach:-*** In some institutions, the responsibility for the space management functions may be vested in a single individual who may combine the job with his other official duties. This arrangement pre-supposes that the space management functions are not important enough to be on-going activity or to keep the person responsible for the functions fully occupied throughout the year.
- (iv) ***The Works Department Approach:-*** This is a practice that is increasingly becoming very popular in some institutions of higher learning. This approach involves the allocation of space management functions to the Works Department under the direction of the director of works or the facilities/physical plant manager.

(v) ***The Joint Responsibility Approach:-*** Under this arrangement, the space management function becomes the responsibility of the central space management office, Dean of Student Affairs and the manager of the auxiliary services. The auxiliary services include, Production Unit, Halls, University Stores, University bookshop, University practice schools, University guest houses, etc.

In the University of Education, Winneba, the approach is an eclectic one, the Director of Physical Works prefer the committee approach which involves all members.

3.0 SPACE UTILIZATION PROBLEMS AT UEW

Over the nearly twenty years of its existence and due to the programme expansion and increased in students enrolment, the University of Education has been faced with apparent space utilization problems. The problems have been categorized into five areas. These are:

- (i) **Information:** It seems lack of comprehensive, reliable, accurate, up to date and accessible information has seriously inhibited improvement in space management and its use at the University. Sometimes lack of agreement between academic staff and staff of facility management units concerning rooms which make up the bulk of teaching space.
- (ii) **Innovation:** It seems that, instead of adopting flexible and long term approaches in managing available space, rather we are stick to reactive and short term approaches are adopted. This usually leads to lack of management strategies and affects flexibility and responsiveness to new demands and new requirement of doing things.
- (iii) **Design:** There can be a major mismatch of supply of space with need for space. A balance needs to be struck between the advantages of Departmental “space” – such as sense of identity and security – and the additional costs of replicating facilities. This balance is related to the need to identify more precisely – and link to curriculum – the type of space required by different users.
- (iv) **Communication:** The seemingly inappropriate communication and perception of space management often exists. Messages therefore need to be put across that space is expensive and that managing it is important.
- (v) **Techniques:** There may be inappropriate use of space management techniques that lend to the struggle for more space. Formal and informal policies, procedures and practices

affect space management (space charging). These techniques can also be in place but if they are not actively promoted, managed and adapted they may affect space management.

- (vi) ***Changes in teaching format:*** Changes in the requirement for educational market place such as teaching delivery formats may cause a struggle for more space.
- (vii) ***Mismatch within Educational Management:*** Functional and structural mismatches within institutional management e.g. in coordinated timetabling mismatch of room requirements and room supply, and lack of academic engagement in the issue of space management.

4.0 GOOD PRACTICE SPACE MANAGEMENT IN UEW

In order to utilize and manage space in the University of Education, Winneba, the following management practices may be adopted:

- (i) General space management principles
- (ii) Space management guidance
- (iii) Space allocation and flexibility
- (iv) Time and timetabling
- (v) Workspace allocation

- (i) ***General space management principles:*** The fundamental challenge of space management is to ensure that suitable space is available at the right time, to accommodate the number of people who need to use the space and the right equipment. Space management is partly art and partly science. The science depends on hard numerical and spatial evidence, while the art requires juggling different spaces across departments throughout the timetable, altering the timetable, and encouraging multiple use of and sharing of key space.

Both time and space are key variables. If suitable space is not available when requested; then the solution may be either to change the time of the activity or to expand the space availability. The way space is allocated and timetabled, can yield significant gains in space utilization without significant cost. Building in flexibility of furniture and equipment is another effective minimal change strategy. Example: The room size of the Amu Theatre is smaller than that of the South Assembly Hall, but due to better and

effective space management at the Amu Theatre, the hall could accommodate two hundred and sixty candidates during examinations, whilst the South Assembly Hall could only accommodate two hundred students during examinations.

- (ii) ***Space Management guidance:*** Space management guidance for the University of Education, Winneba needs to be practical and user-friendly for management, academics facility management unit, architects and consultants and reflect on the up to date learning demands. Example: The Facility Management Office advertise for vacancy of accommodation for staff whenever there was a vacancy and the same advertisement should be done for free vacancy for lecture rooms, laboratories, class rooms etc so that departments could apply for consideration.
- (iii) ***Space allocation and flexibility:*** Space availability can be increased by either increasing the quantity of space available, or adapting existing space into new uses. An effective means of extending available space is to ensure that most teaching and learning space is allocated centrally, not held within the ownership of a particular Faculty or Department. Research has shown that centrally timetabled and managed space is better utilized than departmentally controlled space. Example: The old tennis court behind the Science Block could be converted into sheds for large classes, such as Early Childhood, Basic Education and Akan-Nzema to ease pressure on space. Lecture theatres, laboratories and class rooms should be relabeled and should not be under the control of a particular Department.

Creating multi-functional space with flexible furniture layout is another extremely valuable and efficient approach to stretching space availability without stretching the space quantity.

Specific features of space are important in their popularity. Location is significant as staff often prefers to teach close to their office base, and students frequently gravitate towards space that is highly accessible, near entrances or attractors such as the library or study rooms. Well designed rooms, for example those with a view and daylight are usually more popular than those which are dark with little outlook. The way in which rooms are furnished and equipped also affect their utilization. Ensuring all rooms are attractive and of a high quality with excellent IT connectivity can help to spread demand across a wide pool of rooms – This can often be achieved through small scale fit-out and furniture projects. Conducting pilot projects in a selection of rooms to experiment with different concepts and ideas for layout, furniture, etc is also an effective way of exploring new ways of using space without making major changes to the existing estate.

- (iv) ***Time and timetabling:*** Many cultural assumptions fall under the time of which teaching is conducted. Most Universities in Ghana operate based on the two semester approach with few private universities operating on the trimester basis. The total number of credit hours for the year is about two thousand one hundred and sixty hours (2,160 hours), all things being equal and mainly between the working hours of 8:00 a.m. – 5:00 p.m. It is there proposed that the available hours may be extended through more teaching weeks or more daily hours which would instantly add to the capacity. Example: The Department of

Business Education has extended its teaching hours from 5:00 pm to 8:00 pm each day and other Departments should be encouraged to follow suit to reduce the pressure and the struggle for room allocation. However, such action demand changing deeply held patterns of expectations of students and of staff contractual hours. The process of room timetabling plays a significant role in the achievement of well-utilized spaces. The ability to match individual course requirement for space against availability through the academic year is a fine art and can require significant management resource. Typical issues include:

- Planning starts with estimates of student numbers which are usually higher than actual enrolment;
- Course attendees reduce throughout each semester resulting in lower than anticipated utilization;
- Reliance on people reporting that class size have dropped during the year;
- Balancing an aspiration to reallocate space due to changing course numbers against a wish not to move students around unnecessarily;
- Preference for certain rooms based on the quality or location of the space or available IT set up.

(v) **Workspace allocation:** Workspace for academic and administrative staff can occupy a significant proportion of the overall university estate. The allocation of space to different groups and individuals can often evolve in a piecemeal fashion, based on what is available at the time.

By adopting targets for the amount of space allocated per person or per table can be a useful way of assessing how well the available space is being occupied. Reviews of who is located where can help to identify opportunities for better co-location of Faculties and Departments. Often, rooms can be re allocated or repurposed with little or no structural work by better matching the room size with the number of people who occupy it. Rectangular rather than L-shaped workstations and flat screen monitors can also help to improve space efficiency. Example: The seating arrangements at the Dem Theatre (Home Economics) and the new lecture theatre at Kumasi campus should be adopted in most of our lecture theatres to assist in the allocation of space.

5.0 SPACE MANAGEMENT POLICY

The University may adopt this space management as spelt out below:

- (i) Space should be allocated to the best use. (A space is a resource to the University of Education, Winneba and must be effectively utilized to support the University's mission.)
- (ii) The University should provide more facilities for programmes which will:
 - a. project favourable image of the institution to all users
 - b. enable the most natural working relationships possible
 - c. ensure that all space entrusted to the University by the University Council is utilized in the most efficient manner.
- (iii) All efforts should be made to meet space needs within existing space through reallocations. The University should consider utilizing the following priority order in dealing with the needs for additional space:
 - a. Reallocation of existing Departmental and programme space
 - b. Reallocation of existing Divisional Space
 - c. Reallocation of existing institutional space
- (iv) Space rental should be considered as the last option
- (v) Space needs for all Faculties/ Divisions/Units should be evaluated on equal basis. Determination of space needs for all Divisions should be evaluated on equal basis. Determination of space needs should be consistent and conform to the standard of the University.

- (vi) No staff member should occupy more than one office without the approval of the Registrar or the Vice-Chancellor.
- (vii) All space allocations should be reviewed annually by the Facility Management Unit of the University.
- (viii) The space inventory should be forwarded to the Vice-Chancellor along with a list of space that is available for reassignment or under utilized.
- (ix) No person should be allowed to duplicate University keys.
- (x) No person should be allowed to erect, post or attach any sign posters, pictures or any item of a similar nature in or on any building or upon other university lands except on regularly established boards.
- (xi) No person should be allowed to engage in violent, abusive, indecent, profane, boisterous, unreasonably loud noise or otherwise disorderly conduct under circumstances in which the conduct may tend to cause or provoke disturbances in the University building or on University lands.

6.0 IMPROVING SPACE USE AND MANAGEMENT IN UEW

The key issues that the University needs to tackle in order to improve space management are summarised below.

(i) Current Space Management practice

- (a) The University need to give more detailed consideration to space management issues, particularly issues in the estate strategies.
- (b) The management should distribute good practice guidance on the application of space management techniques.

(ii) Measuring the need for space:

- (a) The University need to improve on the extent to which the academic estate is utilized and how far it meets users requirements.
- (b) There is the need to measure the way space is used more systematically to inform the application of techniques to improve utilization particularly before we set in capital development plans.
- (c) There is also the need for us to develop further the space management techniques already used or existed to improve utilization of the estates at the University.

(iii) Strengthening current space management practice:

(a) Structures:

- (i) The University should consider strengthening the space allocation committees to bring on board the timetabling committee.

- (ii) There is the need for us to develop space management strategies with clear objectives and review the strategies regularly.
- (iii) Staff should be made aware clearly of the space management policies by publishing guidelines on how we should operate.

(b) Information

- (i) The management should review and enhance estates information requirements.
- (ii) They should commission regular space utilization and user surveys.

(c) Space Management Techniques:

- (i) Centralized and computerized timetabling packages and approaches should be reviewed and implemented.
- (ii) A space charging system should be introduced.
- (iii) Space planning and remodeling should be based on:
 - A fundamental review of long term space needs in consultation with academic departments.
 - The development of space model which compares possible future space requirements with the current distribution of space.
 - Agreed priorities for remodeling arising from the review and the application of other space management techniques and a costed and feasible implementation plan.

7.0 THE SPACE MANAGEMENT COMMITTEE

In order to enhance space management and utilization in the University of Education, Winneba, the space allocation committee's role(s) must be redefined to include:

- (i) Development, implementation and review of the space management strategies.
- (ii) Developing, implementing and reviewing space management measures to support the space management strategies such as space charging, timetabling, and space allocations.
- (iii) Producing guidelines for users of space and communicate the space management strategies and space management issues generally.
- (iv) Assessing space need on an annual basis.
- (v) Reporting to the appropriate senior management committee such as estate management committee and the planning and development committee.
- (vi) Monitoring feedback on space use and space management by users.
- (vii) Having responsibility or approving changes to space management measures; (for example the operation of the charging system).
- (viii) Approving the property database development and changes.
- (ix) Agreeing to performance targets on space management matters.
- (x) Liaising with academics and other users of space.
- (xi) Promoting the effective use of space with the university.
- (xii) Carrying out regular space utilization and management surveys.

In tackling issues of space management, the committee may be guided by the following principles:

- (i) Have reliable, comprehensive, accurate and up-to-date information, accessible on a database.
- (ii) Carry out regular space utilization and management surveys.
- (iii) Develop effective communication and management systems.
- (iv) There should be effective and appropriate management systems i.e., - available techniques, such as space charging and computerized timetabling,- need to be carefully reviewed and implemented as appropriate, and regularly monitored. These are the instruments for change.
- (v) Understanding of user needs. This vital.
- (vi) Engage academics and other users of the estate – the academic involvement is absolutely vital if real change is to be made.
- (vii) Plan flexibly and for the long-term.
- (viii) Relate to the strategic plan of the University of Education, Winneba.
- (ix) Fund appropriately.

8.0 CONCLUSION

Even though utilization rates have not significantly improved over the last decade in the University of Education, Winneba, space management measures are not always particularly effective, proactive coordination and constant active engagement of all university community, particularly academic community may significantly influence space use and management.

9.0 RECOMMENDATIONS

Based on the conclusion drawn, the following measures are recommended to improve space use and management in the University of Education, Winneba.

(a) Information:

- (i) *Database*: - There must be a comprehensive property database in place. All space should be included, and should cover room size, room type, location, primary use facilities, capacity etc.
- (ii) *Space utilization survey*: - A full space utilization survey needs to be carried out. This should cover all teaching space at a minimum; and consideration should also be given to examining all space.
- (iii) *Classification*: - Lecture rooms should be classified. And the classification code should be reviewed annually. This would allow compatibility with the facility management statistics projects.
- (iv) *Identification*: - Examination rooms and the laboratories should have unique identifiers and should have consistency across all the relevant databases used within the University.
- (v) *Functional suitability*: A functional suitability assessment should be carried out with academic input.
- (vi) *Building condition*: - A building condition survey should also be carried out and linked with the findings of the functional suitability survey.
- (vii) *Consultations*: -There should be regularly consultation of users of the University estates, and set up process by which databases can be regularly updated. This will include who is occupying space and the use to which it is being put.

- (viii) *Information strategy*: - There should be an information desk or strategy at the Facility Management Department to receive information concerning space management and how it could be best implemented.

(b) Innovations:

- (i) *Space Management Strategy*: - There should always be a space management strategy put in place.
- (ii) *Planning process*:- There should be implementation process by which Departmental level planning initiative (Micro Planning) that has space dimension, ties with the plans and policies, of the University (macro planning).
- (iii) *Space need Assessment*: - The Development of space assessment based on curriculum over a long period of time. This will enable real need to be identified and expressed and therefore used as a contract between management and the University Community.
- (iv) *Managed Learning Initiatives*: - There should be review of the space management implications of the various student-centered or managed learning initiatives being developed across all areas.

(c) Design

- (i) *Demonstration project*: - Identification of user's core needs in re-modeling, adapting and designing space. The real cost and savings of re-arrangements should be made clear on a number of demonstration projects.
- (ii) *In-built flexibility*: - There is the need to make every available space as generic as possible as part of any planned remodeling works to ensure flexibility.

- (iii) *Contact hours*:- Develop standard means to record contact hours of students. This will enable the timetable committee to capture demand for space and provide the basis for calculating the space requirements of Departments and the entire University.
- (iv) *Department location*: - The Facility Management Strategies should be used as a developing guidance on the location of Departments and space management advantages.
- (v) *Service Level Agreements*:- Service level agreements should be considered for the provision of space management services in order to ensure that standards and expectations are better matched.

(d) Communication

- (i) *Space Management Committee*:- There should be an effective communication between space management committee and the timetable committee to handle all issues about space. This enables any issues relating to ownership and use of accommodation to be resolved quickly and facilitates effective timetabling within tight deadlines.
- (ii) *Knowledge sharing*:- We should always implement a system of “Open and complete” knowledge transfers on space use and space management matters.
- (iii) *Space Management Guidelines*:- Guidelines concerning space management should be issued to members of the University community.

(e) Management Techniques:

(i) *Computer timetabling*:- The features on the online students' information system two, (OSIS 2), should be fully utilized so that any existing "pooled space" timetables could be generated as soon as possible, and ideally done during vacation before the forth coming semester.

Local "Departmental" timetables should be issued to a timetabling unit. This will enable common patterns of use to be identified and move towards open sharing of space management information.

(ii) *Space Charging*:- We should consider space charging system. There are a number of options available to choose from in terms of charging methodologies. Whichever is selected, it needs to be regularly reviewed and modified as necessary to ensure it is achieving the objectives that have been set for it and represents a realistic assessment of actual space cost.

(iii) *Resource Planning*:- Ensure that space is planned at the same level as other resources within the University: such as staff and finances. Space needs to be planned and at the same managerial level as other activities, such as student number and finance.

(iv) *Co-location*:- There should be a move towards co-location of cognate groups in terms of type of space demanded.

(v) *Space Allocation*:- The process of and rationale for allocating needs to be regularly reviewed. The over all aim should be to re-assign Departmental space to the space management committee; and then allocate back to "primary" departments on a first call or core requirement basis. This will encourage a balance between accepting that space needs to be flexible and open to all users/uses, with the specific needs of Departments and a recognized "entity" for a Department or subject area.

- (vi) *Planning period*:- The above process should be on an annual basis and linked with space or resource budget matters. One aim of this process should be to increase the stock of pool rooms.
- (vii) *Teaching Period*:- The current teaching periods, length of day and number of teaching weeks, should be periodically reviewed to see if they still meet academic requirements and achieve maximum space management benefits.
- (viii) *Group size analysis*:- Identification of group size and type of space required is a key means of assessing space need. This approach should be adopted by the university, and used to form future planning requirements.

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