R E P O R T R E S U M E S

ED 013 535 EF 000 078

STUDENT REACTIONS TO STUDY FACILITIES WITH IMPLICATIONS FOR ARCHITECTS AND COLLEGE ADMINISTRATORS.

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PUB DATE 60

EDRS PRICE MF-$0.50 HC-$2.48 62P.

DESCRIPTORS- *CARRELS, *DORMITORIES, *INDIVIDUAL STUDY, *STUDENT REACTION, *STUDY FACILITIES, ADMINISTRATOR GUIDES, CONTROLLED ENVIRONMENT, EDUCATIONAL SPECIFICATIONS, ENVIRONMENTAL INFLUENCES, EQUIPMENT, LIBRARY FACILITIES, PLANNING, STUDY HABITS, STUDY, THE COMMITTEE FOR NEW COLLEGE

THE RESEARCH REPORTED WAS DONE TO FIND IN WHAT DIRECTIONS NEW STUDY SPACE CONSTRUCTION MIGHT PROFITABLY VENTURE. NEARLY 100 STUDENTS OF EACH OF THE NEIGHBORING FOUR INSTITUTIONS WERE SAMPLED. THREE MAJOR TYPES OF EVIDENCE WERE SOUGHT AND USED--(1) EACH STUDENT KEPT A DIARY OF HIS STUDYING FOR A CONSECUTIVE PERIOD OF FOUR DAYS ON FORMS FURNISHED, (2) STUDENTS ALSO COMMENTED ON THE PLACES IN WHICH THEY STUDIED ADDING SUGGESTIONS, AND (3) FILLED IN AN OPINIONNAIRE JUDGING 95 DESCRIBED STUDY CONDITIONS. A RECORD OF 8,375 HOURS OF STUDY WAS TAKEN. RESULTS SHOWED THAT USE AND APPROVAL OF STUDY SPACE VARIED INVERSELY WITH SIZE. TWELVE PERCENT OF ALL STUDYING TOOK PLACE IN THE LARGE LIBRARY READING ROOMS AND FIFTY-SIX PERCENT OCCURED IN THE TWO SMALLEST PLACES--DORMITORY ROOMS AND CARRELS. THE MOST FREQUENTLY USED STUDY SPACE WAS ALSO THE ONE WITH THE MOST VARIETY OF USES--DORMITORY ROOMS. FORTY-EIGHT PERCENT OF ALL THE STUDYING REPORTED TOOK PLACE THERE. LIGHTING, HEATING, VENTILATION, PRIVACY AND GENERAL PERSONAL COMFORT COULD BE CONTROLLED. DORMITORIES VARY IN THE AMOUNT OF STUDYING DONE IN THEM WITH REGARD TO DISTANCE FROM THE LIBRARY AND CLASSROOMS, CONSTRUCTION AND GROUP BEHAVIOR. EMPTY CLASSROOMS COULD SERVE AS STUDY AREAS IF DESIGNED FOR FLEXIBILITY. FURNITURE SHOULD BE PURCHASED IN RATIOS TO FIT THE PROPORTIONS OF NOT ONLY THE AVERAGE. THE CRITERIA OF GOOD STUDY CONDITIONS SHOULD BE USED WHEN PLANNING STUDY SPACE. (RK)

STUDENT REACTIONS TO STUDY FACILITIES

With Implications for Architects And College Administrators

A report to the Presidents of Amherst College,
Mount Holyoke College, Smith College,
and The University of Massachusetts

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Prepared under the auspices of
THE COMMITTEE FOR NEW COLLEGE
With the assistance of a grant from
The Fund for the Advancement of Education

THE FOUR institutions sponsoring this report have been aware for some time of the imminent demands upon American colleges to provide space and opportunity for a vastly enlarged body of students. In an effort to extend their own programs and make better use of their resources, during the past five years they have engaged in an increasing number of cooperative educational enterprises. In 1958 they considered the possibility of creating a fifth institution in their vicinity, to which they might contribute, and with which they might develop new departures in educational methods and techniques. Their hope was to plan a new college which would provide education of the highest quality at a minimum cost per student. The Fund for the Advancement of Education made them a grant to conduct such a study. A joint committee was appointed by the four institutions, and its proposals were subsequently published under the title, *The New College Plan*. The present report stems from this study and attempts to contribute to a neglected aspect of college architecture.

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AMHERST • MASSACHUSETTS • 1960

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**The report is divided into two parts: the "Résumé" for readers who wish a general knowledge of the study and its findings, and "The Study in Detail" for those who want a more intensive analysis.*

Foreword

Letter of transmittal to the presidents of the sponsoring institutions

DEAR SIRS:

The attached report is a part of the assignment begun at your request in the spring of 1958, to develop plans for a new experimental liberal arts college. *The New College Plan,* published in December 1958, gave the gist of our educational proposals. In that document we emphasized the importance of developing a degree of independence and capability, and of establishing intellectual interests in students which would enable them to continue their own education effectively throughout their lives.

A supplementary grant from the Fund for the Advancement of Education was made in 1959 for studying the practical problems of budgets, architecture, and related problems. It seemed to the Committee that since their educational philosophy emphasized study and learning, in contrast to teaching and credit accumulation, an important question was whether colleges provided students with the right kind of space for developing independence and the pursuit of excellence. Since there was little evidence on the subject, and since it is an important question for all colleges rather than for New College only, the Committee authorized a study of this problem, using the four colleges as places for gathering data. Another facet of the question lay in the attitudes of students. Did they have any predispositions toward particular kinds of study spaces? In their home institutions, they had a considerable amount of choice. Did they favor the kinds of space which seem to be compatible with New College ideals or prefer the mass production models? What reasons for their preferences did they have? Again there was little information available, so it seemed desirable to combine the two problems and look at the study spaces of the four colleges through the eyes of the students who used them.

Another reason for authorizing the study lay in the vast sums which are currently being spent on the construction of college buildings, and the prospect of greater expenditures to come. Are these sums being wisely spent, not only in terms of thrift, but still more in terms of whether they produce buildings truly functional from an educational point of view? Since learning is by any standard the most important activity and product in an educational institution, are the spaces in which learning will take place the most efficient for the purpose? Informal discussions with architects and college administrators brought general acknowledgement that they did not know the answers to these problems and would appreciate any help they could get. This encouraged us still further to undertake some research in this area.

A sub-committee was formed to conduct the study, with one representative on each campus, and one member of this Committee as chairman. They were given freedom of action and promised the cooperation of all four of the institutions involved. Most regrettably one member of the sub-committee, Michael S. Olmsted, was hospitalized not long after the study was begun, and died subsequently. His work at Smith College was carried by the chairman with the generous assistance of various people at the College.

Between the inauguration of the first study and the completion of the current one, three of the presidents of the four institutions have resigned, viz., Charles W. Cole of Amherst College, Jean Paul Mather of the University of Massachusetts, and Benjamin F. Wright of Smith College. They and Richard Glenn Gettell of Mount Holyoke College originally sponsored the studies and the Committee wishes to express to them its appreciation for their warm support of its endeavors and for the freedom granted to its members in pursuit of their goals. One successor took office during the progress of the current study, Thomas C. Mendenhall, President of Smith College. President Calvin H. Plimpton of Amherst took office at the completion of the study; and Dr. John W. Lederle became President of the University of Massachusetts during the process of publication. These changes have produced no alterations of instructions to the Committee and its work has been given every facilitation by the incoming presidents.

The study is transmitted to you with confidence that its findings will be valuable guides to the general directions in which builders of libraries, dormitories, and other buildings used for study purposes should go. There are, of course, many specific questions which have not been answered in this study, and no blueprints have been developed. But it seems clear that students prefer the types of study space which are consonant with the development of independent habits of study. Indeed it is evident that students want the same type of study space whether they attend current colleges or the possible New Colleges of the future. Consequently the findings should have value for colleges of all types, for what is good study space in one will also be good in another.

Respectfully submitted,

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Student Reaction to Study Facilities

STUDYING is the most important activity in which college students engage; yet little attention has been given to evaluating the conditions under which they study. Colleges have provided space, but the questions of how appropriate it is, or even what appropriateness consists of, have not been studied adequately. Nor have these facilities shown much change in design. Students have been left to adapt themselves to existing space, rather than having space designed to meet their needs. The typical student represented in this report spent 5.78 hours per day in study. Do such students spend these hours under conditions which help them secure the largest return on their substantial investment of time and energy? This is a serious question which colleges should earnestly try to answer in the affirmative.

Experiments in building different kinds of study space are too expensive to undertake without some guides. The research reported here was undertaken to discover in what directions new construction of study space might profitably venture. Since no one is more intimately aware of the inadequacies and virtues of different kinds of study space than the students who use them, information has been sought from them. Do students prefer some kinds of study space to others? If so, why? What are their common complaints? Are causes for complaint less frequent in some kinds of study space? If clear and consistent answers are obtained for such questions, college planners and architects should find them extremely useful.

The present report is based upon studies of samples of nearly 100 students each in four neighboring institutions of higher education. Two are women's colleges; one is a men's college; and one is a coeducational state university. Only undergraduates were used; and the sample was further restricted to the three upper classes, since freshmen might be still too inexperienced to render adequate judgments. Some students lived in fraternity houses at one of the colleges and at the University; there were a few sorority members at the University; but the great majority of the subjects lived in dormitories. There was variety in the size and construction of the dormitories, in the provision for special study space in them, and in smoking privileges. At each institution there were many different kinds of places, operating under various rules, in which to study. Such heterogeneity of study conditions was deliberately included in the belief that if the same clear generalizations, or sharp contrasts should emerge at all four institutions, they would consequently prove more significant than if obtained in a single institution under limited conditions.

Three major lines of evidence were sought and used. First, each student kept a diary of his studying for a consecutive period of four days on forms furnished to them. These provided spaces for reporting the times of the day in which studying was done, what was studied, where, and for how long. (See pp. 42ff) A record of 8375 hours of studying was secured in

this way. At the end of the four pages devoted to this, another was provided for students to comment on how satisfactory or unsatisfactory the places were in which they had studied, and to add suggestions for improving study spaces in the dormitories, libraries, etc. A third source of information was an "opinionnaire" on which students were asked to judge 95 described study conditions. (see p. 44ff) These three instruments were first tried out on samples of students in order to refine them. All three kinds of evidence were obtained from the same students and consequently served as a check upon consistency. An attempt was made to choose students from contrasting types of living quarters, but the samples are not large enough to make valid comparisons among all kinds of residences which might prove of interest. At this point it is sufficient to report that the major conclusions were clearly consistent in all three lines of evidence and among all four institutions; and in view of the diversity of conditions, the results seem worthy of confidence as student reactions in general.

Three supplementary sources of evidence were also used: interviews with the college librarians and heads of dormitories, discussions with student groups, and visits to libraries and dormitories. The information obtained provided elaborations and explanations of the major sources of data, and helped to develop the interpretive side of the report.

LARGE VERSUS SMALL STUDY ROOMS

The most significant finding of all is that for most students, *use and approval of study space vary inversely with size*. During the four days of recorded study, only 12 per cent of all the studying done took place in the large library reading rooms which exist on each campus; while 56 per cent of it occurred in the two smallest places: dormitory rooms and library carrels. In the opinionnaire, 80 per cent of the students declared these small study spaces were preferable to large; 85 per cent believed that it was desirable to study alone; and only 15 per cent of the students thought it desirable to study where there were 100 students or more. Places of intermediate size were also used and likewise preferred inversely according to their size. The informal comments are difficult to tally objectively and numerically, but they also clearly corroborate the preferences for small study spaces.

The reason for this strong bias against large study places is not mass agoraphobia but simply that distractions arising from other people prove to be the most serious frustrations to good studying, and these distractions increase in proportion to the number of people present. This was made clear by student comments and answers to the opinionnaire. Even under the best of study decorum, there will be more individuals coming and going in a large study hall, more rustling of papers, more coughing, more chair noises, more whispering, etc., etc. Under relaxed study conditions the noise may completely defeat attempts to study for many students. There are oc-

casional students who prefer to study with this kind of noise, or even noise of greater volume and consistency. The vast majority of students, by their behavior and testimony, want as little of it as possible. Again there are students so sociable that they must go to the library to get any studying done. But these too are a minority. The student who likes to study in a noisy snack bar with a juke box braying does exist, but he too is atypical. Movements are observed in the periphery of vision before the moving object can be identified, and consequently head turning to bring the object into focus occurs involuntarily. (At one time psychologists characterized this behavior as instinctive.) So movement, as well as noise, must be considered a problem to be dealt with in the large room.

THE LIBRARY

These findings are a direct challenge to the typical large library reading room. It may be economical in terms of the cost per student user, but it is expensive in terms of the quality of work done. A good deal of ingenuity needs to be expended upon the problem of how to construct or adapt library study space which will accommodate as many students as the large reading rooms, avoid their faults, and yet not increase costs. One interesting attempt to cut down peripheral vision and social communication was made in one of the large library study halls by constructing booths with opaque sides, like those of bank tellers, on the large tables already there. The large, high vaulted reading room may be architecturally attractive, but it does not function in the way desired by students, and it is not adapted to the directions in which college education seems to be turning.

The direction of change indicated here fits into the philosophy of *The New College Plan:* the development of independence in students, the early acquisition of ability to dig deeply into problems, and long-term interests in intellectual pursuits. These goals indicate less dependence upon textbooks, assignments, reserve shelves, required readings, and reviewing for examinations; but more emphasis upon the pursuit of long-term objectives, the use of multiple sources of information, evaluation, reflective thinking, and report writing. For the latter kinds of activity, the large reading room is defective. There is no place to accumulate and keep books, documents, and all the paraphernalia of the scholar. Some further development of small and appropriate space must be made. Student carrels prove popular for this sort of thing, but they are insufficient in number at any of these four institutions to supply the demand. A private office for every student is too expensive an answer. Can carrel type studies be constructed around a core of stacks, and scattered through them in such ways as to be numerous, and yet avoid traffic and noise problems? Herein lies a challenge to the architect.

Library seminar rooms are popular study places, but the first student to study in one usually attempts to discourage others from sharing it. As a

consequence they often become large private offices which change hands during the day, but are still much too large for individuals. They are, if reasonably sound resistant, ideal for small groups engaged in some mutual research project. But not much of this kind of cooperative work has yet been developed in colleges. If such practices do grow, the seminar rooms may also carry a share of studying in the library of the future, and their number may need to increase.

The library of the future will have to cope with more mechanical devices, e.g., teaching machines for routine learning, apparatus for reading micro-films, recordings which may be listened to either individually or in groups, and no doubt still others. These developments will involve small study spaces, booths, small rooms, or in some cases open carrels. Noise, size, expense, servicing, supervision, and other factors will have to be considered in locating and using these devices. The typewriter is probably the noisiest of the mechanical tribe, and yet its place in the academic world is well established. Its use requires room to spread out papers and books. For these two reasons typewriters also fit better into the concept of a library with many small workshop spaces rather than few.

STUDY IN DORMITORIES

As indicated before, much studying is done in the dormitories of these institutions. Since there was only a slight difference in the amounts of studying done in dormitories, fraternities, and sororities in the institutions having more than one variety of housing, all types of residence were treated as a single category, dormitories, by the investigators. There were from two to eight residences studied on each campus, a total of twenty. The percentage of the total study time which was spent studying in the dormitories varied from a low of 55 per cent at one college to a high of 78 at the University where students used their rooms more, largely because of the temporary inadequacy of the old library. Probably the normal expectation of study in the dormitories is between 55 and 60 per cent of the total studying done. This might, of course, vary in institutions of different types, e.g., those with large numbers of non-resident students.

The relation between the number of roommates and the use of the room as a place for study is significant and interesting. Those with no roommates spent 48 per cent of their time studying in their rooms; those with one roommate, 53 per cent; those with two roommates, 41 per cent; and those with three or more, 29 per cent. The smaller amount of studying done in their rooms by those rooming alone in contrast to those living in doubles may be due in part to chance, but also to the occasional student who lives alone but prefers to study where there are pacemakers to keep him working. Those living in doubles probably find their rooms a closer approximation to their ideal study space (see p. 31ff) than any other place on campus, unless they are senior honors candidates with special space. Roommates may have

different schedules and frequently one may work in the library while the other studies in the room—thus in effect creating a single room temporarily. Congenial roommates often like to study together if both preserve good study habits. Conflicts of interest (e.g., if one wishes to sleep and the other to study) may be resolved if there is a separate study room in the dormitory. As the number of room occupants increases beyond two and especially beyond three, these compromises and solutions become more difficult to manage, and consequently the amount of studying done in the rooms declines. It is obviously unnecessary to build dormitories with nothing but single rooms in order to encourage study. Since the total amount of studying per student was found to be almost constant, regardless of the number of roommates, the amount of supplementary study space needs to be increased as the number of roommates expands above one.

At this point it seems desirable to discuss the problem of whether space with multiple uses, such as dormitories, can be good study space too. Can one sleep, eat snacks, enjoy conversation, listen to music, write letters, maintain a picture gallery of the opposite sex or a student museum, all in the same room, and still find it possible to study there? How frequently can conflicts of interests between roommates be solved? Is a special room, reserved for study, and nothing else, needed? Certainly conflicting external stimuli are present in the multiple purpose room to a greater degree than in the single purpose room; but it should not be forgotten that the student carries multiple stimuli within him when he enters the confines of the library or any other special study space. Consequently there is no complete escape from this problem. If large special study rooms are constructed in the dormitories then they carry the same handicaps which make students want to avoid the large library reading room. A proposal occasionally made elsewhere for the solution of this problem is to house students in suites of four to six or eight students with a special study room for the group. This plan has, of course, many variations, some of which become very expensive. It would appear reasonable to infer from our data that students would prefer to study in their own multiple purpose single or double rooms to studying in special study rooms with several others. How inefficient multiple purpose rooms may be seems to depend considerably upon the self discipline imposed by the students. If certain hours are sacred to study, then many external stimuli are not obtrusive. If reasonable limits are observed about visiting other rooms, and other forms of social distraction, many students find their own rooms very desirable places in which to study. Some frankly admit that they cannot manage the required amount of self-discipline and consequently hie themselves to the library.

It must be admitted, however, that the special study hall in a dormitory or fraternity can be successful given sufficient restriction of the visual field, control of noise, and adequate self-discipline. Examples of this were found in our research.

The most frequently used study space on campus is also the one with the most variety of uses, viz., students' dormitory rooms. In these 48 per cent of all the studying reported took place. The causes for this preference must be sought in a number of variables, rather than in the issue of multiple or single purpose use. The desire for freedom from distraction has already been explored. Frequent complaints about study spaces center around problems of lighting, heating, and ventilation. In his own room, a student can approximate his own standards of comfort in such things more than is possible where all controls are out of his hands. The importance of this varies, of course, with the adequacy of conditions in other places available for study. For some places there were only scattered complaints, but some special study places were frequently assailed as too hot, too poorly lighted, or badly ventilated. Students report greater personal comfort in their rooms in other respects—posture, clothing, and occasional periods of relaxation. Taken in moderation, some interruptions to study are probably desirable, although most students report these activities with an apparent sense of guilt. There is also much to be said in favor of having many of the materials for study readily available, and this is possible for more students in their dormitory rooms than in any other place. Perhaps there is also some intangible satisfaction for many students in their own rooms. These are their castles. Here they feel at home and are more secure than elsewhere. Here they obtain what little privacy there is to be had in a college community.

A special facet of the problem of studying in dormitory rooms lies in smoking regulations. If students wish to smoke while they study, and smoking is forbidden in their rooms, then they must go elsewhere to study. In such dormitories, the problem of where to smoke was solved by special smoking rooms. Sometimes they are used as social rooms as well as for study, but in some instances they were restricted to study. The use of these smokers as places to study varied substantially from one dormitory to another. Where they were heavily used for study, student rooms were used less, and conversely. In a dormitory with smoking rooms reserved for study, only 59 per cent of the studying in the dormitory was done in student rooms; while in a dormitory in which the smoker was a social room, 93 per cent occurred in the student rooms. In one large dormitory, a commodious study room for non-smokers rarely had more than three students in it, and often fewer; while the study room for smokers was well used, especially in the evenings. A few students spent most of their study time in such smokers, but less than half of the smokers reported using such rooms for an hour or more per day. It is evident that if students are allowed to smoke in their rooms, or do not wish to smoke, then much less special study space needs to be provided in the dormitories.

Some other dormitory multi-purpose rooms which are drafted as study space need comment. Dining halls sometimes serve as typing rooms or places where writing materials may be spread out on larger tables than are found in student rooms. These are seldom satisfactory from the standpoint of

lighting, and the table and chair heights are not designed for typing. The thrifty manager, or architect, might well cast an inquiring eye at dining rooms as places with many square feet of spare standing idle for a large share of the 24 hours. But before redesigning such rooms so that they may double as study halls, it should be remembered that students do not like to share large study spaces; and our data confirm this by showing that at no time during the four days of recorded study did more than three students use a dining room simultaneously. If dining halls are to be used for study purposes, only places for three or four need be provided in terms of changed lighting, table, or seating designs.

Parlors, lounges, rooms for entertaining guests, lobbies, etc., stand idle much of the time and look superficially like good study spaces. They are little used for this, however. Sometimes rules forbid such use except at certain hours, but even at permitted hours they are not popular study places. During the hours when such places are apt to have intermittent visitors, or conversational groups, they are liked still less for study. When these are used for study, students are usually engaged in reading which does not require note taking. Chairs in such places are seldom designed for other study uses, and neither is the lighting. Students, for the most part, do not care for plush comfort when engaged in serious study.

Dormitories vary in the amount of studying done in them for a variety of reasons. One variable is distance from the library and classrooms. In one college, one dormitory was within a stone's throw of the library while another was so far away as to make it virtually impossible to go back and forth to the dormitory between classes. In the former, 79 per cent of the total study time of the responding students was spent in the dormitory, and in the latter, only 40 per cent. The former dormitory was smaller, older, and lesss attractive than the latter, but on the other hand was somewhat "homier" and had more small study places available in proportion to the population. Nevertheless the major factor in this sharp difference appeared to be distance from the library and classrooms. Students in the nearby dormitory preferred to get books from the library and take them "home" to study, whereas this was much less feasible for students in the other.

Another variable influencing the amount of studying done in any particular dormitory is its construction. Floors squeaking noisily, telephones ringing madly at points designed to make the largest number of students hear them, torrential plumbing, court or L-shaped construction bouncing sounds back and forth, long unbroken corridors echoing footsteps and conversations, special study rooms located strategically to catch noises from the kitchens, sound conducting walls, lack of sound dampening at noisy points, inadequate or inappropriate lighting, location of windows so that desks cannot be placed to take the best advantage of daylight, poor ventilation (especially in smoking rooms) or heating equipment—all these items have been specified by students as building faults which encourage them to study else-

where. There is, of course, the problem of old buildings which should be replaced with better construction, and the lack of funds for this. How much should go into remedying defects in old buildings will have to be calculated in terms of each particular instance. But where new construction is undertaken, a thoughtful eye should scrutinize all of these matters. There are solutions, and not all of them need to be expensive.

A third variable determining amount of study in a dormitory is the behavior of the group living there. If the inhabitants of a dormitory shift from conscientious observers of good study decorum to a group which is indifferent to rules, then more studying will be done ontside the dormitory. Coping with this is primarily a matter of education, with student leaders developing the mores just as they must do in any honor system which is effective and enduring. When such considerate mores are lacking, students report that a privately made sign, "No Admittance," hung on the door will be ignored; given an official college sign, and a strong tradition, the symbol will be respected. Freshman exuberance is a common complaint of upper classmen, and an undue proportion of freshmen in one dormitory may create a serious hazard to its traditions of quiet and study observance. Good physical conditions in a dormitory make it easier to develop good norms of personal behavior toward study. With poor conditions, more effort is needed to secure the desirable mores. The combination of poor physical conditions and inferior attitudes toward study tends to drive the studious out of the dormitory.

How much space in a dormitory should be provided for studying outside of the students' rooms? Some is needed. The answer depends upon a number of variables which have to be evaluated in terms of local conditions. These include the size of the dormitory, smoking regulations and student addiction to the weed, the restriction of typing to certain places, how many students may wish to study at hours after their roommates have gone to bed, the closing hours of the library, the existence of other desirable, small study spaces outside the dormitories, distance from the library, loan policies of the library, and the self discipline that may be expected of students in preserving good study decorum. Probably it is safe to set aside enough special study space in the dormitories to take care of from 10 to 20 per cent of the dormitory population. This should be divided into two or more small rooms rather than included in one large one. Two such rooms provide flexibility of purpose as well as the smaller sizes which make for less distraction from fellow students.

Needless to say, some social rooms need to be provided in a dormitory for the inevitable "bull session" and other forms of sedentary relaxation. These are a part of the education of the college student, and take place at all levels of intellectuality ranging from the serious to the frivolous. If there is no place for this kind of activity, then it will move into the student rooms and study spaces with obviously deleterious effect upon the quality

and continuity of study. The amount and kinds of social space needed are not a part of this study, so no recommendations will be made here.

Under the educational programs and architectural conditions which now exist at these four institutions, students use their dormitory rooms four times as much for study as any other single kind of place. It is conceivable that with a different kind of educational program, and a library constructed with more small, relatively isolated study places, the balance might shift to the library. But this is no reason to make the dormitories less adequate as places for study. The dormitory rooms will still continue to be used for much studying, and constructing them for good study conditions will not lessen their desirability as places in which to live. If educational programs do not change much, and dormitory study conditions improve, an even higher percentage of study might take place in the dormitories. At any rate it seems thrifty planning to build dormitories with an eye to good study space regardless of the direction of college educational programs.

EMPTY CLASSROOMS

Classrooms are empty for many hours of each day, and it seems a most natural thing to utilize them for study space. Unfortunately their current use does little to solve the problems of where to study for more than a mere handful of students. The standard custom seems to award the whole room to the first student to take possession by squatter's rights. By looking sufficiently annoyed when other students try to study there, the first usually succeeds in maintaining his solitude. Thus a classroom building which will take care of 800 students in classes may house only 25 to 50 for study. At night the cost for electricity is enough to make a college treasurer groan. In view of the students' dislike of large study spaces with many other students, it seems unlikely that any minor changes in classrooms such as changes of furniture, will make them into heavily used study places. Major changes in classrooms will probably be less desirable than the construction of new and better study quarters. Some experiments in attempting to make classrooms serve also as study halls, e.g. using folding partitions, may be worth trying. Judgment will be reserved until such attempts can be evaluated.

ABOUT COMFORT AND EFFICIENCY

The vast majority of students accept study as a serious enterprise and want conditions which will produce the best results for their expenditure of time and energy. For the characteristics of what most students regard as good spaces, (see p. 32.)

But there is no set of standard conditions which will appeal equally to all—probably one major reason why dormitory rooms are popular study places is that they can be at least partially adjusted to individual tastes. Some like it hot, some like it cold. Most institutional furniture is bought in stand-

ard sizes, but students don't come that way. The modern contour chair will not fit all contours. Consultation with the physical education department should provide data on the proportion of tall, short, fat, and thin students, and chairs of different kinds might be purchased in similar ratios. Freedom of exchange of chairs among students should be allowed. Indeed some enterprising furniture maker might very well be persuaded to do a bit of research on comfort for the students who are not average in their dimensions and contours.

There are inconveniences and discomforts which could be prevented by foresight or remedied by aftersight. Some of these are the products of the past which have taken the forms of unyielding bricks and cement, or obsolete heating and wiring which cannot be corrected except at great expense. Sometimes a later improvement is grafted upon an old situation in a way that would not have been done if both were begun simultaneously. To such categories belong placing new carrels beside old radiators rather than making much more expensive shifts to achieve greater comfort for the students; wiring so inadequate that only small light bulbs can be used; heating without adjustable controls; the sacrifice of function for architectural effects. But some inconveniences and discomforts are the result of thoughtlessness. Consider the case of furnishing a dormitory with standard desks, and with them standard chairs which will not slide into the kneehole. For the student to get close to the desk, the chair must be turned with a corner projecting into the kneehole, and the student must sit astride the corner! Some lighting errors seem obvious: lamps and shades so designed that a student reading and taking notes finds his book and notebook under very different degrees of illumination; lights in the ceiling of a study room, so high and so small that eye strain and inefficiency are inevitable; glare with no means provided for its control. Smokers often complain that when they are segregated into special rooms, the ventilation is inadequate—something which could be alleviated with window fans in old buildings and taken care of by forced air systems in new construction. Telephones on each dormitory floor, which ring stridently until the least patient student answers and then shouts the name of the recipient of the call up and down the hall, are a disturbance of real magnitude. In a new building, this can be eliminated, and in some old buildings, the nuisance can be reduced. These illustrations of actual situations encountered in these institutions emphasize the necessity to consider the need for good study conditions as seriously as the foundations of buildings.

SUGGESTIONS

The authors of this study have found students such a valuable source of information about study conditions, they they wish to advise each institution to survey its own arrangements through discussions with students. Such a formal study as this need not be undertaken. Instead students should

be met in small groups in informal sessions where they may feel free to say what they believe. Some guides for the direction of questions and thinking may be obtained from such a study as this, but students should have freedom to develop ideas which may be purely local. Consultation with a group from each dormitory would be highly desirable to discover the things wrong with it. Counts of students in congested study places can be made. Too much dependence should not be placed upon the opinions of a single person at any level from student to top brass. Individual views are too limited, and often tied to personal considerations. But a small group will conscientiously sort out opinions, criticize rash statements, and prove very helpful if properly approached. Most students will respond gladly to an appeal for constructive criticism, and not expect immediate and expensive changes in response to their opinions.

Any institution planning the construction of a new library or dormitory might well do the same thing. Here the mistakes of the past can be corrected, and imaginative ideas tried out on the future customer. Essentially this is the technique of "consumer research" which business has found successful; and since our students are above average in intelligence, we should not underestimate their opinions even though they may lack experience. We would also recommend visiting other institutions which have ventured into new forms of architecture. This was not a part of this study, but it might well be a supplementary task. In any case, such visits should include some discussions with students as well as faculty, staff, and administration.

Needless to say the architect needs all the information he can get about the direction of college programs and the functioning of existing space. He should, as much as he can, participate in these attempts to gather student opinions, and study closely college findings in these matters. This kind of collaboration should produce much more functional buildings than are apt to be achieved by working in isolation.

The important factor in providing good study space is not institutional affluence but imaginative planning and adaptation of space to the criteria of good study conditions. And in view of the notorious longevity of college buildings, it behooves both the affluent and the limited to try for long term functional construction.

THE STUDY IN DETAIL

SUBJECTS

FOR AN explanation of the purpose and the origin of this study, the reader is referred to the Foreword. It is sufficient to state here that the purpose was to discover what kinds of study space were used by students, why they used it, and what they would prefer. It was hoped that the answers might be helpful to the planners of college buildings which were to be used as places in which study would take place.

The study was based upon samples of student behavior and opinions from Amherst College, Mount Holyoke College, Smith College, and The University of Massachusetts. Sophomores, juniors, and seniors were selected from a variety of dormitories, fraternities, and sororities. The following tables will indicate their distribution.

TABLE I. COLLEGE, SEX, AND RESIDENCE OF THE SUBJECTS

College	Males	Females	Dormitory Residents	Fraternity or Sorority Residents	Totals
Amherst	96		56	40	96
Mt. Holyoke		92	92		92
Smith		93	93		93
University of Massachusetts	35	40	56	19	75
Totals	131	225	297	59	356
Percentages	36.8	63.2	83.4	16.6	

TABLE II. DISTRIBUTION BY MAJOR DIVISIONS OF STUDY

Major still Unselected	Humanities	Social Sciences	Natural Sciences	Others
N 80	91	91	55	39
% 22.5	25.6	25.6	15.4	10.9

TABLE III. DISTRIBUTION BY CLASSES

Sophomores	Juniors	Seniors
N 151	93	112
% 42.4	26.1	31.5

TABLE IV. DISTRIBUTION BY PREPARATORY SCHOOL ATTENDED

Public High School	Private School	Parochial
N 240	110	6
% 67.4	30.8	1.7

TABLE V. DISTRIBUTION BY NUMBER OF ROOMMATES

None	One	Two	Three-or-more
N 77	198	45	36
% 21.6	55.6	12.6	10.1

There were 12 dormitories and 8 fraternities and sororities represented in the study. In some dormitories a better degree of cooperation was found than in others, but the total response, 49 percent, was good in view of the amount of work asked of the students. Only one group, the fraternities at one institution, failed to respond adequately. There was an attempt to select dormitories and other residences which would reflect such variables as old and new buildings, those near to and remote from the libraries, those with reputations of studiousness and those with less enviable records, representatives of both large and small houses. The students showed a wide range of distribution throughout the curriculum, high school backgrounds, and residence conditions. In terms of academic ability there was less range, for the students in these institutions are highly selected. In terms of socio-economic scale there was a considerable range although the great majority were in the upper half as indicated by paternal occupation and education. There was a slight preponderance among the 356 respondents of students from the upper halves of their academic classes, 56.3%, in contrast to 43.7% from the lower halves. There is a predominance of women but no sex differences of significance appear in the findings. The heterogeneity of four different institutions, residences, and diversity of libraries, rules, regulations, etc., was deliberately sought in the hope that either contrasts would show up, or that generalizations would appear which would have high validity and wide application because they existed in such diverse conditions.

Differences in the amounts of time devoted to study in the four colleges were slight. In the study diaries kept on each campus for four consecutive days, the range of the mean number of half-hours of study recorded by institutions was from 45.3 to 48.6. Dormitory residents studied a bit more than fraternity and sorority students at the same institutions, but not significantly. In one instiution there was a difference between such groups of 1.9 hours per student in four days, while in the other it was one hour. As a consequence in some comparisons dormitory, fraternity, and sorority members were put into the same category, viz., dormitory residents.

MAJOR SOURCES OF DATA

Each student participating in the study kept a study diary of where he studied, when he studied, and for how long. These diaries were kept on record sheets furnished to the students with the request that they be filled out each day. The time used consisted of four days, Dec. 1 to Dec. 4, 1959, Tuesday, Wednesday, Thursday, and Friday. These days were chosen in

order to have an equal amount of time on each of the class schedule cycles in each institution and most students reported these days as "quite typical" or "fairly typical." The period chosen seemed a fairly representative time of study, with habits established and no unusual distractions or pressures. This could not, of course, be equally true of all subjects, but the time sample proved reasonably good. A few students, less than ten per cent, used a different four days. The total number of hours of reported study was 8,375. It should be noted, however, that other periods might be weighted heavily with reviewing or paper writing which could conceivably shift the loci of studying somewhat. For an illustration of the diary form, see Appendix A.

A second source of information consisted of comments made by the students on a special sheet at the end of the study diary, on which they were asked: "1. What comments can you make about each of the study spaces used which will show in what respects it was satisfactory or otherwise? 2. Do you have any suggestions for the *improvement* of the study spaces in the dormitories, fraternities, library, etc?" The replies were informal and consequently difficult to organize or quantify. Yet they did yield good insights into student reactions to their own study space or what they conceived of as more ideal; and the fact that certain kinds of comments were repeated frequently did show a consensus.

A third source of data was an opinionnaire. This was divided into two sections. The first stated 72 specified study conditions and asked the students to indicate their opinion as to how desirable each of the conditions would be in an ideal college or university. A seven point scale was used. The second section consisted of 22 specified study conditions and asked the student to declare *how often* he would study under each condition. Responses were also to be recorded on a seven point scale running from "always" to "never". Since these duplicated a sample of the items in the first section, they served as a check upon consistency in student replies. For a sample opinionnaire, and the results obtained, see Appendix B.

Both the study diary and the opinionnaire were refined by try-outs with samples of students.

SUPPLEMENTARY SOURCES OF INFORMATION

Interviews were conducted with the librarians at the different schools, with heads of houses, and other officials who might be able to throw some illumination upon student habits of study. These were not standardized interviews and consequently proved more useful in providing leads for further study and for interpretation of data than for tabulation.

Discussions with students were held both individually and in small groups before the study diary and opinionnaire were fully developed. These provided helpful suggestions about items for inclusion, the choice of dormitories to be studied, etc. They also shed interesting insights into local conditions and practices which might affect student reactions to study spaces.

Their discussions helped to crystallize the belief that they, the customers, had a great deal of valuable information about how study space worked out in fact as well as theory.

Visits to dormitories, fraternities, and libraries added another angle of observation. One could readily see why one dormitory proved a poorer place to study in than another. Mistakes in construction, lighting, heating, organization and operation were pointed out by student guides in the dormitories. Some of these errors were remediable and others avoidable in new construction. Similarly it was possible to see difficulties in the libraries—many of which were not so easily remediable. Some interesting attempts to adapt existing space to improve it for study purposes were seen. Again, these observations did not lead to tables and statistics, but they were helpful in confirming things indicated elsewhere.

The validity of such data as these depends upon the seriousness and competence of the students who contributed them. Partial checks for these lie in the consistency of behavior and opinions. If students had chosen study places which contradicted their opinionnaire or informal data, no confidence could have been placed in them. Instead the three major sources of data corroborated each other with a very high level of consistency on significant factors. On items which showed a wide range of opinion and behavior, and consequently much variability, no conclusions have been drawn. Having several sources of opinions and information also helped to make much more valid interpretations of behavior than if only one source had been tapped with a single method. For example, having an expression of attitudes on a seven point scale concerning specified conditions of study, plus informal written comments without specific questions, and free discussions with different groups of students or individuals, enabled us to test opinions and information for their consistency and meaning. There have been few attempts to make comparisons between small groups, living under specialized conditions; for such samples are too small to be reliable. Occasional speculations have been attempted, but these are so identified.

METHODS OF HANDLING DATA

As much data as could be handled by machine tabulation was so treated. The opinionnaire readily lent itself to this, and the study diaries did also with some supplementary coding. Students used the code for different types of study successfully, and wrote out activities which they were not sure fitted into the codes. The latter were coded or discarded by the committee. Place names for studying had to be identified as to type by the representative, or a deputy, on each campus, before being turned over to clerks for tabulation. Time reported by students showed a marked tendency to round numbers. In order to find some quick but accurate method of counting time for our purposes, several methods were tried and one of them proved accurate to an average of 7.5 minutes difference on 32 days of actual

reported study time. Since we were interested in relative amounts of time spent in different places in varied activities, this was accurate enough for our purposes. The method consisted of counting anything less than 40 minutes reported in a given hour as a half hour, and anything over that as an hour. In an occasional record of three activities in a one hour period, one of the activities was almost invariably related to the work of a previous or subsequent hour and consequently could be attached to that hour. Rules for preparing the diaries for clerical workers were made and used so that uniformity of treatment at the four institutions could be obtained. Later clerical work was done for the most part by skilled clerks and an IBM sorting machine operator. Tables were compiled by the committee.

FINDINGS

SIZE OF SPACE

THE MOST conspicuous physical characteristic affecting student choices of places to study in is size. There is an inverse relation between the size of study places and their desirability. Even the compulsion of having to study in some large places in order to secure books or other materials is not enough to disguise the relation. Study space was divided into four categories of size. In the small size were dormitory rooms, library carrels, and studies for honor students. In the second category went such places as dormitory lounges, smokers, study halls, and library seminar rooms. Into a category of "moderately large" places were put empty classrooms, laboratories, studios, departmental libraries, dining rooms, and public social rooms like restaurants. The category of "large" contained only one type of space, large library reading rooms. The following tables show the differences in the use of such rooms and preferences expressed for them.

TABLE VI. STUDENT USE OF STUDY SPACE OF DIFFERENT SIZES

(The figures represent half-hours)

Type of Space	Total Half-Hours Used	No. Students Using Space	Mean Half-Hours Used	Per Cent of Total Study Time Used
Small	9434	424*	22.0	56
Intermediate	2794	196	14.2	17
Mod. Large	2291	340	6.7	14
Large	1935	173	11.1	12

*The number is larger than the total number of students in the study because three different kinds of study space were included and since some students used more than one of them, they would be counted more than once.

The verbal opinions of students agree very well with their behavior. There is not unanimity of opinion, but the tendency to prefer smaller places is clear and strong. Students are not completely free, of course, to study where they wish, and the compulsions to study are apt to be strongest in the

large library reading rooms, since so many books are obtainable there only. There is compulsion of a similar sort about studio and departmental library work. For most students there is relatively little pressure to study in their rooms, although most college libraries could not meet the demand for chairs if all students suddenly decided not to study in their rooms any more. There is a very clear desire on the part of the majority of students to escape from large study places and use small ones. The dislike of the large places is not merely because of their size, but the fact that large study places normally have large populations of students. Students will use such large places as empty classrooms for study, but only if they are not required to share them with many others. Thus size and population are interwoven influences in determining student reactions, as can be seen by comparing Tables VII and VIII. In one table there are responses to size; in the other, responses to the number of other students present and studying. The correspondence of the answers not only serves as a check of consistency, but also as a key to interpretation.

TABLE VII. EXPRESSED PREFERENCES FOR STUDY PLACES OF DIFFERENT SIZES

Size of Space	Opinionnaire Replies % Pro	% Contra	No. of Favorable Comments from Study Diaries
Small	80.2	11.2*	126
Intermediate	68.1	16.0	87
Mod. Larger	not included		21
Large	24.7	63.0	10

*The percentages do not total 100 because neutral opinions are not included in the table. See items 07, 08, 09 in Appendix B.

TABLE VIII. ATTITUDES TOWARD THE NUMBER OF PERSONS USING A GIVEN STUDY SPACE

Number of Fellow Students in Space	Opinionnaire Replies % Pro*	% Contra	No. of Informal Favorable Comments
No one else	85.5	7.6	92
2 or 3 others	64.5	24.1	40
About 7	37.0	41.5	22
About 20	27.5	54.0	11
100 or more	15.3	71.1	7

*i.e., the per cent on the positive side of the neutral point in a seven point scale.

The dislike for fellow students in the same study area increases directly with their number. This is not an evidence of misanthropy, but a desire to escape the distractions which increasingly large numbers of students inevitably produce. How important this is can be seen from the fact that students in their informal comments about study space mentioned the annoyance and distractions of people-produced noise and movements 295 times; while the

second most frequent complaint, poor lighting, was made only 167 times. The opinionnaire also supports this attitude by high percentages of dislike for the same types of noises. The movements are not annoying solely because of the accompanying noise, but also because of the strong tendency to look up and identify the persons and movements seen dimly in the periphery of vision. This was mentioned by a number of students, but it can also be easily verified by walking down the aisle of a large reading room and watching the heads turn. It is almost inevitable that more noise will be made by a large number of people than a small group in a study area. There will be more movement, more coughing, more chair scraping, more whispering, more page turning, etc., etc. So the student who wishes to escape such distractions tries to avoid the larger and more highly populated study spaces.

There is a small minority, however, which does not want to study alone. Some of these seek out noisy places to study, e.g., coffee shops and some of them prefer the large study halls. Discussions of their choices with such individuals shows that they usually have a reason to offer. Those who like to study in the atmosphere of coffee, cigarettes, sandwiches, juke boxes, buzzing conversations, and streams of student traffic, protest that these conditions are fairly continuous and consequently tend to lose their power of attracting attention; while the distractions of the large library reading room are intermittent and consequently maintain their ability to distract. The public sees this student more than the great majority who study in their rooms or in the library, and assumes that he is typical. But this is not true. Most students do not want to study in a tavern atmosphere. An occasional student reports inability to study alone and finds the large study hall keeps him awake and busy. So this individual may have a private room in a dormitory, own all the books he reads, and yet carry them back and forth to the library to read because he needs pacemakers and a formal atmophere to keep him working. Others report that they like to study with a congenial roommate or other friend; or an occasional small group finds discussion of studies a stimulating intellectual exercise. But most students are anxious to diminish people-produced distractions and consequently choose small places in which to study.

DISTINCTIONS BETWEEN GOOD AND POOR STUDENTS

Is there any disagreement between good and poor students in their preference for large *versus* small, or well *versus* sparsely populated study places? Two attempts were made to answer this question in relation to study in dormitory rooms and large library reading rooms. In one of these a contrast was made between students in the top three deciles of their classes and those in the bottom three in the amount of studying done in their rooms. The high group reported 23.9 half-hours of study in their rooms in four days; while the low group reported 22.4 half-hours. A few persons in each group, 5.6% in the high group and 7.1% in the low group, did not study in their rooms at all. The little difference that exists might be due to the

fact that a slightly greater proportion of students in the lowest three deciles had more than one roommate; and such students study less in their rooms than those with one roommate or none. (See p. 27ff.)

A second contrast was made between students labeled "under-achievers" or "over-achievers." The former were arbitrarily defined as those whose academic decile rank in class was two or more deciles below that of their Scholastic Aptitude (Verbal). The latter were defined as those who had an academic decile rank two or more deciles above that of their Scholastic Aptitude. There were 51 under-achievers and 115 over-achievers. The large library reading rooms were not used at all by 56.9 per cent of the under-achievers or by 44.3 per cent of the over-achievers. The mean number of half-hours studied in these rooms by under-achievers was 3.96; and 7.49 by over-achievers. Since approximately half of each group did not use them at all, and since the difference between the means of use amounted to less than a half-hour per day per student, it is hard to believe that the large library room is an important factor in determining under or over achievement, except for the occasional student who, as has been said before, needs pace-makers and a formal atmosphere of study. The means for studying in the dormitory rooms were 24.1 for under-achievers and 21.7 for over-achievers. This amounts to approximately one half-hour per day—not a material difference. A few did not study in their rooms at all—3.96 per cent of the under-achievers and 6.1 per cent of the over-achievers.

It might be noted for use in interpreting the above facts that the under-achievers reported a mean total of 44.7 half-hours of study in the four days, while over-achievers reported 48.6. Those in the lowest three deciles of their classes studied 47.5 half-hours; and those in the highest three deciles, a mean of 48.5.

In the light of all the evidence, there seems to be little distinction between good and poor students in their choices of dormitory rooms and large reading rooms as places in which to study. A high percentage of both groups use the large library reading rooms very little or none at all. A few from each group use them more heavily; and over-achievers slightly more than under-achievers. But, in general, it is evident that what is recognized by one group as desirable study space is so identified by the other.

THE DORMITORIES AS STUDY PLACES

The students were all in residence at their various institutions. Since there were no sororities at the women's collges, and since few replies were returned from the fraternities in one institution, the large majority, 83 per cent, lived in dormitories. The fraternity and sorority dwellers were not treated separately since they comprised a small group scattered through eight houses, and their amounts of study were not significantly different from those of students living in dormitories. So the results are those essentially of dor-

mitory dwellers, living largely in single or double rooms—78 of the former and 199 of the latter. Forty-five students had two roommates and 36 had more. The houses operated under different rules with respect to closing hours, smoking, quiet hours, etc. They also differed in their provision for special study rooms, social rooms, smoking rooms, typing places, etc. Some were near the library; some were distant. Some were new; some were old. None was arranged in suites with a study room for the six or eight students who might live in them. Students were chosen for dormitories by lot in some places and were allocated in others. With these facts as background, the following data will be presented.

TABLE IX. STUDYING DONE IN THE DORMITORIES IN A FOUR DAY PERIOD (Reported in Half-hours)

College	Total Time Studied	Total Studied in Dormitories	Per Cent of All Study	Total Study in Student Rooms	Per Cent of All Study	Per Cent of All Dormitory Study
Amherst	4623	2751	59	2252	49	82
Mt. Holyoke	4300	2365	55	2194	51	93
Smith	4521	2593	57	1537	34**	59
U. of Mass.	3306	2565	78*	2091	63	82
Total	16750	10274	61	8074	48	79

*This high percentage is due in large part to the inadequacy of the old library. This may drop when the new addition is in service.

**The smaller proportion of studying done in student rooms here is due largely to the greater provision and use of special study rooms in which smoking is permitted.

Well over half of all the studying done in each of these institutions was done in the dormitories; and with one exception, more than four-fifths of the studying done in the dormitories was done in student rooms. This makes the dormitories the most important study space in these four institutions, and of all types of places, the dormitory student room carries the greatest burden of study. In the light of the desire of the students to escape from studying with others, this is not surprising, even though students do complain about lack of observance of quiet hours, and the casualnesss with which students wander into the rooms of others.

The effect of the number of roommates upon the amount of study in student rooms is of interest. One might expect from what has been written previously that the amount of study in student rooms would decrease as the number of roommates increased. Table X shows us, however, that this is not the case until the number of roommates becomes greater than one. Indeed students in single rooms study slightly less in their rooms than those in doubles. Some of those who live in single rooms, but did practically all of their studying in the library, offered such explanations as: "I just go to sleep if I try to study alone"; or "I need others around who are studying to keep me busy." Those who do not have habits of self-discipline at study apparently do better when they study in a situation where studious behavior

is expected. Students who have only one roommate come close to approximating the study conditions desired by most students (see p. 36f) unless they have some specially awarded, private space as is frequently given to honor students. If roommates have different schedules, then the room becomes in effect a single room part of the time. Also one student may study in the library while the other uses the room. Two students, with good habits of study, may work together quite congenially. If one wishes to study late and the other to sleep, a special study hall in the dormitory may resolve the problem. But these solutions become increasingly difficult with added roommates, and consequently study in the rooms tends to decline as is shown in the bottom line of Table X. If a dormitory is to be constructed so as to encourage study in the rooms, then singles and doubles are almost equally desirable. But if more students are housed in a room, or suite, then special study space must be provided.

TABLE X. AMOUNTS OF STUDY IN THEIR ROOMS BY STUDENTS WITH DIFFERENT NUMBERS OF ROOMMATES (Recorded in Half-Hour Units)

College	*No Roommates* N	Total Study	Room Study	*One Roommate* N	Total Study	Room Study	*Two Roommates* N	Total Study	Room Study	*Three or More* N	Total Study	Room Study
Amherst	12	607	441	23	1082	735	37	1836	727	24	1140	304
Mt. Holyoke	25	1183	625	64	2978	1490	3	165	79			
Smith	34	1669	574	59	2864	963						
U. of Mass.	6	272	147	52	2232	1698	5	173	79	12	594	200
Totals	77	3731	1787	198	9156	4886	45	2174	885	36	1734	504
Per cent of Total Study Time Spent in Study in Their Rooms			48			53			41			29

One reason which no doubt makes a student's room a desirable place to study in is that a student can frequently deal with some matters of distraction, personal comfort, and efficiency more easily there than in a study hall which must serve many. That these have importance can be seen from the frequency of their mention in the informal comments in the study diaries shown in Table XI. Some of these are supported by the opinionnaire, see items 27-35, 46-49, 15-16, 50-55, 56-59, Appendix B; but others cannot be tabulated in the same way.

TABLE XI. PROBLEMS MORE EASILY REMEDIED IN A DORMITORY STUDENT ROOM THAN IN ONE SHARED WITH A NUMBER OF STUDENTS

	People-Produced Noises	Lighting	Temp. Vent.	Easy Availability of Materials	Furniture	Relaxation Needs
Frequency of Mention in Study Diaries	295	167	156	152	124	68

Most of the complaints made about the above were in relation to large reading rooms, although some were made about lack of respect for quiet hours in dormitories. Almost all of the complaints about temperature and light were of too much heat, and inadequate lighting. But the lighting and temperature problems were almost completely those of large places. In these, students could not open windows or turn on another light, for they had no control over these things such as usually exists in one's own dormitory room. The opinionnaire responses placed a strong emphasis upon the desirability of easy access to materials needed for study, and for most of these students, with the exception of senior honor students, their rooms were the best places to collect and have available such materials as they needed, even though their collections were limited. Chairs grow uncomfortable after awhile, and a dormitory room is more apt to provide a change than a large reading room. Dormitory desks were complained of where two students had to share one in common, but otherwise there were few comments. On the opinionnaire, most students expressed a preference for a larger desk size than most dormitories furnish, but the comments did not indicate any serious unhappiness with what they had, although an occasional student did report a need to spread things out when writing a paper. In many rooms the desk surfaces were made still smaller by using the back eight inches as a book shelf. This space might be salvaged for work by putting a book shelf above the desk within easy reach. The need for a seventh inning stretch is as urgent in study as in a baseball game; and one's own room provides an opportunity to relax with vigorous and undignified stretches which are not permissible in a large reading room. A snack, a turn around the room often provide the needed shift which refreshes. Students recognize these as dangerous diversions if they are indulged in too much, and some find them so tempting that they cannot study in their rooms. "The bed is inviting for a ten minute nap; but when I wake up, it is time for dinner." Some students deliberately seek the restraints of the large reading room as a way of handling their own inability at self-discipline. But on the whole most students can find it more possible to mold their own rooms closer to the heart's desire than to do anything about the large study places.

There are no doubt some intangible values for many individuals obtained by studying in their rooms. These rooms offer the little privacy obtainable in a college, the substitute for home, a sense of belonging. Here are collected many stimuli which are dear to the students but may compete with needs for study—a pin-up gallery, trophies of success, school pennants, attempts at college humor, collections which are an extension of one's personality, etc. Indeed many student rooms are as revealing of their inhabitants as a projective technique session in a psychiatric clinic.

The question is often raised as to whether the distracting stimuli in a student's room, and the multiplicity of its uses do not nullify its value as a place to study. (But, parenthetically, it should be noted that the student will not necessarily escape from them simply by going to some other place, for

he can carry them within his memory.) Some propose as a solution, that rooms should be arranged in suites, with one special room for study. For example, two sleeping rooms might house three students each, and an adjoining study room have six desks. Our dormitories did not provide such facilities or we would have evaluated this proposal carefully. As it is, our data indicate that students would prefer to study in their single or double rooms rather than in a room with five others. The latter situation leads to more people-produced noises and distractions than the former. Yet we did visit fraternities in which special study rooms had been fitted with booths which cut down visual distraction, and the students were so determined to enforce quiet rules that even a visitor was not allowed to speak. The students were quite pleased with these study conditions.

Students need to talk. They also need to study. Reconciling these two needs is a difficult problem. One group of students was asked to jot down, without further reflection, the things which they found satisfying about dormitory life, and also the things which they found most unsatisfying. One of the most conspicuously satisfying things was "the bull sessions"; while one of the most annoying was the inability to escape from the "chatter." There should be space designated for social activities, but even then dormitory traditions need to be built up which respect symbols of request for quiet or periods of study. A single individual with a homemade sign on the door requesting quiet is not apt to secure much respect for it, but a dormitory-wide symbol adopted by all, and with respect for it taught to each incoming group, will produce results. It has long been known that an honor system in a college will work only if the students want it and work seriously at maintaining it. The same thing is true about respect for privacy and study quiet. These things can be obtained by building up in the students a code to which they give their allegiance.

Informal discussions with upperclass students reveal that they regard the freshmen as one of the most serious sources of noise in a dormitory. Their exuberance and uninhibited freshness in a new and highly stimulating world are frequently expressed in noisy vitality. Freshmen retort that the upperclassmen "make more noise than we do trying to shush us." Upperclassmen recommend that the problem be diluted by not allowing more than a limited percentage of freshmen in any one dormitory and by not putting too many on one floor. They declare that a dormitory may deterioriate substantially in its observance of good study decorum simply by having too large or too concentrated a group of freshmen in one year. This sounds like the voice of experience which should be heeded, although we have no objective data on the subject.

Some construction problems in dormitories deserve comment. These were observed or called to our attention by students living in dormitories with the problems. Partitions which do not screen sound well enough are all too frequent. Lack of noise dampening construction at strategic points

permits noise to disturb those living near, and to render some rooms particularly undesirable, e.g., rooms near elevators, noisy toilets, bathrooms, and stairways. Long, unbroken halls permit reverberations. Hall noises may be reduced by attention to flooring, ceilings, and placing room closets against hall walls. Dormitories built in L, T, or hollow court patterns are considerably noisier than straight line dormitories when windows are open. The location of study rooms in dormitories should be in quiet places—something which is not always done. Telephones constitute an annoying problem unless properly handled. Often they are placed at points on each dormitory floor where they will be heard by the largest number of students. Usually they ring until the person with the least patience, or the greatest hope, answers. Most of the time the call is for someone else, and the answerer then noisily calls "Bill," or "Jane," as the case may be. By this time everyone has been distracted from study. The best system observed was a central desk downstairs which took all incoming calls and then buzzed the desired student's room. If the student was in, he pressed his buzzer to let it be known that he was taking the call, and then went to the telephone which was enclosed. Thus little disturbance was produced. In view of the amount of telephoning which goes on, and the heavy use of dormitories as study halls, such an investment is worth while.

There is need for other study places in a dormitory than just student rooms. Such needs arise for students who wish to smoke in dormitories which forbid smoking in rooms. The occasional student who wishes to study late while his roommate wants to sleep, must have some other place to work. A need to spread out papers, or type late may also create too heavy or improper demands upon a student room. Dormitories in these institutions which have rules against smoking in student rooms, provide special smoking rooms. An occasional student uses such a room almost consistently as a place for study; but less than half of the users of smoking rooms as places for study used them for more than an hour a day. Some smoking rooms are social rooms also, others may be restricted for study. One large dormitory had a commodious study room for non-smokers, but it was rarely used by more than three students and often by fewer. If smoking is not permitted in student rooms, then non-smokers usually study there. It is evident that if students are allowed to smoke in their rooms, or do not wish to smoke, then much less demand will exist for study space outside the rooms.

At first thought dining halls might seem attractive places to study in when empty; but our data show that in four days of recorded study for 356 students, in no instance did more than three students use a dining hall at the same time. This fits perfectly into the dislike expressed by our students for large, well populated, study places; but additional reasons exist in inadequate lighting and the furniture. These are designed for dining, not studying. But even if these faults were remedied, it seems reasonable from what we have learned that students would still use them in small numbers at most. Converting a dining hall into a study hall physically is not likely to make it a

popular place to study, although a couple of tables of desirable height and adequate lighting might be useful.

Lounges, date parlors, lobbies, and visiting parlors, are unused for substantial amounts of time each week, but they do not seem to be attractive places in which to study. An occasional student who is reading without taking notes will use them; but for serious work, they are avoided. The chairs are too comfortable for many students, often there is no place to write, and the lighting is frequently inappropriate. In addition these places are subject to people-produced distractions.

But these dual purpose rooms are not really satisfactory places for study, for they are not subject to the control of individuals who wish to use them solely for study. It is desirable in a dormitory to provide special rooms for students who for one reason or another cannot study in their rooms. There is probably no exact formula which can be used to determine how many students will want to study in the dormitory, but outside their rooms, at any one time. Numerous variables have to be considered, e.g., the more distant the dormitory is from the library, the fewer will be studying in the dormitory while the library is open; the smoking rules and the addiction of the students to smoking; the number of other small and desirable study spaces on the campus; the hours at which most students tend to go to bed; the hours the library is open; how long reserve books may be kept out; rules about typing in the dormitory; and possibly others. Our sample indicated that from ten to twenty per cent might want to study in the dormitory building but outside of the dormitory rooms at any one time. If the dormitory is large enough, then it is better to make several small study rooms than a single large one. They should be located in quiet parts of the dormitory, and furnished with good sized tables and a variety of chairs rather than a single type and size. The lighting should be excellent. If smoking is permitted, especial care must be taken of the ventilation, for even the most devoted smokers dislike stale smoke. Possibly typing should be restricted to one of these rooms, at least at late hours, although our data about typing are not clear on the subject.

It seems probable that most colleges will continue to plan for the use of dormitories as places in which to study. Consequently they should take this function of a dormitory seriously and plan it accordingly; and in old buildings they should correct errors as far as can be reasonably managed. At this point it seems desirable to attempt a description of the hypothetical kind of study space which most students appear to want.

IDEAL STUDY SPACE

No study space is ideal for everyone. That fact clearly emerges, even though students may like a given pattern by an overwhelming majority. Consequently there must be variety. Some like plush comfort, most like their study furniture and surroundings rather plain and reasonably comfortable.

Discomfort distracts; so does too much comfort. The tall and the short are both apt to be uncomfortable in chairs designed for average persons. Some like it hot; some like it cold. Some want to smoke; some don't. Some like company and pacemakers; most do not. But like most compilations of human behavior and preferences, there are distinct trends which characterize most subjects, with variability on both sides of the normal trend. Below is an attempt to state the characteristics of the study space which would be at the mode of student choice and use. The items are roughly in order of importance as derived from the various data available to the writers.

Characteristics of Good Study Space for the Typical Student

1. A small room where one may study alone or with possibly one or two other students.
2. A place being used exclusively for study—at least at the time.
3. Freedom from distractions of movement and noise caused by other people.
4. Freedom from distractions of noise from physical sources, e.g., telephones, plumbing, clanking radiators, typewriters, etc.
5. Good lighting.
6. Temperature and ventilation under personal control.
7. Easy access to books and other study materials.
8. Comfortable chairs, adequate desk space, and book shelves.
9. Some chance to relax, wear "easy" clothes, etc.; and for smokers, freedom to smoke.
10. Decor and furnishing which are plain but not ugly, definitely not plushy or arty.

It should be noted that the order of importance given above, and even the presence of items, may be affected by the conditions which students found existing in their institutions. If, e.g., students had had all the light they wanted, the subject would probably not have been mentioned, and light would not have appeared in the list at all. But architects can feel assured that the items listed above are matters of significance to students even though their rank order is not unassailable.

It should also be noted that some of the preferences for lighting and temperature are matters of previous conditioning. The amounts of lighting in some of our older libraries were considered adequate by the parents of contemporary students for they had like amounts at home and elsewhere. But we are now accustomed to many more foot candles than was true when Abraham Lincoln considered his firelight or candle sufficient, and consequently the contemporary student wants more light than he often gets. Temperatures desired are much affected by custom, experience and clothing—cf. the American preference for warmer buildings than the English like. No doubt compromises will have to be made on the control of tempera-

ture and ventilation, because people differ in the amounts of heat they need, both from habituation and also from bodily structure. One student's comfort in such matters may be another's discomfort—a factor which may make studying in one's dormitory room, where such matters can be controlled, particularly desirable to those who deviate from the norm. Perhaps libraries might be designed with thermostats which allow variability in different study rooms or in parts of the library.

THE LIBRARY

That the library is central to a college education is a fact which needs no proof or defense. But how much students use it, and how they use it do need investigation. Numerous factors determine the answers to these questions.

1. Educational policies and practices are of prime importance. What dependence upon textbooks exists? How varied are the sources which students must consult? How are reserves managed? How much research on the part of students is required or encouraged? How much independence do the students have? Is there an honors program?

2. There are alternate physical facilities for study to be considered. Among these are the dormitories, student unions, coffee shops, empty classrooms, laboratories, and possible special study halls. How do these compare in functional attractiveness with the facilities of the library? What is the capacity of these alternate facilities?

3. Then there are extra-curricular activities which may invite some students and repel others, e.g., making the library a place of rendevous and courtship.

4. But important also are the building and its management. Are the stacks open? Do they have tables and carrels scattered through them? Are there small rooms in which students may study? Must most of the students study in large study halls? Are there enough study stations to supply the demand? Is there much traffic through study places? Are books easily obtained? Is the lighting good? Are the temperature and ventilation soporific or stimulating? Are the desks and chairs comfortable enough to permit study for considerable periods of time? Are there suitable places in which to collect materials for writing? Are there rooms for typing?

No doubt there are other variables which determine how much and how students will use a library, but these will serve to show that no simple answer will do.

With this *caveat* in mind a study of Table XII will provide some interesting insights into the wide differences in how students used the libraries in these four institutions. The reader should keep in mind that differences

in the average amounts of study done by the students in these institutions is trivial.

TABLE XII. WHERE TIME WAS SPENT IN THE LIBRARIES

(Stated in half-hours)

Institution	Large Reading Rooms		Carrels		Seminar Rooms		Department Libraries		Smoking Rooms		Totals
	N	%	N	%	N	%	N	%	N	%	
Amherst	470	48.3	119	12.2	82	8.4	36	3.7	265	27.3	972
Mt. Holyoke	734	50.0	446	30.4	92	6.3	163	11.1	33	2.2	1468
Smith	502	34.6	397	27.4	192	13.3	264	18.2	94	6.5	1449
U. of Mass.	229	63.4	55	15.2	15	4.2	62	17.2			361

No doubt the reader will be struck by the differences in the total amounts of use of the libraries as shown in the last column. In the case of Amherst, competing study facilities, arranged especially for honor students at Churchill House, siphoned off 343 half-hours of recorded study from the library. Here the honor students in the humanities or social sciences were provided with attractive studies, where they might collect books and other materials to use. Another reason for less use of the Amherst Library lies in the fact that the library provided plenty of copies of books on reserve and permitted them to be withdrawn after dinner and kept until the next day. This is probably one reason why Amherst students studied more in their dormitories than did the students at Mt. Holyoke or Smith. Another possible factor is that they studied later at night than did students in the women's colleges, and not enough library space was left open late enough to satisfy them. In the case of the University's low total use of the library, one need seek no further than the inadequate size of the library at the time of the study. At this time it could seat only about ten per cent of the student body, so most students had to study elsewhere. The "elsewhere" usually proved to be the dormitories, where they studied 78 per cent of their time in contrast to the nearest competitor, Amherst, which studied 59 per cent of the time in the dormitories. The University is now opening a substantial addition to their library and it seems most reasonable to expect a large gain in the amount that the library will be used.

Carrels proved attractive at Mt. Holyoke and Smith, but less so at Amherst, and hardly used at the University. None of the institutions had closed carrels, but those at Mt. Holyoke cut off the most visibility and communication. They were assigned to honor students first but other students might use them when they were not occupied. They, like th carrels at Smith, were around the stacks, and books and materials might be accumulated in them. Use and comment agree in attesting their popularity at both Mt. Holyoke and Smith. At Amherst honor students and most seniors were provided with better assigned study places than the carrels. The carrels were unhappily located next to radiators and were dimly lit, so that they were not much

sought after. At the University there were no real carrels—only a few tables and chairs at the back of the stacks. This situation is obviously attributable to the fact that the library addition was long over-due.

Seminar rooms were used more generously by Smith students than by the others. This is due to a greater abundance of them and the fact that smoking was permitted in them, as was not the case at the other libraries. Again the low total at the University was a building deficiency. One thing which holds down the use of seminar rooms as study rooms is the tendency for students to regard them as more or less private offices on a first come, first served basis, a practice which is in conformity with their desire to study with few others around.

Department libraries are unevenly represented in our figures and probably in large measure because our sample of students using special libraries is low and uneven. E.g., department libraries of art may be quite adequate and desirable, but if our sample has only one or two art majors from the colleges that have them, their use is apt to look very small indeed. All of the colleges have department libraries, but any generalizations about them from our data are dangerous. Some research on the student use of such facilities is definitely in order.

Smoking rooms were provided in all the libraries except at the University—again probably a function of the limited space there. At Amherst one large room had been reserved for smokers. It was fitted so as to make individual study booths on the tables by partial partitions which cut down visibility and communication, and provided facilities for assembling study materials. It was also kept open after the main library closed. How much these additional reasons added to its attractiveness as a smoker is hard to say, but probably a considerable amount. Amherst students are permitted to smoke in their dormitory rooms, which may be a factor in siphoning off some smokers from the library to the dormitories. Since smoking was permitted in the seminar rooms at Smith, there were numerous places where students could smoke. At Mt. Holyoke, only one small room was reserved for smoking and it was more fitted for social conversation than study. Quite possibly a combination of study facilities and smoking privileges would see more use than our study shows at Mt. Holyoke.

The use of the large reading rooms at the four libraries was affected by several variables. First, is the existence of competing study space within the library, department libraries, and other supplementary space designed particularly for study. A second was the regulation of the use of reserve books and the extent of the supply of these. A third exists in terms of temperature, ventilation, and lighting. A fourth involves smoking regulations. A fifth is concerned with hours at which facilities are available. It is not possible to evaluate all of these, and since this study is particularly concerned with the relation of physical space to study, only the first variable will be pursued. The following table represents an attempt to balance the use of

competing smaller study spaces within the library complex against the large reading rooms.

TABLE XIII. DISTRIBUTION OF TIME BETWEEN LARGE LIBRARY READING ROOMS AND COMPETING STUDY PLACES WITHIN THE LIBRARY COMPLEX

Institution	Time Spent in Large Reading Rooms	Time Spent in Competing Space	Totals	Per cent of Time Spent in Large Reading Rooms
U. of Mass	229	132	361	63
Mt. Holyoke	734	734	1468	50
Amherst	470	845	1315	38
Smith	502	947	1449	35

Within the total library complex, the University of Massachusetts had the least amount of alternate types of study space competing with the large reading rooms; Mount Holyoke came next, and then Amherst and Smith with different but probably somewhat comparable amounts of competing study space. If one examines the last column of Table XIII it can be seen that the per cent cent of time spent in large reading rooms varied inversely with the provision of smaller competing study places. Between Amherst and Smith the difference is negligible. It should be remembered that these choices on the part of the students were not completely based upon size. Some of the other variables mentioned in the previous paragraph may accentuate the preference for the smaller places. But along with this reservation, it must also be remembered that there was an undersupply of these smaller places in the opinion of the students, and consequently some people used the large reading rooms who would have used smaller places had they been available. It seems clear that the students have weighed the large reading room in the balance and found it wanting.

How large should reading rooms be in the library of the future? What per cent of the students should they be expected to house? There is no precise answer to such questions, for other variables than student preference are influential. Among them are such matters as educational policy, problems of supervision of the library, architectural planning, and building costs. Educational trends, as will be pointed out later, seem to indicate an increasing need for smaller study places. Costs cannot be assessed until plans for different kinds of space are available. Solutions to supervision problems are matters for librarians to evolve out of their experience. The only contribution to be made from this study is an examination of student preferences and use. These obviously have been on the side of small study space in contrast to large, but not unanimously so. This minority opinion may help to answer the questions cited at the beginning of the paragraph.

Opinionnaire data on the frequency with which students would study under certain conditions, items 82-86 inclusive, show roughly what might be

expected. The following table is constructed from these items by adding together the percentage of students checking the three positive points and the neutral point of the scale—the top four points of the seven—to obtain the percentage disposed to use rooms with varying numbers of other students also studying. It is assumed that these students would use a given study space enough to make it functional space; and that the lowest three points on the scale, "occasionally," "rarely," and "never," indicate too low a use of space to justify construction of it for students using these three points.

TABLE XIV. PER CENT OF STUDENTS CHECKING ATTITUDES FAVORABLE OR AGAINST STUDYING WITH SPECIFIED NUMBERS OF OTHERS

Number of Other Students	Top Four Points on the Scale	Negative Three Points on the Scale
0	75.9	22.4
2 or 3	63.8	34.4
About 7	37.5	61.2
About 20	24.9	70.6
Over 100	17.6	81.3

Without considering factors of cost, supervision, etc., it would appear that rooms holding 20 students will be sufficiently used to warrant their construction, even in a library which has an ample supply of small or individual study places. Roughly 25 per cent of the students would use these rooms with a fair amount of frequency, but very few would use them "always" or "almost always." Some of the users of such rooms would use smaller places also. So it is hardly necessary to plan for seating a full 25 per cent of the student body in such rooms. Study of peak loads by librarians might give better guides to what proportion of the potential users of such rooms would need to be seated at one time. If a library does not provide an ample supply of individual or other small study places, then the number of larger rooms must be increased.

Is a room for 20 students the maximum size a library should build? The data presented here do not provide a continuous opinion on different sizes. Rooms for 100 or more do not seem to have enough favorable reactions from students to warrant constructing them—if student preference is to be the only guide. But there may be sizes between 20 and 100 which will satisfy those who voted for either of these in preference to the other. Without further evidence it looks as though there is no sharp and clearly defined best number between 20 and 100; and it may be quite possible that different sizes between them are satisfactory, although the percentage of satisfied students is bound to decrease slowly as the number increases.

Student attitudes might be shifted toward greater tolerance of larger rooms than 20 if imaginative designing could cut down traffic and break up the study area with other library facilities and functions which would not interfere with study, but which would not require expensive partitions.

Any attempt to revise library architecture should certainly be concerned with educational trends and the development of mechanical devicess for presenting information. A vigorous drive toward more independence and research on the part of undergraduates would certainly call for a reduced emphasis upon large reading rooms and an increase in the number of small study stations where students may collect and utilize materials in the fashion of mature scholars. One can expect that there will be an increasing use of micro-films. Perhaps these will be paralleled by auditory devices which will enable individuals as well as groups to listen to famous speeches or unusual music. The use of television is now thought of as a means for mass instruction, but it may possibly be adapted for small groups or individuals. Instructional machines for use with individuals are receiving much encouragement at the present time. If they fulfill their promise, they will provide a new medium of study—at least for routine learning. Language laboratories have come into their own. These devices will, for the most part, require small spaces rather than large, and consequently fit into the direction of library development previously indicated, viz., away from large study rooms and toward smaller, individualized work rooms or spaces.

Since some individuals desire to study at late hours, and librarians must have both rest and sleep, conflict occurs as to how late libraries should remain open. A compromise has been achieved in some libraries by construction which will close up all but some designated study space, but leave this open around the clock, or as late as seems desirable.

A DEFENSE OF STUDENT DESIRE FOR SMALL ROOMS

Critics of these proposals for smaller study places believe that they will coddle the students instead of helping them to learn to work in the presence of distractions as so many adults do in offices or elsewhere. But it should be noted that these adults are, for the most part, working at things with which they are reasonably familiar while students are not; the adult has his motivations well established, whereas students are often beginning a new area of study which they have not yet learned to like or to work with; adults are apt to find reprisals fairly quick for wasting time in social chatter on the job, while students do not; and adults often forget their early inadequacies and difficulties at working on a job with distracting activities around them, and think of only their established habits. Intellectual work of an abstract nature is not easy, particularly for the novice, and colleges should give him every chance to succeed instead of throwing obstacles of distraction in his way.

EMPTY CLASSROOMS

Empty classrooms are sometimes suggested as excellent places to study in; or that they would be if the furniture were modified. Such rooms were used extensively at one of the colleges and slightly at the others. Yet the

total number of half-hours reported for four days of use in the college where the greatest use was made was only 249. A walk around to these classrooms in the evening usually disclosed one student in each room. The room might be large enough for forty students, but custom decreed that squatter's rights gave possession to the first to begin studying. In effect the students were making private offices out of classrooms, frequently at considerable expense for lighting the whole room. In view of the attitude found among the students toward studying in large groups, it seems improbable that empty classrooms will become much used places for study unless there is a drastic shortage of other places. Somewhat the same problem exists with reference to seminar rooms in the library. If study materials can be used there *only*, then the room gets used by several students at a time; but otherwise the first student to take possession regards it as his property and tends to drive others out with cool courtesy or obvious irritation. Whether such customs can be broken has not been adequately tested; but since the custom is grounded in the students' desire for a study place answering the description on page 37, it will be difficult to conquer.

STUDY ACTIVITIES IN RELATION TO PLACES

During the period of four days covered in the study diaries approximately 45 per cent of the study time was spent in reading, either with or without note taking. Reviewing took up 15 to 20 per cent of the time; and preparation of papers about 14 per cent. This distribution is probably fairly typical, although it might shift considerably at some special time. If reading and reviewing are added together, then the typical student was spending approximately two-thirds of his time in an activity which could readily be carried on in many different places, as it actually was. The great preponderance of these activities did occur in the dormitories and libraries as previously indicated, but they were carried on in enough different places to make it clear that no particular kind of space was needed, although some kinds were much preferred to others. The preparation of papers also took place predominantly in the dormitories or libraries, with a marked preference for working in isolation where materials could be accumulated, e.g., in a student's room or a library carrel. The remainder of the study activitities were scattered through the list given in the study diary. Some of these, e.g., creative art work, calculating with machines, projects of various sorts, had to be carried out in special places where proper conditions and equipment existed. But it appears that except for studies which require special tools or conditions, no architectural stipulations beyond those already discussed as characteristic of good study space are needed. No doubt the distribution of study activities would differ in a specialized institution, e.g., art, engineering, or music schools, and consequently less time would be spent studying in libraries and dormitories.

A Summary of Findings for the Use of Planners of Study Space

1. Students are good sources of information about study space, but they should be consulted in some numbers, because a single individual may not be typical.
2. There is a strong preference for studying in small places where one may study alone or with one or two others. (P. 22f).
3. The large library reading room is disliked by most students even though it may be used. Its faults are that it inevitably produces more distractions from other people than a small study place. (P. 33ff).
4. Reading rooms large enough for 20 to 40 students need not be provided for more than 15 to 20 per cent of the students provided there are plenty of smaller and individual study stations. (P. 36f).
5. The larger the study hall, the more it should be broken up with other functions and facilities which may reduce traffic and noise without interfering with study.
6. Fifty-six per cent of the studying was done in dormitory room and carrel size places, and probably the percentage would have been considerably larger if more such space had been available. (P. 22f).
7. The visibility of traffic in a study hall is almost as bad as the noise it produces. Can it be reduced, rerouted, noise dampened?
8. Freedom from the distraction of equipment noises is desired; and is most apt to be infringed upon in dormitories by telephones, plumbing, kitchen noises, etc. (P. 29f).
9. Good lighting is much wanted. Don't spare the wattage, and arrange it so that visibility is at a maximum, and eye strain at a minimum.
10. Heating complaints are mostly of too high temperatures in study halls, particularly in libraries. Students adjust their own dormitory rooms to suit themselves for temperature and ventilation. Perhaps libraries can manage more flexibility and user controls in these matters. (P. 28).
11. Casual observation gives the impression that libraries should provide more space for typing than they frequently do, but the planning of typing facilities for libraries needs more attention than it has received in this study. Dormitories frequently permit typing in student rooms except at late hours—a practice which seems to arouse little complaint.
12. Each dormitory needs some special rooms in which some students may study outside their rooms. For dormitories with single and double rooms, probably space to house ten to twenty per cent of the residents will be adequate. Variability of need will be related to smoking regulations, hours the library remains open, hours at which sizeable numbers want to go to sleep. Dormitories with many rooms having more than two students to the room will need more special study space. A large dormitory should have several small study rooms rather than a single large one. (P. 30f).

13. For a list of common structural faults in dormitories, see page 29f.

14. Some social space should be provided in a dormitory so that those who wish to talk may do so without disturbing those who wish to study.

15. Smoking regulations need careful consideration. Students who are heavy smokers want to study and smoke simultaneously much of the time. Moderate smokers are satisfied with an occasional period of smoking and studying in some special room. Non-smokers prefer to study in rooms which are not smoke filled. Populations of students differ in the percentage belonging to these groups, and consequently regulations and allocation of study space to these groups will vary. (P. 30, 35)

16. Most students want to study in a place where nothing but studying is going on at the time. This requires respect on the part of students for such regulations as may be agreed upon. Building up traditions on these matters is educationally like the problems of building up an honor system which is a matter of pride among the students. (P. 29f).

17. The few students who like to study in the clatter of public social places to the accompaniment of chatter, juke boxes, and food, can be trusted to find their own heart's desire without help from the college.

18. The dream of using empty classrooms and dining halls as study halls is probably a vain hope. Our data indicate that they will be used by only a few students. (P. 30, 38f).

19. Places to collect and use study materials are highly prized, and no doubt account in part for the popularity of carrels and dormitory rooms as study places.

20. Open carrels, arranged to reduce visibility, assigned to individuals but permissible to others when not in use, proved popular, especially when well lighted and under conditions of good temperature and ventilation.

21. Institutions tend to provide only one size and type of chair in study halls; but students come on no such scale of uniformity. Diversity which would conform to student measurements is a goal to be sought. Variety is easier to provide in a dormitory, but more can be done in a library. (P. 15f).

22. Variety is needed in types of study space as well as in chairs. There is no place which will be equally liked by all, although the description given on page 32 would probably please three-fourths of the students.

23. A high concentration of freshmen in a dormitory or in one part of a dormitory tends to increase the decibels of sound, and reduce the quality of the dormitory as a place for study. (P. 29).

24. The development of new devices such as the use of micro-films, individualized instructional machines, language laboratories, and other future possibilities, require more use of small study and work spaces and less of the large reading rooms. (P. 38).

25. The more colleges tend to develop independence on the part of students and require greater amounts of individual research, the more need there will be for carrels or other small places for study.

26. There seems to be little distinction between good and poor students in their choice of dormitory rooms and large library reading rooms as places in which to study. A high perecntage of both groups uses the large library reading rooms little or not at all. A few from each group use them more heavily; and over-achievers slightly more than under-achievers. But in general both groups are very similar in their ideas about the nature of desirable study space. (P. 24f).

27. There are many unanswered questions about the construction of desirable study space, and many of the generalizations cited in this study must be translated into specifics. It is hoped that the present study will stimulate further inquiry, and generate numerous proposals for solutions to the problems raised.

APPENDIX A

STUDY DIARY

Code Number (1-4) _____

Four College Committee — Student Study Spaces, Fall 1959

PLEASE PRINT

(The numbers below the line are for coding purposes. Ignore them.)

Name in Full _____ Sex-Male __ Female __ Date____ (5)

College _____ Class '63 __ '62 __ '61 __ '60 __ Other __ (1) (6)

Major _____ Single __ Married __ (7-9) (10)

College Residence _____ (11)

No. of Roommates 0 __ 1 __ 2 __ 3 __ 4 __ 5 __ More __ (12)

Nature of Your Secondary School: Public _____ Parochial _____ Private _____ (13)

Member of a Fraternity or Sorority Yes __ No __ (Name _____) (14)

If a member, do you live in the House? Yes __ No __ (14)

Where does your father work? _____

(If retired or deceased, use his last major job.)

What is his occupation? _____

Exactly what does he do? _____

Check the blank giving your father's highest education: (15)

Grade School ____ Some High School ____ High School Graduate ____

Some College ____ College Graduate ____ Post Graduate Work ____

(16.) _____

(17.) _____

(18.) _____

The blanks following are designed for recording what type of *study activity* you engaged in, where, how long, and when. The kinds of activity are listed by code numbers (see below) which can be used to save time and writing. You should fill in the record for each day on that day; and your accuracy of reporting will be improved by recording more than once a day. If you first fill in the classes and laboratories you attend, the remaining facts will be easier to recall. A possible sample for part of a day might read:

Time	Study Activities	Subject	Minutes Used	Place: Building & Room
1-2 p.m.	class	French 31	50	Gregory Hall 22
2-3 p.m.	2*	French 31	30	Own dorm room
	9	French 31	20	Lang. Lab., Barrett
3-4 p.m.	3, 12	History 24	50	History Seminar Room in Library
4-5 p.m.	lab	Chemistry 19	60	Chemistry 36

* Code number for "reading without taking notes"

Please indicate class and laboratory periods and then use the code numbers for the following categories of study activities in filling out the blank.

1. Reading and taking notes
2. Reading without taking notes
3. Reviewing
4. Preparation of papers

5. Laboratory projects or exercises which are considered homework
6. Problem solving exercises (Mathematics, Economics, etc.)
7. Typing
8. Translation
9. Practice: music, dance, speaking a foreign language, etc.
10. Rote memorization
11. Creative work in fine arts and literature
12. Discussion of work with other students
13. Experimental projects
14. Other — describe

Blank for Reporting Study Activities

Name _____ Class ____ College_____
Major _____ Tuesday, December 1, 1959*
Residence at College _____ Number of Roommates ____

Time	Study Activities	Subject	Minutes used	Place: Building & Room
7-8 a.m.				
8-9 a.m.				
9-10 a.m.				
10-11 a.m.				
11-12 a.m.				
12-1 p.m.				
1-2 p.m.				
2-3 p.m.				
3-4 p.m.				
4-5 p.m.				
5-6 p.m.				
6-7 p.m.				
7-8 p.m.				
8-9 p.m.				
9-10 p.m.				
10-11 p.m.				
11-12 p.m.				
12-1 a.m.				
1-2 a.m.				
2-3 a.m.				
3-4 a.m.				
4-5 a.m.				
5-6 a.m.				
6-7 a.m.				

To what extent was this a typical day for you?
Quite Typical _____ Fairly Typical _____ Somewhat Unusual _____ Very Unusual

* *Similar pages were furnished for the following three days.*

Comments (Feel free to use back of sheet also.)

1. What comments can you make about each of the study spaces used which will show in what respects it was satisfactory or otherwise?
2. Do you have any additional suggestions for the *improvement* of the study spaces in the dormitories, fraternities, library, etc.?

APPENDIX B

Study Conditions Opinionnaire and Data

On the next few pages are various features of study places. Think of the sorts of study conditions you might find included in an *ideal* college or university. Then indicate your opinion as to *how desirable each of the following conditions is*. You can indicate your opinion by circling a number from 1 to 7, according to the following rating scheme:

1 extremely desirable
2 very desirable
3 somewhat desirable
4 neutral
5 somewhat undesirable
6 very undesirable
7 extremely undesirable

For example, suppose you are asked "How desirable would it be to have a place for studying which was very large (space for 200 persons)?" If you believe that in an ideal college or university it would be "somewhat desirable" to have such a place for studying, you would answer as follows:

Studying in a very large space
(more than 200-person capacity) 1 2 (3) 4 5 6 7

As you answer the following questions, keep in mind that the *numbers* following the stated condition refer to *how desirable* the condition or place is for studying. Also, remember that you are giving your opinion about an ideal college or university as you see it. Be sure to think of yourself as engaged in *studying* under the stated condition.

ITEM	Study Conditions	Colleges	1	2	3	4	5	6	7	NA
01	Studying in a place with elaborate interior decoration (upholstered furniture, rugs, paintings, art objects, draperies, planned colors, etc.)	A	13	9	19	14	24	14	4	0
		Mt.H	2	12	24	20	22	4	7	1
		Sm	4	9	17	20	27	5	8	2
		UM	2	9	19	11	19	11	4	1
		Total	21	39	79	65	92	34	23	4
		%	(5.9	10.9	22.1)	18.2	(25.8	9.5	6.4)	1.1
		%		38.9				41.7		
02	Studying in a place with plain, office-like interior	A	13	27	24	14	16	0	2	1
		Mt.H	10	27	16	20	11	5	2	1
		Sm	10	27	24	18	9	2	1	1
		UM	5	21	17	15	13	1	2	2
		Total	38	102	81	67	49	8	7	5
		%	(10.6	28.6	22.7)	18.8	(13.7	2.2	2.0)	1.4
		%		61.9				17.9		
03	Studying in a place being used exclusively for study	A	45	30	9	2	6	0	5	0
		Mt.H	52	26	6	4	3	0	1	0
		Sm	54	22	9	4	1	0	0	2
		UM	35	23	11	3	2	1	1	0
		Total	186	101	35	13	12	1	7	2
		%	(52.1	28.3	9.8)	3.6	(3.4	.3	2.0)	.6
		%		90.2				5.7		
04	Studying in a place where relaxation, refreshment, or recreation is always available	A	5	6	13	11	22	19	19	0
		Mt.H	5	3	15	6	24	20	18	1
		Sm	7	6	17	9	22	12	15	0
		UM	2	9	17	9	14	12	11	0
		Total	19	24	62	35	82	63	63	1
		%	(5.3	6.7	17.4)	9.8	(23.0	17.6	17.6)	.3
		%		29.4				58.2		
05	Studying in a place which is used for study during certain hours, and for other purposes (meetings, relaxation, living quarters, etc.) at other times	A	4	8	14	22	25	14	9	1
		Mt.H	1	7	20	33	20	7	4	0
		Sm	2	7	24	29	13	11	4	2
		UM	2	7	18	25	17	4	1	2
		Total	9	29	76	109	75	36	18	5
		%	(2.5	8.1	21.3)	30.5	(21.0	10.1	5.0)	1.4
		%		31.9				36.1		
06	Studying in bed	A	3	3	10	8	19	19	34	1
		Mt.H	1	6	13	10	15	23	24	0
		Sm	2	8	16	7	18	18	22	1
		UM	1	4	9	7	15	15	25	0
		Total	7	21	48	32	67	75	105	2
		%	(2.0	5.9	13.4)	9.0	(18.8	21.0	29.4)	6
		%		21.3				69.2		
07	Studying in a very large space, e.g. a main reading room in a library, or a dining hall, or an auditorium	A	1	8	8	13	30	21	15	1
		Mt.H	2	6	18	7	33	16	9	1
		Sm	1	9	20	9	24	17	10	2
		UM	1	4	10	9	28	15	7	2
		Total	5	27	56	38	115	69	41	6
		%	(1.4	7.6	15.7)	10.6	(32.2	19.3	11.5)	1.7
		%		24.7				63.0		

			1	2	3	4	5	6	7	NA
08	Studying in a moderately large space, e.g. the size of a small classroom, or a living room	A	5	16	35	22	14	4	0	1
		Mt.H	6	29	23	20	12	2	0	0
		Sm	6	34	38	14	11	3	1	1
		UM	3	18	30	14	8	2	0	1
		Total	20	97	126	70	45	11	1	3
		%	(5.6	27.2	35.3)	19.6	(12.6	3.1	.3)	8
		%		68.1				16.0		
09	Studying in a small space, e.g. the size of a dormitory room for one or two students, or a carrel	A	29	36	11	11	4	4	0	2
		Mt.H	35	28	17	5	6	1	0	0
		Sm	29	34	15	3	5	5	0	1
		UM	15	28	9	6	10	3	2	3
		Total	108	126	52	25	25	13	2	6
		%	(30.3	35.3	14.6)	7.0	(7.0	3.6	.6)	1.7
		%		80.2				11.2		
.0	Studying alone (no other person present)	A	57	22	8	4	3	2	0	1
		Mt.H	54	16	7	8	7	0	0	0
		Sm	51	15	9	6	10	0	1	0
		UM	36	18	12	6	4	0	0	0
		Total	198	71	36	24	24	2	1	1
		%	(55.5	19.9	10.1)	6.7	(6.7	.6	.3)	.3
		%		85.5				7.6		
11	Studying with 2 or 3 other persons also studying	A	4	29	24	11	17	7	4	1
		Mt.H	11	28	17	7	23	3	3	0
		Sm	8	39	19	14	10	2	1	0
		UM	3	26	22	9	10	4	2	0
		Total	26	122	82	41	60	16	10	1
		%	(7.3	34.2	23.0)	11.5	(16.8	4.5	2.8)	.3
		%		64.5				24.1		
12	Studying with about 7 other persons also studying	A	3	6	16	19	23	18	11	1
		Mt.H	4	11	22	18	20	9	8	0
		Sm	3	19	19	24	18	6	3	0
		UM	0	6	23	14	15	8	9	1
		Total	10	42	80	75	76	41	31	2
		%	(2.8	11.8	22.4)	21.0	(21.3	11.5	8.7)	.6
		%		37.0				41.5		
13	Studying with about 20 other persons also studying	A	1	7	10	11	22	21	23	2
		Mt.H	2	8	19	15	23	14	11	0
		Sm	3	7	23	18	16	11	14	0
		UM	0	4	14	17	12	12	14	3
		Total	6	26	66	61	73	58	62	5
		%	(1.7	7.3	18.5)	17.1	(20.4	16.2	17.4)	1.4
		%		27.5				54.0		
14	Studying with more than 100 other persons also studying	A	1	5	3	10	13	15	49	1
		Mt.H	4	7	13	13	12	17	25	1
		Sm	2	7	4	11	18	14	36	0
		UM	1	0	8	11	16	17	22	1
		Total	8	19	28	45	59	63	132	3
		%	(2.2	5.3	7.8)	12.6	(16.5	17.6	37.0)	.8
		%		15.3				71.1		

			1	2	3	4	5	6	7	NA
15	Studying where there is easy access to your own books and other study materials	A	65	24	3	2	1	0	1	1
		Mt.H	67	17	5	2	0	0	1	0
		Sm	62	24	4	2	0	0	0	0
		UM	46	23	5	2	0	0	0	0
		Total	240	88	17	6	1	0	2	1
		%	(67.2	24.6	4.8)	1.7	(.3	.0	.6)	.3
		%		96.6				.9		
16	Studying where there is easy access to materials owned by the college or university	A	29	35	23	7	0	1	1	1
		Mt.H	47	31	5	7	0	0	1	1
		Sm	48	25	16	2	1	0	0	0
		UM	18	29	17	12	0	0	0	0
		Total	142	120	61	28	1	1	2	2
		%	(39.8	33.6	17.1)	7.8	(.3	.3	.6)	.6
		%		90.5				1.2		
17	Studying where there is easy access to a snack bar	A	4	10	13	32	17	13	7	1
		Mt.H	3	9	18	28	19	8	7	0
		Sm	9	6	20	28	17	6	6	0
		UM	1	8	21	17	18	6	5	0
		Total	17	33	72	105	71	33	25	1
		%	(4.8	9.2	20.2)	29.4	(19.9	9.2	7.0)	.3
		%		34.2				36.1		
18	Studying where there is easy access to a telephone for receiving calls	A	1	5	10	28	18	17	17	1
		Mt.H	0	1	15	22	22	12	20	0
		Sm	3	6	13	26	16	16	12	0
		UM	2	3	10	33	12	11	5	0
		Total	6	15	48	109	68	56	54	1
		%	(1.7	4.2	13.4)	30.5	(19.0	15.7	15.1)	.3
		%		19.3				49.8		
19	Studying where there is easy access to a typewriter	A	19	20	28	17	5	4	3	1
		Mt.H	5	10	17	55	3	0	2	0
		Sm	12	11	22	40	1	4	1	0
		UM	3	19	14	34	3	2	1	0
		Total	39	60	81	146	12	10	7	1
		%	(10.9	16.8	22.7)	40.9	(3.4	2.8	2.0)	.3
		%		50.4				8.2		
20	Studying where there is easy access to a place where smoking is permitted	A	12	17	8	43	3	3	10	1
		Mt.H	18	9	13	37	4	1	10	0
		Sm	25	14	8	34	2	0	9	0
		UM	12	14	14	30	1	1	4	0
		Total	67	54	43	144	10	5	33	1
		%	(18.8	15.1	12.0)	40.3	(2.8	1.4	9.2)	.3
		%		45.9				13.4		
21	Studying where there is easy access to a washroom	A	20	31	24	15	2	1	2	1
		Mt.H	20	21	23	25	2	0	1	0
		Sm	28	33	18	12	1	0	0	0
		UM	15	13	29	15	2	1	1	0
		Total	83	98	94	67	7	2	4	1
		%	(23.2	27.4	26.3)	18.8	(2.0	.6	1.1)	.3
		%		76.9				3.7		

			1	2	3	4	5	6	7	NA
22	Studying where there is easy access to friends	A	4	10	25	23	15	10	9	1
		Mt.H	2	1	21	20	26	10	12	0
		Sm	2	4	18	30	21	8	7	0
		UM	4	4	27	10	16	6	9	0
		Total	12	19	91	83	78	34	37	1
		%	(3.4	5.3	25.5)	23.2	(21.8	9.5	10.4)	.3
		%		34.2				41.7		
23	Studying where there is easy access to classroom where your classes or lectures are held	A	3	4	17	63	4	4	1	1
		Mt.H	2	6	11	68	3	2	0	0
		Sm	16	16	17	39	2	1	0	1
		UM	5	15	12	40	2	1	1	0
		Total	26	41	57	210	11	8	2	2
		%	(7.3	11.5	16.0)	58.8	(3.1	2.2	.6)	.6
		%		34.8				5.9		
24	Studying with steady sound of equipment for heating, ventilating, lighting, etc.	A	4	3	8	16	25	21	19	1
		Mt.H	4	2	3	12	19	25	27	0
		Sm	8	3	2	17	17	19	26	0
		UM	3	2	5	12	15	18	21	0
		Total	19	10	18	57	76	83	93	1
		%	(5.3	2.8	5.0)	16.0	(21.3	23.2	26.0)	.3
		%		13.1				70.5		
25	Studying with steady sound of radio or phonograph	A	1	3	3	3	14	23	49	1
		Mt.H	1	1	12	7	19	20	32	0
		Sm	1	2	1	8	13	16	51	0
		UM	0	2	10	10	14	13	27	0
		Total	3	8	26	28	60	72	159	1
		%	(.8	2.2	7.3)	7.8	(16.8	20.2	44.5)	.3
		%		10.3				81.5		
26	Studying with occasional sound of automobiles, doors, telephones, etc.	A	0	0	4	22	25	29	16	1
		Mt.H	1	0	6	21	23	18	23	0
		Sm	0	1	1	22	25	23	20	0
		UM	0	0	3	13	50	21	8	1
		Total	1	1	14	78	123	91	67	2
		%	(.3	.3	3.7)	20.8	(32.8	24.3	17.9)	.6
		%		4.3				75.0		
27	Studying with occasional sound of footsteps, coughing, scraping of chairs, flushing of toilets, etc.	A	0	1	7	18	33	23	14	1
		Mt.H	0	0	4	15	21	22	30	0
		Sm	0	1	1	14	33	23	20	0
		UM	0	1	1	14	24	21	15	0
		Total	0	3	13	61	111	89	79	1
		%	(.0	.8	3.6)	17.1	(31.1	25.0	22.1)	.3
		%		4.4				78.2		
28	Studying with occasional sound of others' talking in social area	A	0	1	0	4	27	32	32	1
		Mt.H	0	2	2	4	20	24	40	0
		Sm	0	0	1	4	19	21	46	1
		UM	0	0	1	7	24	26	18	0
		Total	0	3	4	19	90	103	136	2
		%	(.0	.8	1.1)	5.3	(25.2	28.9	38.1)	.6
		%		1.9				92.2		

			1	2	3	4	5	6	7	NA
29	Studying with occasional sound of others' talking in study area	A	0	0	4	10	23	34	25	1
		Mt.H	1	0	3	4	26	13	44	1
		Sm	0	0	3	4	17	28	40	0
		UM	0	0	1	5	23	25	22	0
		Total	1	0	11	23	89	100	131	2
		%	(.3	.0	3.1)	6.4	(24.9	28.0	36.7)	.6
		%		3.4				89.6		
30	Studying with occasional sound of others' whispering in study area	A	0	2	4	19	25	28	18	1
		Mt.H	1	0	2	11	23	12	43	0
		Sm	0	1	1	10	31	19	30	0
		UM	0	0	4	15	23	19	15	0
		Total	1	3	11	55	102	78	106	1
		%	(.3	.8	3.1)	15.4	(28.6	21.8	29.7)	.3
		%		4.2				80.1		
31	Having other persons talk to you while you are studying	A	0	1	5	5	16	30	38	2
		Mt.H	0	1	3	6	19	21	41	1
		Sm	0	1	3	4	22	18	43	1
		UM	0	0	3	3	18	19	33	0
		Total	0	3	14	18	75	88	155	4
		%	(.0	.8	3.9)	5.0	(21.0	24.6	43.4)	1.1
		%		4.7				89.0		
32	Talking to other persons about your studies when you are studying	A	2	14	30	14	21	8	7	1
		Mt.H	1	6	33	16	16	11	9	0
		Sm	1	6	26	18	23	8	9	1
		UM	0	11	36	10	10	2	7	0
		Total	4	37	125	58	70	29	32	2
		%	(1.1	10.4	35.0)	16.2	(19.6	8.1	9.0)	.6
		%		46.5				36.7		
33	Talking to other persons about matters irrelevant to study while you are studying	A	0	1	6	7	27	25	30	1
		Mt.H	0	0	3	8	21	22	37	1
		Sm	0	0	3	10	26	21	31	1
		UM	0	0	2	3	27	21	23	0
		Total	0	1	14	28	101	89	121	3
		%	(.0	.3	3.9)	7.8	(28.3	24.9	33.9)	.8
		%		4.2				87.1		
34	Studying with muffled background noises within study area	A	0	3	4	26	31	24	8	1
		Mt.H	2	3	7	23	22	16	19	0
		Sm	1	2	1	19	33	20	15	1
		UM	0	1	2	20	21	24	8	0
		Total	3	9	14	88	107	84	50	2
		%	(.8	2.5	3.9)	24.6	(30.0	23.5	14.0)	6
		%		7.2				67.5		
35	Studying with noises coming from lobby, corridor, etc.	A	0	0	5	10	24	41	1[illegible]	1
		Mt.H	0	1	3	13	22	23	[illegible]0	0
		Sm	0	1	2	16	28	23	22	0
		UM	0	0	0	5	31	28	12	0
		Total	0	2	10	44	105	115	80	1
		%	(.0	.6	2.8)	12.3	(29.4	32.2	22.4)	.3
		%		3.4				84.0		

			1	2	3	4	5	6	7	NA
36	Studying facing a blank wall	A	7	13	16	31	13	10	5	2
		Mt.H	8	16	15	22	12	9	10	0
		Sm	8	16	21	28	7	5	7	0
		UM	9	3	15	18	17	9	5	0
		Total	32	48	67	99	49	33	27	2
		%	(9.0	13.4	18.8)	27.7	(13.7	9.2	7.6)	6
		%		41.2				30.5		
37	Studying facing a window with a clear outside view	A	5	6	17	24	30	9	5	1
		Mt.H	4	9	17	17	32	11	1	1
		Sm	4	6	19	19	23	8	12	1
		UM	2	4	24	11	20	10	5	0
		Total	15	25	77	71	105	38	23	3
		%	(4.2	7.0	21.6)	19.9	(29.4	10.6	6.4)	.8
		%		32.8				46.4		
38	Studying facing the interior of the room	A	6	10	14	33	20	11	2	1
		Mt.H	5	15	23	21	18	10	0	0
		Sm	3	5	22	41	12	4	5	0
		UM	2	6	20	26	17	4	0	1
		Total	16	36	79	121	67	29	7	2
		%	(4.5	10.1	22.1)	33.9	(18.8	8.1	2.0)	6
		%		36.7				28.9		
39	Studying with focussed light from nearby lamps	A	10	33	20	10	20	3	0	1
		Mt.H	20	29	21	10	8	2	2	0
		Sm	13	22	20	11	18	5	3	0
		UM	6	18	20	6	19	4	2	0
		Total	49	102	81	37	65	14	7	1
		%	(13.7	28.6	22.7)	10.4	(18.2	3.9	2.0)	3
		%		65.0				24.1		
40	Studying with diffuse light from overhead	A	12	24	34	16	6	4	0	1
		Mt.H	14	20	19	19	15	3	2	0
		Sm	18	24	22	15	8	1	4	0
		UM	12	16	23	8	14	1	1	1
		Total	56	84	98	58	43	9	7	2
		%	(15.7	23.5	27.5)	16.2	(12.0	2.5	2.0)	.6
		%		66.7				16.5		
41	Studying with bright light	A	9	26	24	9	22	3	2	2
		Mt.H	28	21	16	7	18	0	1	1
		Sm	20	13	14	10	24	4	4	3
		UM	6	14	8	12	24	8	4	0
		Total	63	74	62	38	88	15	11	6
		%	(17.6	20.7	17.4)	10.6	(24.7	4.2	3.1)	1.7
		%		55.7				32.0		
42	Studying in a semi-dark room (dark in distant parts)	A	4	6	24	14	21	20	6	2
		Mt.H	1	3	7	26	25	19	11	0
		Sm	2	6	15	26	21	14	8	0
		UM	0	4	11	14	22	17	7	1
		Total	7	19	57	80	89	70	32	3
		%	(2.0	5.3	16.0)	22.4	(24.9	19.6	9.0)	8
		%		23.3				53.5		

ITEM			1	2	3	4	5	6	7	NA
43	Studying with a view of others who are studying	A	2	3	5	34	34	13	4	2
		Mt.H	1	14	19	30	16	8	3	1
		Sm	2	6	18	38	20	7	1	0
		UM	0	4	13	35	19	2	3	0
		Total	5	27	55	137	89	30	11	3
		%	(1.4	7.6	15.4)	38.4	(24.9	8.4	3.1)	8
		%		24.4				36.4		
44	Studying with a view of others who are relaxing	A	1	1	0	7	26	38	23	1
		Mt.H	0	0	2	12	25	25	28	0
		Sm	0	0	0	9	29	25	29	0
		UM	0	0	0	12	34	19	11	0
		Total	1	1	2	40	114	107	91	1
		%	(.3	.3	.6)	11.2	(31.9	30.0	25.5)	.3
		%		1.2				87.4		
45	Studying with a view of persons of the opposite sex	A	4	1	8	19	20	15	28	2
		Mt.H	3	0	8	38	22	9	10	2
		Sm	0	1	4	47	20	9	11	0
		UM	4	0	4	34	15	13	6	0
		Total	11	2	24	138	77	46	55	4
		%	(3.1	.6	6.7)	38.7	(21.6	12.9	15.4)	1.1
		%		10.4				49.9		
46	Studying with temperature over 75°	A	3	3	3	10	24	25	29	0
		Mt.H	1	1	0	4	16	18	52	0
		Sm	0	1	4	47	20	9	11	0
		UM	0	0	2	2	15	21	36	0
		Total	4	5	9	63	75	73	128	0
		%	(1.1	1.4	2.5)	17.6	(21.0	20.4	35.9)	.0
		%		5.0				77.3		
47	Studying with temperature under 65°	A	2	1	12	6	25	33	16	2
		Mt.H	4	3	4	5	26	25	25	0
		Sm	0	1	5	4	34	19	29	0
		UM	4	3	10	4	20	15	20	0
		Total	10	8	31	19	105	92	90	2
		%	(2.8	2.2	8.7)	5.3	(29.4	25.8	25.2)	.6
		%		13.7				80.4		
48	Studying with cigarette smoke in the air	A	0	0	1	36	16	15	28	1
		Mt.H	2	1	1	26	14	16	32	0
		Sm	1	2	0	39	12	17	21	0
		UM	0	0	0	29	25	12	10	0
		Total	3	3	2	130	67	60	91	1
		%	(.8	.8	.6)	36.4	(18.8	16.8	25.5)	.3
		%		2.2				61.1		
49	Studying with cold air blowing in from window or door	A	0	3	3	7	27	31	25	1
		Mt.H	3	4	8	2	34	24	16	1
		Sm	0	2	8	11	24	22	25	0
		UM	1	2	9	7	17	24	16	0
		Total	4	11	28	27	102	101	82	2
		%	(1.1	3.1	7.8)	7.6	(28.6	28.3	23.0)	.6
		%		12.0				79.9		

			1	2	3	4	5	6	7	NA
50	Studying in a hard chair	A	6	20	27	17	14	8	4	1
		Mt.H	12	12	22	18	13	10	5	0
		Sm	5	20	25	14	15	7	6	0
		UM	3	8	15	17	19	10	4	0
		Total	26	60	89	66	61	35	19	1
		%	(7.3	16.8	24.9)	18.5	(17.1	9.8	5.3)	.3
		%		49.0				32.2		
51	Studying in a soft chair	A	7	18	24	10	26	8	3	0
		Mt.H	6	19	29	20	14	2	2	0
		Sm	8	14	25	19	20	4	1	1
		UM	4	16	25	16	9	3	3	0
		Total	25	67	103	65	69	17	9	1
		%	(7.0	18.8	28.9)	18.2	(19.3	4.8	2.5)	.3
		%		54.7				26.6		
52	Studying one full hour in hard chair	A	6	20	29	15	14	7	5	0
		Mt.H	10	13	20	23	17	3	6	0
		Sm	7	16	14	29	15	6	4	1
		UM	4	7	13	13	25	12	4	0
		Total	27	56	76	80	71	28	19	1
		%	(7.6	15.7	21.3)	22.4	(19.9	7.8	5.3)	.3
		%		44.6				33.0		
53	Studying one full hour in soft chair	A	6	17	26	15	21	7	4	0
		Mt.H	11	15	27	20	17	1	1	0
		Sm	7	12	19	28	17	5	1	3
		UM	4	15	26	16	10	2	2	1
		Total	28	59	98	79	65	15	8	4
		%	(7.8	16.5	27.5)	22.1	(18.2	4.2	2.2)	1.1
		%		5' 8				24.6		
54	Studying at a table or desk surface 3 ft. wide and 2 ft. deep	A	3	8	20	21	25	17	2	0
		Mt.H	7	8	18	21	27	9	2	0
		Sm	11	8	18	25	23	5	1	1
		UM	2	8	16	23	12	12	3	0
		Total	23	32	72	90	87	43	8	1
		%	(6.4	9.0	20.2)	25.2	(24.4	12.0	2.2)	.3
		%		35.6				38.6		
55	Studying at a table or desk surface 5 ft. wide and 3 ft. deep	A	10	43	21	17	3	2	0	0
		Mt.H	23	28	21	18	2	0	0	0
		Sm	14	24	28	18	5	2	0	1
		UM	10	23	20	18	3	1	1	0
		Total	57	118	90	71	13	5	1	1
		%	(16.0	33.1	25.2)	19.9	(3.6	1.4	.3)	.3
		%		74.3				5.3		
56	Studying with freedom to remove shoes, put feet on desks, etc.	A	30	37	18	7	1	0	3	0
		Mt.H	23	37	21	8	1	2	0	0
		Sm	33	23	22	11	1	1	1	0
		UM	13	20	28	7	3	4	1	0
		Total	99	117	89	33	6	7	5	0
		%	(27.7	32.8	24.9)	9.2	(1.7	2.0	1.4)	.0
		%		85.4				5.1		

			1	2	3	4	5	6	7	NA
57	Studying with personal locker or cabinet near-by	A	21	26	22	22	4	1	0	0
		Mt.H	8	16	16	44	3	2	1	2
		Sm	14	18	16	41	2	0	0	1
		UM	9	14	15	32	4	1	1	0
		Total	52	74	69	139	13	4	2	3
		%	(14.6	20.7	19.3)	38.9	(3.6	1.1	.6)	8
		%		54.6				5.3		
58	Studying with smoking permitted in study area	A	14	10	6	24	12	13	17	0
		Mt.H	12	9	9	8	14	10	30	0
		Sm	23	9	9	20	12	8	11	0
		UM	8	11	9	22	9	7	9	1
		Total	57	39	33	74	47	38	67	1
		%	(16.0	10.9	9.2)	20.7	(13.2	10.6	18.8)	.3
		%		36.1				42.6		
59	Studying with prohibition of smoking in study area	A	18	15	11	26	12	8	6	0
		Mt.H	31	12	14	18	9	1	7	0
		Sm	14	13	8	22	10	6	19	0
		UM	10	12	6	25	13	3	7	0
		Total	73	52	39	91	44	18	39	0
		%	(20.4	14.6	10.9)	25.5	(12.3	5.0	10.9)	0
		%		45.9				28.2		
60	Studying where typewriting is restricted to certain times and places	A	22	23	17	14	8	4	7	1
		Mt.H	34	23	18	6	8	1	2	0
		Sm	30	31	12	13	3	0	1	2
		UM	19	19	23	9	4	2	0	0
		Total	105	96	70	42	23	7	10	3
		%	(29.4	26.9	19.6)	11.8	(6.4	2.0	2.8)	8
		%		75.9				11.2		
61	Studying with unrestricted use of typewriters	A	6	5	4	6	18	19	38	0
		Mt.H	2	2	2	7	16	24	39	0
		Sm	2	0	0	12	21	21	34	2
		UM	2	2	3	7	18	20	22	2
		Total	12	9	9	32	73	84	133	4
		%	(3.4	2.5	2.5)	9 0	(20.4	23.5	37.3)	1.1
		%		8.4				81.2		
62	Rehearsing or rote-memorizing when others can become aware of it	A	0	1	0	18	19	25	32	1
		Mt.H	0	0	3	8	13	27	41	0
		Sm	0	0	0	9	13	27	42	1
		UM	0	1	2	9	22	22	18	2
		Total	0	2	5	44	67	101	133	4
		%	(.0	.6	1.4)	12.3	(18.8	28.3	37.3)	1 1
		%		2.0				84.4		
63	Studying with complete privacy	A	38	25	18	5	5	4	1	0
		Mt.H	43	10	13	15	9	2	0	0
		Sm	35	17	12	12	10	1	3	2
		UM	24	19	15	8	5	4	1	0
		Total	140	71	58	40	29	11	5	2
		%	(39.2	19.9	16.2)	11 2	(8.1	3.1	1.4)	6
		%		75 3				12 6		

			1	2	3	4	5	6	7	NA
64	Studying with complete isolation from chores, letter-writing, etc.	A	23	23	15	19	14	1	0	1
		Mt.H	39	13	19	14	7	0	0	0
		Sm	39	14	19	10	5	3	2	0
		UM	31	16	20	4	3	1	1	0
		Total	132	66	73	47	29	5	3	1
		%	(37.0	18.5	20.4)	13.2	(8.1	1.4	.8)	.3
		%		75.9				10.3		
65	Studying with complete isolation from bull-sessions or other social activity	A	24	22	17	6	12	12	3	0
		Mt.H	35	17	19	5	10	4	2	0
		Sm	35	27	13	7	7	0	3	0
		UM	28	19	15	3	7	2	2	0
		Total	122	85	64	21	36	18	10	0
		%	(34.2	23.8	17.9)	5.9	(10.1	5.0	2.8)	.0
		%		75.9				17.9		
66	Studying in a high-comfort area	A	15	15	25	7	20	7	6	1
		Mt.H	8	16	22	15	21	4	5	1
		Sm	13	12	18	19	20	7	3	0
		UM	11	8	18	13	16	5	5	0
		Total	47	51	83	54	77	23	19	2
		%	(13.2	14.3	23.2)	15.1	(21.6	6.4	5.3)	.6
		%		50.7				33.3		

ITEM			1	2	3	4	5	6	7	NA
67	Having a study area reserved for men only (at a coeducational college)	A	12	17	15	29	6	4	6	7
		Mt.H	8	7	11	42	6	5	2	11
		Sm	8	11	6	48	1	3	3	12
		UM	4	4	8	37	10	4	7	2
		Total	32	39	40	156	23	16	18	32
		%	(9.9	12.0	12.3)	48.1	(7.1	4.9	5.5)	9.0
		%		34.2				17.5		
68	Having a study area reserved for women only (at a coeducational college)	A	9	12	10	37	7	4	5	12
		Mt.H	8	7	12	39	8	5	2	11
		Sm	11	12	8	46	1	3	4	7
		UM	4	4	9	35	8	4	10	2
		Total	32	35	39	157	24	16	21	32
		%	(9.9	10.8	12.0)	48.4	(7.4	4.9	6.5)	9.0
		%		32.7				18.7		
69	Using a small soundproof room for group study discussions	A	22	33	18	20	1	1	1	0
		Mt.H	29	40	13	5	3	0	1	1
		Sm	33	32	18	7	1	0	1	0
		UM	24	24	18	10	0	0	0	0
		Total	108	129	67	42	5	1	3	1
		%	(30.3	36.1	18.8)	11.8	(1.4	.3	.8)	.3
		%		85.2				2.5		
70	Studying in a library with open stacks	A	30	17	19	15	8	3	3	1
		Mt.H	48	18	4	17	3	1	1	0
		Sm	74	9	4	3	1	0	0	1
		UM	15	15	14	24	6	2	0	0
		Total	167	59	41	59	18	6	4	2
		%	(46.8	16.5	11.5)	16.5	(5.0	1.7	1.1)	.6
		%		74.8				7.8		

			1	2	3	4	5	6	7	NA
71	Studying in a library with closed stacks	A	2	1	13	23	18	17	21	1
		Mt.H	6	3	2	20	11	16	31	3
		Sm	0	2	0	5	11	12	59	3
		Um	1	5	7	25	21	9	8	0
		Total	9	11	22	73	61	54	119	7
		%	(2.5	3.1	6.2)	20.4	(17.1	15.1	33.3)	2.0
		%		11.8				65.5		
72	Private carrels (cubicles with desk and bookshelf) in library buildings are expensive. How desirable do you think these would be if the cost were passed on to students?	A	9	12	17	9	21	17	11	0
		Mt.H	17	17	22	11	9	10	6	0
		Sm	16	12	30	6	14	4	8	2
		UM	5	4	11	11	14	17	13	1
		Total	47	45	80	37	58	48	38	3
		%	(13.2	12.6	22.4)	10.4	(16.2	13.4	10.6)	.8
		%		48.2				40.2		

You have just indicated your opinion as to how desirable it would be to study under various conditions in the ideal college or university. We are also interested in *how often* you would study under certain conditions. After each of the following conditions, indicate this by circling a letter from a to g, according to the following scheme:

a always
b almost always
c usually
d often
e occasionally
f rarely
g never

For example. Suppose you are asked: "How often would you study in a very large space (more than 200-person capacity)?" if you believe that you would study under such a condition "rarely," you would answer as follows:

Studying in a very large space (more than 200-person capacity) a b c d e (f) g

Keep in mind that the letters following the stated condition refer to *how often* you would study under such a condition or in such a place. Also remember that you are giving your opinion about an *ideal* college or university as you see it. Be sure to think of yourself as engaged in *studying* under the stated condition.

ITEM			a	b	c	d	e	f	g	NA
73	Studying in a place with elaborate interior decoration (Upholstered furniture, rugs, paintings, art objects, draperies, planned colors, etc.)	A	6	13	5	14	28	26	3	1
		Mt.H	1	5	8	11	42	22	3	0
		Sm	2	0	5	12	42	23	8	0
		UM	0	5	8	9	30	19	4	1
		Total	9	23	26	46	142	90	18	2
		%	(2.5	6.4	7.3)	12.9	(39.8	25.2	5.0)	.6
		%		16.2				70.0		
74	Studying in a place with plain, office-like interior	A	4	23	27	20	11	7	2	2
		Mt.H	1	23	11	19	23	12	3	0
		Sm	5	22	21	19	17	5	2	1
		UM	4	10	11	16	23	9	1	2
		Total	14	78	70	74	74	33	8	5
		%	(3.9	21.8	19.6)	20.7	(20.7	9.2	2.2)	1.4
		%		45.3				32.1		
75	Studying in a place being used exclusively for study	A	18	38	20	5	8	5	6	2
		Mt.H	7	42	21	12	5	3	0	2
		Sm	22	33	17	11	6	0	1	2
		UM	13	24	17	10	5	5	1	1
		Total	60	137	75	38	24	13	2	7
		%	(16.8	38.4	21.0)	10.6	(6.7	3.6	.6)	2.0
		%		76.2				10.9		
76	Studying in a place where relaxation, refreshment, or recreation is always available	A	1	5	12	15	25	27	10	1
		Mt.H	0	3	3	10	23	39	14	0
		Sm	4	4	8	10	24	29	13	0
		UM	1	4	5	12	26	24	2	2
		Total	6	16	28	47	98	119	39	3
		%	(1.7	4.5	7.8)	13.2	(27.5	33.3	10.9)	8
		%		14.0				71.7		
77	Studying in a place which is used for study during certain hours, & for other purposes (Meetings, relaxation, living quarters, etc.) at other times	A	1	9	10	18	32	23	2	1
		Mt.H	2	6	10	20	32	17	5	0
		Sm	3	5	8	15	34	23	4	1
		UM	9	9	20	24	9	2	2	0
		Total	15	29	48	77	107	65	13	2
		%	(4.2	8.1	13.4)	21.6	(30.0	18.2	3.6)	6
		%		25.7				51.8		
78	Studying in bed	A	0	2	5	5	15	32	36	1
		Mt.H	0	1	6	11	22	32	19	1
		Sm	2	1	3	9	24	29	22	2
		UM	0	5	6	2	22	23	17	1
		Total	2	9	20	27	83	116	94	5
		%	(.6	2.5	5.6)	7.6	(23.2	32.5	26.3)	1.4
		%		8.7				82.0		
79	Studying in a very large space, eg.g. a main reading room in a library or a dining hall or an auditorium	A	0	2	7	9	24	41	12	1
		Mt.H	1	9	7	19	25	23	7	1
		Sm	0	6	2	16	25	31	11	1
		UM	0	3	5	12	20	25	10	1
		Total	1	20	21	56	94	120	40	4
		%	(.3	5.6	5.9)	15.7	(26.3	33.6	11.2)	1.1
		%		11.8				71.1		

			a	b	c	d	e	f	g	NA
80	Studying in a moderately large space, e.g. the size of a small classroom or a livingroom	A	3	11	16	21	32	11	1	1
		Mt.H	3	10	16	22	28	13	0	0
		Sm	3	7	14	24	31	10	3	1
		UM	1	8	10	30	21	5	0	1
		Total	10	36	56	97	112	39	4	3
		%	(2.8	10.1	15.7)	27.2	(31.4	10.9	1.1)	.8
		%		28.6				43.4		
81	Studying in a small space, e.g. the size of a dormitory room for one or two students, or a carrel	A	9	35	26	10	9	5	1	1
		Mt.H	7	40	18	11	13	3	0	0
		Sm	10	23	20	19	15	4	1	0
		UM	10	29	17	9	8	2	0	1
		Total	36	127	81	49	36	14	2	2
		%	(10.4	36.8	23.5)	14.2	(10.4	4.1	.6)	.6
		%		70.7				15.1		
82	Studying alone (no other person present)	A	13	43	15	10	7	5	1	2
		Mt.H	12	28	15	14	18	4	0	1
		Sm	15	19	10	20	16	9	2	1
		UM	9	19	16	13	14	4	0	1
		Total	49	109	56	57	55	22	3	5
		%	(13.7	30.5	15.7)	16.0	(15.4	6.2	.8)	1.4
		%		59.9				22.4		
83	Studying with 2 or 3 other persons also studying	A	3	19	21	17	15	15	4	2
		Mt.H	1	17	12	23	27	10	2	0
		Sm	4	14	14	26	25	7	0	2
		UM	0	17	16	24	11	6	1	1
		Total	8	67	63	90	78	38	7	5
		%	(2.2	18.8	17.6)	25.2	(21.8	10.6	2.0)	1.4
		%		38.6				34.4		
84	Studying with about 7 other persons also studying	A	0	6	10	18	20	32	9	1
		Mt.H	1	7	8	17	15	31	12	1
		Sm	2	5	10	22	34	13	5	1
		UM	0	1	8	19	24	17	6	1
		Total	3	19	36	76	93	93	32	4
		%	(.8	5.3	10.1)	21.3	(26.1	26.1	9.0)	1.1
		%		16.2				61.2		
85	Studying with about 20 other persons also studying	A	2	5	5	8	19	38	17	2
		Mt.H	0	3	5	13	13	40	17	1
		Sm	1	0	6	24	24	25	11	1
		UM	0	3	0	14	25	19	14	1
		Total	3	11	16	59	81	122	59	5
		%	(.8	3.1	4.5)	16.5	(23.1	34.2	16.5)	1.4
		%		8.4				73.8		
86	Studying with more than 100 other persons also studying	A	0	1	4	12	6	29	42	2
		Mt.H	0	7	7	11	22	20	25	0
		Sm	0	4	3	7	15	30	33	0
		UM	0	1	0	6	14	26	28	1
		Total	0	13	14	36	57	105	128	3
		%	(.0	3.6	3.9)	10.1	(16.0	29.4	35.9)	.8
		%		7.5				81.3		

			a	b	c	d	e	f	g	NA
87	Studying where there is easy access to a telephone for receiving calls	A	0	6	3	14	31	28	13	1
		Mt.H	0	3	7	11	28	33	9	1
		Sm	3	5	9	17	20	28	9	1
		UM	2	1	5	14	23	23	6	2
		Total	5	15	24	56	102	112	37	5
		%	(1.4	4.2	6.7)	15.7	(28.6	31.4	10.4)	1.4
		%		12.3				70.4		
88	Studying where there is easy access to a place where smoking is permitted	A	5	14	13	19	12	16	13	4
		Mt.H	10	11	5	11	13	13	28	1
		Sm	15	17	8	11	7	12	16	5
		UM	7	12	8	14	15	8	11	1
		Total	37	44	34	55	47	49	68	11
		%	(11.1	13.2	10.2)	16.5	(14.1	14.7	20.4)	3.1
		%		34.5				49.2		
89	Studying where there is easy access to friends	A	3	10	19	18	28	16	1	1
		Mt.H	1	7	8	21	33	9	12	1
		Sm	1	2	11	16	35	23	4	0
		UM	6	5	17	11	23	10	3	1
		Total	11	24	55	66	119	58	20	3
		%	(3.1	6.7	15.4)	18.5	(33.3	16.2	5.6)	.8
		%		25.2				55.1		
90	Studying in a hard chair	A	7	20	25	18	14	8	3	1
		Mt.H	4	26	18	14	14	14	2	0
		Sm	5	24	18	20	13	10	0	2
		UM	3	12	11	18	17	10	2	3
		Total	19	82	72	70	58	42	7	6
		%	(5.3	23.0	20.2)	19.6	(16.2	11.8	2.0)	1.7
		%		48.5				30.0		
91	Studying in a soft chair	A	4	14	16	18	25	14	4	1
		Mt.H	4	16	10	23	21	17	1	0
		Sm	0	17	10	23	22	13	5	2
		UM	5	13	15	9	20	10	1	3
		Total	13	60	51	73	88	54	11	6
		%	(3.6	16.8	14.3)	20.4	(24.6	15.1	3.1)	1.7
		%		34.7				42.8		
92	Studying with smoking permitted in study area	A	7	15	13	13	14	20	13	1
		Mt.H	8	5	4	5	10	17	42	1
		Sm	14	14	6	10	14	14	18	2
		UM	5	12	5	13	14	16	9	2
		Total	34	46	28	41	52	67	82	6
		%	(9.5	12.9	7.8)	11.5	(14.6	18.8	23.0)	1.7
		%		30.2				56.4		
93	Studying with complete privacy	A	16	37	16	10	10	6	0	1
		Mt.H	18	27	10	11	17	8	1	0
		Sm	12	24	9	16	16	11	3	0
		UM	11	16	12	14	11	9	1	2
		Total	57	104	47	51	54	34	5	3
		%	(16.0	29.1	13.2)	14.3	(15.1	9.5	1.4)	.8
		%		58.3				26.0		

			a	b	c	d	e	f	g	NA
94	Using a small soundproof room for group study discussions	A	12	17	16	16	19	10	4	2
		Mt.H	13	12	7	11	28	12	8	1
		Sm	15	10	9	10	25	12	7	4
		UM	16	14	2	13	16	8	5	2
		Total	56	53	34	50	88	42	24	9
		%	(15.7	14.8	9.5)	14.0	(24.6	11.8	6.7)	2.5
		%		40.0				43.1		
95	Working in a private carrel (a cubicle with desk and bookshelf) in the library building	A	7	18	11	10	15	25	9	1
		Mt.H	9	25	9	10	21	12	6	0
		Sm	3	21	11	13	13	17	13	0
		UM	5	12	7	11	15	15	10	1
		Total	24	76	38	44	64	69	38	2
		%	(6.7	21.3	10.6)	12.3	(17.9	19.3	10.6)	.6
		%		38.6				47.8		

ACKNOWLEDGEMENTS

We wish to express our sincere appreciation to all those who gave so generously of their advice and opinions: librarians, heads of dormitories, administrative officers, and student consultants. It is a pleasure also to acknowledge our indebtedness to a competent clerical staff. We are particularly grateful to the students who took the time and pains to keep records of where they studied and to reply to the opinionnaire. Without their cooperation this study would have been impossible.

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