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The Effects of Overcrowded Housing on the Academic Performance of Student Populations

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THE EFFECTS OF OVERCROWDED HOUSING ON THE ACADEMIC PERFORMANCE OF STUDENT POPULATIONS

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INTRODUCTION

In the spring and summer of every year the housing offices of many colleges and universities seek to prepare for the fall term. In colleges with increasing enrollments often a problem exists in housing all the students who have applied for housing. This problem is further complicated in colleges and universities where residency on campus is considered to be an integral part of the objectives and philosophy surrounding their educational offering.

While the problem is not a new one, very little research has been made into what the effects are of overenrollment within the residence halls. Although complaints have been made that overcrowded residence halls have had all sorts of effects upon the students placed in them, not much data exists on the subject. Severinsen, Viviano, and Hopkins did a study at Western Illinois University (50:141-43), but the sample dealt only with adjustments of freshmen men.

The University of the Pacific in the fall of 1969 found itself facing a much larger enrollment within the residence halls than it had ever experienced before. Many differing opinions were expressed as to what the effect of this overcrowding would be. The University

had experienced short-term overassignment in a small way every fall. Yet, no one had ever researched what the effects might be. Student Personnel Deans and the Financial Vice President had differing views of what had occurred in the past with minor overcrowding and what might occur in the fall of 1969 with extensive overcrowding. The fall of 1969 has passed and still no one is sure what occurred.

Because the University of the Pacific has a philosophy that residency is a prime requisite for the type of education that it offers, the effects of over-enrollment would seem to be useful in determining if residency in overcrowded conditions affects the ability of a student to obtain that education. It is against this background that this thesis is offered.

CHAPTER I

HISTORICAL BACKGROUND

The data for the research to be analyzed were gathered at the University of the Pacific in Stockton, California. A description of the events that led to this research is useful. The stated objectives of the University came in conflict with the condition of over-enrollment. Prior to the entrance of students to the residence halls in the fall of 1969, decisions were made that directly affected the conditions that were to exist.

Most universities have a self-image that is important to the function of their objectives. The University of the Pacific, like many others, attempts to define these objectives in the catalogue that it sends to prospective students. In the UOP 1968-1970 Catalogue Issue the following description of objectives is given:

> Emphasis is placed on quality of academic program, scholarship, and selection of student body, rather than on size. The policy is to remain a comparatively small institution, with most of the students living on the campus. (57:2)

Thus, the policy of the University was to remain a predominately residential campus.

To maintain this residential character, regulations were devised to insure that most students would remain on campus. These regulations are quite emphatically detailed in the section of the catalogue that explains housing. The regulations are as follows:

> All undergraduate women and lower division men are required to live on campus unless living at home, with close relatives, or working for room and board. Every resident student pays house dues and a key deposit, and is required to board in University dining halls. Any desired exception to this housing or food service policy should be discussed with the head of the department involved. Upper division men, graduate women and married students who plan to live off campus may obtain assistance in locating available rentals in the University community through the office of the Director of Housing. Any upper division man under 21 years of age desiring to live off campus must acquire written parental permission in order to do so. (57:170)

The regulations insure that even those who may live off campus are directed through the Housing Office. Off-campus residence is described as being "in the University community" (56:170). The University is committed to the concept of campus residential living.

In conflict with this philosophy the University found itself in the summer of 1969 unable to house the students who wished to live on campus and those who were required to live on campus. Plans were underway to purchase a large apartment complex adjacent to the University, but as the fall semester approached it became clear that a housing problem was going to exist.

The apartment complex would not be fully available until after the students had arrived on the campus.

A number of alternatives were suggested by the Student Personnel Deans and the personnel employed by the Housing Department. Some of the personnel in the Housing Department suggested that letters be sent to those who could live off campus urging them to do so. Others suggested that the regulations be changed to allow a larger number of students to live off campus and to follow this change with letters to each suggesting that this alternative was available to them. The above two suggestions ran counter to the objectives of the University and they were considered to be unacceptable.

It should be noted that although the final decisions relating to this matter were made by the Director of Housing in concert with the Student Personnel Deans, persons employed as Head Residents of dormitories and students who would live in the dormitories were well aware of the situation as it developed. This was possible because discussions of the problem of overcrowding and suggestions for its solution were given during lunch at a University dining hall. Lunch during the summer session of the University is an informal affair. Many informal discussions of these matters took place randomly as students, administrators, and

housing personnel sat at the same table at lunch. Thus, the situation of overenrollment was not a secret to some students who would be affected by it.

Although the University was aware of the potential problem of overcrowding in the spring semester prior to the coming fall, the contingency of purchasing the apartment complex left a possibility that all students could be housed in less than crowded conditions. The legal problems that prolonged negotiation for the property were always just about to be completed. Thus, many alternatives that might have been acceptable were discarded while administrators waited to see what might happen with negotiations for the apartment building.

The Assistant Director of Housing did send out an inquiry to all senior and junior women to find out how many would like to move off campus. The reply was negligible. This was conducted in the spring and those contacted did not realize that overcrowding in the coming fall was the basis for the inquiry. Thus, there was not any really accurate foreknowledge of how many of those living on the campus might be willing to live off campus.

The concept of overcrowding was least acceptable to the Student Personnel Deans, who readily pointed out the negative precedent that was being set by instituting such a situation. Thus, when it finally became clear

that there was not an alternative, preparation was made to make overcrowding as amenable as possible.

The University had experienced very short-term overcrowding in the past. It was limited in scope. The lounges on the second floors of the newer dormitories had been used for a few weeks in the fall of each year until the on-campus housing situation was adjusted by people moving off campus. The attic of one of the larger men's dormitories had been divided into cubicles previously to take care of short-term overflow. The present situation indicated large-scale overflow housing would be necessary. It would affect both male and female dormitories.

Three separate preparations had to be met before the students arrived. First, spaces had to be found in the existing dormitory structures to house the extra on-campus students. Second, these spaces had to be made as comfortable as possible. Third, the staff of the dormitories had to be informed of the situation to prepare for the coming students.

At a Housing Policy Committee meeting in late summer, it was determined that two dormitories, South-West Complex and Grace A. Covell, would absorb the bulk of the excess of students on campus. These dormitories were the largest buildings housing men and women.

South-West required the greatest adaptation of room planning. Since it is the focus of this study, it shall be the dormitory discussed in depth.

Most rooms in South-West were built to accommodate two students. There were built-in closets, two movable dressers, two movable desks, and two movable beds in each two-man room. The decision was made to make some of these rooms into three-man rooms and others into four-man rooms. The three-man rooms were to be furnished with a regular movable bed, a trundle bed, and a bed high enough for the trundle bed to slip under. An additional dresser and a desk were to be supplied. Thus, two additional pieces of furniture were to be found in the room taking up floor space. A third piece of furniture was to occupy floor space, when the trundle bed was rolled out.

The four to a room situation found virtually no room to place all the necessary furniture. Thus, two four-man rooms were placed on either side of a room that would house the furniture for studying. In each bedroom, there were two bunk beds and four dressers. In the middle room there were eight desks. These overflow rooms were considered to be "super-overflow" by the Housing Office.

There was also additional overflow on the third floor attic of the West side of South-West. Cubicles

housing two persons apiece were built with plywood walls that did not reach the ceiling. Although there were doors to these cubicles, when a person was either making noise or leaving his light on, the sound and the light were discernible in the adjacent room. Partitioned in these rooms were ten people. These rooms were considered to be regular overflow housing, as they had been used for this purpose in former years. But in the past they had been used as temporary housing. Temporary seldom meant more than a few weeks.

As the arrival of the students on the campus approached, two other attempts were made to lessen the impact of overflow housing. On August 26, 1969, a letter was sent from the Housing Office to all students who would be living in the residence halls. The information included in the letter was to apprise the on-campus students that an unusual amount of overflow housing was going to change the assignment of two to a room, as was the usual number previously assigned to rooms. Although the information in the letter was basically informative of the impending condition, there was intent by some of those who had suggested the letter that it might persuade upper classmen to move off campus without telling them to do so.

In the spring of 1969 it was known by the administration that the University was negotiating to buy the

Pershing Townhouse Apartments. If these negotiations were completed by the fall, there would be ample room to accommodate all of the students. If the negotiations were not completed by that time, then overflow housing would be necessary. At the time when negotiations first started, Dean of Women, Katherine Davis, requested that a letter be sent to notify students that overflow housing was a possibility in the fall. This letter was decided against because it might have an effect upon the negotiations. A secrecy surrounded the negotiations that would be removed if a letter were sent. A letter in the spring would have allowed students to have had enough time to search for off-campus housing. The letter that was sent in August did not suggest that students seek off-campus housing. It was felt that too little time was left for many students to seek such housing. Thus, the letter of August 29 was informative, but there was partial intent that it might persuade those who could find time to seek off-campus housing. Some of those who had been assigned housing on campus might request to live elsewhere. This might partially alleviate the overcrowding.

The second attempt to decrease the impact of overflow housing was initiated shortly before the students arrived. The residence staff of South-West, the

ASSOCIATE DIRECTOR OF HOUSING

UNIVERSITY OF THE PACIFIC Stockton, California

August 26, 1969

MEMORANDUM

TO: All Students in Residence Halls

RE: Housing on Campus 1969-70

Because of the interest in the University of the Pacific by an ever-growing number of students, and also because of the recent cutback of state-supported colleges and universities, enrollment at Pacific is expected to reach a new high this Fall. With this increased enrollment there is also an increased demand for housing.

To accommodate this demand we will increase our capacity by furnishing and utilizing every space available to us. Even with these additions, however, it appears that the demand for housing, represented by the applications now on hand, will exceed the spaces now available. The remaining unknown factor is the number of students who have applied for housing but who, for a variety of reasons, will not arrive on campus; also, in the case of the women, just how many will go into the sororities for the Fall term.

Historically, there is an adjustment and re-assignment period during the first few weeks of the term. Furthermore, we have been working on several solutions to our on-campus housing problem, and we are in hopes that when these materialize, our current problem will be solved. Hopefully, we look forward to this happening.

At the beginning of the semester, however, we seek your cooperation and indulgence as we face this adjustment period. It now appears that by temporarily placing a third bed in a room or by converting sets of three adjacent rooms into suites for eight students, we can accommodate the demand for housing without undue discomfort to our students. These arrangements, of course, would be a temporary measure which would end as quickly as practicable.

Because of the restriction of space in student rooms during these first few weeks of the school year, we ask that you leave everything that is not absolutely essential at home-and plan to bring it with you later in the semester. We are referring to such items as hi-fi sets, etc.

At Pacific we have had these short-term housing problems before - the most recent one in 1964 when the present Quad residence halls were being completed. Each time our students have been most helpful and patient. I am certain that you and your family will work with us during the coming term.

Stanley A. Green

Stanley A. Green
Associate Director of Housing

Assistant Director of Housing, and some Student Personnel Deans made phone calls to students' homes who were listed as planning to live in the dormitories but were unconfirmed. The Housing Office had in years past used a standard figure of 10 percent of those who had signed up for housing would not show up. There had often been a few more show up than could be housed in two-man rooms, but they were housed temporarily in overflow housing. This type of housing included the lounges of the smaller dormitories and the third floor of South-West. Thus, although there had been times in the past where there were more students than could be housed two to a room, those in overflow housing were few and the duration of their stay in such housing was short-term. There had not been a previous situation of such large numbers to be housed for such a long period of time.

A week before the actual beginning of the fall term the head residents and the resident assistants from the various residence halls of the University arrived on campus for the usual orientation. This orientation varies from college to college within the University. Further, it varies from residence hall to residence hall within the College of the Pacific. They were preparing to open their halls to the students. A meeting was held with all the residence staffs of the various colleges in

attendance. Various administrators from different levels of the University explained the condition of overflow. The Dean of Students explained that it would be a difficult time for the residence staffs and that the way they handled the problem would, in part, determine the success of the 1969-1970 academic year at the University. Tours were taken of the various types of overcrowding. The staffs were thoroughly imbued with the urgency of adapting to the situation. It was explained that the residence assistants, as they were students, would carry much of the responsibility for the attitude of the students in the dorms. If the residence assistants projected a pessimistic attitude, it was explained, the students in the dormitories would follow suit. They were told to be courteous and patient with the complaints which were bound to come. If they could not handle questions or hostility, they were to refer the problem to the head residents in their respective dormitories. The head residents were, in turn, instructed to refer their problems to a Student Personnel Dean or to the Housing Office. Thus, a hierarchy was built for the referral of problems having to do with housing.

A summation of the history of these events found the University at odds with its philosophy of on-campus housing. Being a residential campus, the concept of

residence was considered to be an integral part of the type of education that the University offered. Any change in the residency requirements, no matter how inconvenient for the student, would change the philosophy of the University. Alternatives that might have resolved the problem of overcrowding were often unacceptable because they conflicted with the objectives of the University. The institutionalization of the philosophy made alternatives impossible.

Many people at all levels of the University knew well in advance that housing in the fall might cause some sort of crisis. Arrangements were made late to redesign the physical space by adding more furniture and by changing some rooms into study rooms. The residence staffs were prepared so that they could be of assistance and could attempt to allay the negative facets of the situation. Those who had debated the negative effects of overcrowding the dormitories were asked to bury their hostility to the situation. Thus, all the controversy that had taken place prior to the opening of the dorms was to be forgotten so that all levels that were employed by the University could present a united front. The results of the findings of the data gathered here may determine, in part, whether or not this preparation was a success. (The authenticity of the above series

of events has been verified by Katherine P. Davis, Dean of Women, College of the Pacific.)

CHAPTER II

REVIEW OF THE LITERATURE

The literature that focuses upon overcrowding in dormitories is sparse. The one article that was found that directly spoke to the subject applied only to freshmen (50:141-43). Yet, there is a body of literature and research into overcrowding and group interaction situations other than residence hall housing. This literature is found in the areas of Anthropology, Architectural Design, Biology, Psychology, Sociology, and Urban Planning. To review this literature from these differing sources, three areas of focus are useful. They are (1) spacial factors, (2) interpersonal factors, and (3) other factors.

I. SPACIAL FACTORS

The one study that has been done in the area of residence hall overcrowding, "Effects of Overassignment to Residence Halls" by Severinsen, Viviano, and Hopkins, found that there were no negative effects of overcrowding. The two factors for statistical analysis were the difference between the ACT predicted grade point average and the frequency of disciplinary action and leaving the

university. The study was conducted with an experimental group and control group made up of freshmen. The experimental group was composed of students who were placed three to a two-man room. Additional desks were not provided. Thus, there were three beds and two desks per three-man room.

Since the only significant finding was the slightly better adjustment of those in the overcrowding, the authors suggest the following:

> In the latter instance it might be hypothesized that the residence hall personnel expressed such unusual concern for the plight of the men in the crowded conditions that a Hawthorne effect was obtained. An alternative hypothesis is that the adverse conditions are actually quite tolerable and serve as convenient targets for the release of the normal tensions and anxieties about adjustment to college, resulting in a more favorable adjustment in the long run. Another hypothesis is that there is some psychologically favorable factor involved in the interaction of three persons in a room that is more advantageous than that in a two man room and that this effect overode any adverse effects of overassignment. (50:143)

It was inferred in the above study that there was much concern by the housing officials that the placement of only two desks for three persons might be intolerable. Gifford and Sommer found that in researching the use of desks in residence hall rooms, there was very little that the stereotype of the necessity of one-man-per-one-desk could hold as valid. Further, most students were found to choose other places to study

rather than at a desk. Most students did reading and researching for papers. The reading was often done lying on the floor, lying on the bed, or being some other place. Students preferred to spread what they were researching out in front of them, and a desk could not provide enough room. Actually, a minority of students who were reading or researching used a desk. Even when typing or writing was being done, many students would not use a desk. Benches, chairs, floors and beds were used more often than were desks (53:654-60).

In his book, Personal Space, Sommer goes into more depth in this topic. He quotes a how-to-study guide as follows:

> A bed is no place to study. Neither is a sofa, nor a foam rubber lounge chair. When you become too relaxed and comfortable physically, your concentration also relaxes. A straight-backed wooden chair is best for most students; it allows them to work at maximum concentration for longer periods of time. (52:136)

Again he shows that there is little to be found that supports the stereotype. Further there was no difference in grade point between those who studied at desks and those who did not.

Sommer further shows that visual privacy is often preferable to audible privacy. Students would rather live one to a room with poor soundproofing than to live two to a room with excellent soundproofing. He

further notes that as the number of persons in the room increases, those who can study in the room decreases. This study was done in the dormitories of private colleges in the Bay Area (52:140-41).

Much of the concern about overcrowding has to do with the actual space left in rooms for people to maneuver around each other. Edward T. Hall did research in New England and determined four distances that served different purposes and had different meanings for the people involved. Intimate Distance in the close phase is from zero to six inches. In its very far phase it is from six to eighteen inches. The close phase is utilized by very intimate friends. Physical involvement is of the utmost significance for the parties occupied. The far phase is for gaining the utmost attention of both parties without distorting vision and without tactile awareness of the other person. Hall notes that much of the discomfort that Americans have with foreigners is when those of another culture invade intimate distance without the proper credentials. He notes that "the expressions 'Get your face out of mine' and 'He shook his fist in my face' apparently expresses how may Americans perceive their body boundaries" (29:117-18). An awareness of this discomfort seems to be a concern of housing personnel.

Personal space is from one and one half feet to four feet. As with intimate space, it is reserved for good friends of the opposite sex and for relatives. Social distance is from four to twelve feet. It is at this distance that most Americans choose to converse with each other. Public distance is anything beyond twelve feet and is used for public address and lacking in much interaction of a personal nature (29:119-25). The inability to regulate one's spacial relationship with another can be very anxiety provoking for Americans.

Hall has noted that there have been positive aspects of overcrowding. The stress involved has had examples of productiveness. Stress can coerce a person into doing that which he would not do under ordinary conditions. Hall notes that following:

> If we tend to deplore the results of crowding, we should not forget that the stress which it produces has had positive values. Such stress has been an efficient device in the service of evolution, because it employs the forces of intraspecies competition rather than the interspecies which is more familiar to most of us as nature "red in toothe and claw." (29:39)

This "intraspecies" competition is just the type of competition that most academic institutions thrive upon. The study by Severinsen et al., previously noted, placed as one of the possible explanations of the slightly better achievement of those overcrowded that the anxiety

and tension were aimed at the overcrowded situation. In this case the stress was transferred and was, then, made more bearable (50:143).

It has been noted that crowding in the urban situation causes slums. As a matter of fact, overcrowding is often equated with slums. Jane Jacobs in The Death and Life of Great American Cities shows this parallel as follows:

> At the time a slum forms, its population may rise spectacularly. This is not out of popularity, however. On the contrary, it means the dwellings are becoming overcrowded; this is happening because people with the least choice, forced by poverty or discrimination to overcrowd, are coming into an unpopular area. (32:277)

The tone of the above is obvious--overcrowding is "unpopular" and only those who cannot afford to live otherwise would ever live in overcrowded surroundings.

The Hidden Dimension by Hall focuses heavily upon the necessity of territoriality in man. Hall relies heavily upon biological findings of John B. Calhoun. Calhoun did experiments upon rats and found that in overcrowded situations their entire interaction process broke down. Some rats failed to reproduce; others became sexually erratic; others were fearful and refused to interact; and eventually their entire social system fell apart (29:23-40).

In a second experiment Calhoun reported in Scientific American that the same phenomena occurred, only worse. Large populations of rats died. He states:

> It is obvious that the behavioral repertory with which the Norway rat has emerged from the trials of evolution and domestication must break down under the social pressures generated by population density. (10:142)

Crowding leads to anxiety, stress, fear, panic, abnormal behavior, inability to function, and death in these rats. The degree of instability and pathology is determined by the degree of crowding.

Hall's conclusion is that man is not exempt from the effects of psychological and biological breakdown found in other animals who endure overcrowding. He maintains that territoriality in man is equally important to his functioning. Deviancy and pathology are the possible outcome of overcrowding in man (29:40).

The necessity for a room of one's own is argued by Chermayeff and Alexander. They argue for hierarchies of space that separate functions and allow privacy for different functions. The bedroom is considered to be the most important area for privacy. Screening of one function from another is a prime consideration (12:213-20).

Housing is seen as a source of social pathology by Judd Marmor in Violence in America (36:338-47) and by Robert C. Weaver in The Urban Complex (59:240-41). Weaver especially singles out overcrowding as being the source of pathology in the urban ghetto from the time of the European immigrants to the migration of southern blacks to the city. Lewis Mumford traces the indignities of overcrowding from the Romans in The City in History (42:214).

Yet, for all the stress upon pathology and degradation that is attached to overcrowding in other literature, no such pathology was noted by Severinsen et al. although they had deliberately measured this in their study. B. A. Goldman studied the situation of overcrowding in temporary housing of students in motels (25:248-50). No mention was made by him of any rise in the disciplinary problems that would parallel the concern. There seems to be no body of literature that would indicate any correlation between dormitory overcrowding and any sort of deviant behavior. The only one that could be found that even attempted to measure such a correlation was the article by Severinsen et al. The achievement of a grade point average in college where the sanctions are for academic success might be one measure of deviancy. A person who did not achieve might

be deviant from the norms of the university. Yet, even in this strained definition of pathology, there has been no correlation that might indicate that poor grades are caused by overcrowding of students in the above two articles.

II. INTERPERSONAL FACTORS

The effects of dormitory life itself have implications upon the success of an individual in a college setting. Roommates are probably the source of more satisfaction and more grief than any other variable. Feldman and Newcomb note the following:

> Roommates who are taking the same course or who are in the same curriculum do tend to discuss their studies more often with one another and receive more help from each other than do roommates who do not have the same course in common; but it is not clear from present evidence whether or not the first group does any better academically than the second. (22:214)

It had been assumed that persons with the same major should be placed together by those who dealt with housing at the University of the Pacific. Persons filling out housing cards were requested to state their actual or their intended majors. On the basis of this they were placed together, when no other material was available upon which to place them.

In placing the students, persons of the same age or class were placed in the same room at the University.

It was assumed that persons in the same standing within the University would get along better. But there have been indications that this type of placement has not been preferred elsewhere. Feldman and Newcomb report the findings of P. E. Beal at the University of Oregon. Beal notes: "Freshman men in the mixed class housing were more satisfied with their college experience than were those living in segregated living situations" (22:213). Frequently used criterion for placement of students in rooms may be questioned.

Segregation by major within a dormitory may also play a part in the attitude of a student to his surroundings. Although previously noted that persons with the same major may be more helpful to each other, they may be exerting an undue force if they are placed as the predominant number on the floor of a dormitory. R. D. Brown noted the following:

> When there is predominance of one major (social science, science, or humanities) on a floor, those in the minority tend to be more unsure of their academic plans. (8:557)

Thus, the desire to place people according either to academic standing by year or by major may be inadvisable. The University of the Pacific places people in rooms by both criteria.

The dormitory overcrowding that existed at the University of the Pacific may have changed the

interaction patterns of those who went through it. Frank W. Young, in his book, Initiation Ceremonies, notes that the more severe the conditions a group undergoes together, the more thoroughly initiated the group feels. The more initiated the feeling, the greater the feelings of solidarity (60:79). This initiation feeling is important to males, Young explains, because the solidarity derived creates a pleasant group feeling that fuses a diverse group into relative cohesiveness.

Priest and Sawyer, in "Proximity and Peership: Basis for Balance in the Interpersonal Attraction," indicate that the closer one has to be to another in a task relationship, the more one tends to relate to another as a peer (43:633-49). This coupled with Young's findings would suggest that a person entering overcrowded situations would have a way in which to structure his surroundings in a positive manner. He would first weigh the amount of stress that the situation placed upon him. The more stress, the more he would likely relate to a group feeling. Then he would also determine how physically close he was to the other person or persons in his room and that might become a function of their becoming peers. This interaction balance recalls that Hall found proximity to be one of the physical phenomena that Americans found most

distasteful about Europeans. The restructuring of one's environment into a balanced peership may be a subconscious attempt at making personal and intimate space tolerable, when one must live under conditions that require such intimacy. Lowenthal and Haven found that in interaction and adaptation the critical variable is intimacy (35:20-30).

In reviewing the literature of the psychology of affiliation, Stanley Schachter lists the following as among the major findings of this field:

> 1. The affiliative process is positively related to the states of anxiety and hunger.
> 2. The relationship between anxiety and affiliative tendency is independent of the opportunity to communicate, for it remains positive in a variety of conditions ranging from completely free communication to absolutely no communication at all.
> 3. The affiliative tendency is highly directional. Anxious subjects want to be only with those in a similar plight.
> 4. There are individual differences in the propensity to affiliate under conditions of anxiety . . . . (47:304)

Thus, one can see that the greater the anxiety, the more likely a person is to affiliate himself with others in the same situation. This has implications for those who live in overcrowded dormitories. Does the commonness of their plight cause them to have an affinity for each other? This thesis is not able to test, but it could have an effect upon any results

derived from the accumulated data.

Schein, Scheier, and Barker examine the dynamics of guilt and coercion in "The Special Role of Guilt in Coercive Behavior." If there were any negative emotions felt by those in normal housing toward those in overflow housing, then guilt by association may have taken place. Those who were in normal housing may have had feelings of guilt about their good fortune when others around them were enduring the inconvenience of overflow housing. Because he does not endure the hardship of those in the other setting, the person with the advantage is more likely to be coerced by those who are less fortunate. He is motivated by guilt to acquiesce to demands by those less fortunate. This type of dynamic may cause some fortunates to risk changing affiliation to the less fortunate group. It is the opposite phenomenon of the person for a group because he is part of the group as it undergoes a common hardship. In the first phenomenon, a person feels affinity for a group because it is less fortunate than he is and because he feels guilty for not having to endure the same hardship. If such a phenomenon took place in South-West, it would alter the perception of self of the person in overflow housing. He would have an increased sense of power in a setting of inconvenience (22:426-40).

Both C. Loomis in "In Praise of Conflict and its Resolution" (34:875-91) and R. Angell in "The Sociology of Human Conflict" (1:91-115) show that conflict may be just as often productive as it may be counterproductive. The resolvement of the conflict may be the creative angle that makes an adjustment more meaningful to the actor. Thus, conflict, i.e., anxiety-producing conditions, can be productive. Overcrowding may offer its inhabitants the opportunity for satisfying resolvement of their anxiety to the situation. Anxiety and conflict can be the creative stimuli to achievement of goals. A person who must find a way to study in a room that he feels is occupied by too many people has to make a decision. Either he leaves or he learns how to concentrate in an atmosphere of noise and disorder. In either case he has made the decision that something has to be done to achieve the goal of academic achievement. Unforeseen adjustments must be made in order to survive academically.

Dorwin Cartwright, speaking about the structure of situations over which power can be exerted, explains that the degree of clarity of the paths to the goal is as follows:

> A person may not be certain of his course because the problem upon which he is working is vague and he cannot draw upon past experience to solve it. He is not certain of his steps

> because there are no cues. The result is that he is less certain as to how to satisfy his needs and he is consequently more easily threatened. (11:37)

In such a case power can easily be exerted over a person by a stronger person. The rationale for having a dormitory with different classes (freshman, sophomore, junior and senior) is that the more experienced will serve to initiate the less experienced into dormitory decorum. In a crowded situation the cues are more obscure and the peer group that experienced overcrowding in South-West for the first time might exert the power of determining the cues. If Schachter is correct about affiliation caused by anxiety, then the peer group could exert the power in overcrowding.

Leonard A. Baird, in "The Effects of College Residence Groups on Students' Self Concepts, Goals and Achievements," finds that the place of residence has little effect upon the academic or social achievement of those involved (22:1015-21). Fraternities, sororities, dormitories and off-campus housing were studied. There was very little difference in achievement. But these different residence groups were studied under conditions that did not include overcrowding. One wonders if crowding would have any different effect. Yet, the fact remains that under normal conditions little effect is felt.

In summation, there is little research that is specifically directed at the effects of overcrowding upon the student. The literature that is available in this area is limited in scope, as indicated in the study by Severinson et al. The spacial and residential factors yield little conclusive support for contentions that a particular residential setting with specific furnishings augment a student's ability to achieve in the classroom. In tangential studies concerning space and overcrowding, there seems to be an assumption by some that overcrowding is dysfunctional, but such assumptions have not been borne out in studies done in academic settings. In the placement of students in rooms, the research tends to favor diversity rather than similarity as a criterion. Housing representing different classes shows more student satisfaction; diversity of majors may be useful. The ceremonies that surround initiation to a setting may be as important as the setting itself. Interpersonal factors affecting group behavior in other settings may be intensified in their significance to a crowded setting. Stress and anxiety may be a direct side effect of overcrowding. If this becomes true, stress may become a motivating factor to those who are overcrowded. It has been shown that stress can have both productive and counterproductive results.

Assumptions that the stress of overcrowding tends to be uniformly counterproductive or debilitating are not borne out by the literature. Thus, much of the review of the literature aimed at spacial factors, interpersonal factors, and other factors, such as stress, is either conflicting or inconclusive. The area of overcrowding is not yet endowed with enough significant data to support a well-founded theoretical framework.

III. OTHER FACTORS

The clearest additional factor upon which to focus attention is the factor of stress. As noted previously, stress can have a cohesive effect upon a group. It can also cause a person to be influenced by threat of guilt by association. Overcrowding is stress provoking. The stress of overcrowding has been linked with pathology. Placement in a dormitory where the majority of other persons have a different major can cause uncertainty and stress.

Joseph McGrath finds three elements of a definition of stress as follows:

1. The most basic element of a stress definition involves the specification of a class or classes of response which will be taken as the evidence that the organism is, or recently has been, under stress. (39:12-13)
2. Stress involves the presence of certain classes of situations or situations

involving certain classes of stimulus properties. (39:13-14)

3. Stress is a particular kind of reaction of an organism to environmental events. The occurance (sic) of environmental change, which leads to the perception of threat, is a starting place for building a transactional definition of stress. (39:14)

Thus, one can look at stress from three different perspectives, response-based definition, situation-based definition, and organism-environment transaction definition. The first two definitions are intra-individual in thrust. The third is transactional and, therefore, traces the process of the relationship of the individual to the environment. Stress has elements of all these foci.

McGrath gives seven propositions that collectively form a conceptual structure for the analysis of stress. They are as follows:

1. There must be a focal organism or actor.
2. The stress problem has four stages.
   a. There must be a demand upon the focal organism.
   b. There must be a reception of recognition of the demand by the focal organism.
   c. There must be a response to the demand.
3. Properties or attributes of the focal organism come into play at the four locations in the above paradigm.
   a. Different focal organisms are sensitive to different stimuli.
   b. Different attributes of a single focal organism mesh to influence a response.

c. Different attributes of the focal organism effect the consequences of the actors response.

4. There is a linkage of the above sequences, the environment and the focal organism.
5. Stress, then, involves some relationship between focal organism and environment.
6. The social organism, man, is seen as an active, adaptive, coping organism, rather than as merely a passive or reactive organism.
7. The sequence of events above mentioned take place through time. (39:15-17)

With this paradigm stress can be seen to be multidimensional and cumulatively based upon response, situation and transaction.

The importance of this dissection of stress is that it traces an entire cycle. In application to overcrowding of dormitories, the student becomes the focal organism. It is with him that the demand, the reception, the response, and the consequences are made. Within him are the attributes that affect his interaction. He is linked with the sequence of events and the environment. He is involved in a relationship with his environment. He is the active, adaptive, coping organism. He traces the events through time.

The study of overcrowding undertaken in what follows only attempts to chart the possibility of the consequences of stress due to overcrowding. The above charts the various stages that lead to this consequence.

CHAPTER III

THE GATHERING OF AND THE EXPLANATION OF DATA

Three sources of information were tapped for the data used in this research. Mrs. Jane Watson in the Office of the Dean of Students obtained the scores of the Washington Pre-College Testing Program for this research. An explanation of this testing program is found later in this chapter.

The residence staff in the South-West Complex offered the records of that residence hall for the fall of 1969. An explanation of the method of placement and the criteria for placement, as explained by Mr. Jesse Marks, Director of Residents of the South-West Complex, deserve full examination.

Each student who applied for housing from the University was required to fill out a pink card titled "Housing Information for Head Resident." On this card there was information that was used for placement in a room. Criteria of priority were derived from this card as to room preference. In the case of the large amount of overcrowding, these criteria were extended to determine who would be in overcrowded housing and who would

THE UNIVERSITY OF THE PACIFIC FRESHMAN TESTING PROGRAM

using the

Washington Pre-College Testing Program*

Success in college and in life also is dependend upon a number of factors not the least of which is a wise selection of a goal. To make a proper selection one has to be directed by certain interests and be motivated to strive for the goal, yet it is true that the student who selects a goal commensurate with his abilities will be happier in college than the one who makes an unguided guess that his goal should be this or that.

THE ROLE OF THE UNIVERSITY IN GOAL SELECTION

The college is not the determiner of the student's goal; in the last analysis it must be the individual who makes the decision. The services of the college are at the disposal of the student to assist him in making this sometimes difficult decision. Every college is vitally interested in this process and probably all colleges use tests to assess the abilities of their incoming students. These are only partially adequate for they are either very general, such as the academic aptitude tests, and must be interpreted very loosely, or they are quite specific, such as the English aptitude tests, and omit the differential factor.

WHAT MAKES THE PREDICTED COLLEGE GRADES POSSIBLE

These predicted college grades are made possible because of four major developments at the University of Washington. These are:

(1) A very large scale research project involving many thousands of students and over a half a million test scores, high school grades, and college course grades made by these students.

(2) A new scientific technique which determines what psychological tests, combined with high school grades, are most accurate for predicting the college course areas in which your chances of success are greatest.

(3) Forty-three different mathematical formulas which show how to weigh your test scores and high school grades so as to predict most accurately the college course areas in which your chances of success are greatest.

(4) A method for using modern high speed electronic computing machines to convert your test scores and high school grades rapidly into forty-three different predicted grade point averages. Formerly, half a day was required to compute the predicted grades for one student, and the resulting cost was prohibitive.

*Permission to use this material granted by the University of Washington.

FIGURE 2.

JONES LAWRENCE BLAKE	HILLCREST, YAKIMA	17	M	SPRING 69	85-103-0163	
STUDENT NAME	HIGH SCHOOL	AGE	SEX	DATE OF GRADUATION	W. P. C. I.D. NUMBER	COLLEGE I.D. NUMBER

WASHINGTON PRE-COLLEGE TEST DATA REPORT

HIGH SCHOOL AVERAGES

ENGLISH	3.50
MATHEMATICS	2.80
SCIENCES	2.00
SOCIAL STUDIES	3.50
FOREIGN LANGUAGE	2.50
ELECTIVES	3.20
OVERALL	2.94

W.P.C.T. SCORES

ENGLISH COMPOSITE	61
VOCABULARY	61
ENGLISH USAGE	57
SPELLING	61
READING SPEED	50
READING COMPREHENSION	68
VERBAL COMPOSITE	61
QUANTITATIVE SKILLS	64
APPLIED MATHEMATICS	53
MATHEMATICS ACHIEVEMENT	63
QUANTITATIVE COMPOSITE	61
SPATIAL ABILITY	65
MECHANICAL REASONING	64

HIGH SCHOOL RECORD

SUBJECT		CREDIT
ENGLISH		6.00
REQUIRED	6.00	
MATHEMATICS		4.00
ALGEBRA	2.00	
GEOMETRY	2.00	
NATURAL SCIENCE		3.00
PHYSICS	2.00	
OTHER	1.00	
SOCIAL STUDIES		4.00
HISTORY	4.00	
FOREIGN LANGUAGE		4.00
SPANISH	4.00	
ELECTIVES		11.00
BUS EDUC	2.00	
OTHER	9.00	
TOTAL CREDITS		32.00

COLLEGE EXPECTANCIES - See instruction booklet for explanation

SUBJECT AREAS	PRED SCORE	C OR ABOVE	B OR ABOVE	50% CHANCE GRADES WILL AVERAGE WITHIN RANGE MARKED (F D C B A)
ALL COLLEGE	48	67	09	XXXXIX-XX
ACCOUNTING	49	46	10	XXXXXXI-XXXXX
AGRICULTURE	54	79	35	X-XXXIXXXXX
ANTHROPOLOGY	51	67	21	XXXX-IXXXXX
AUTO MECHANICS	58	91	50	- XXXXXIXXXXX
BIOLOGY, INTRO	48	46	10	XXXXXIX-XXX
BOTANY	49	54	10	XXXXXIX-XXX
BUSINESS ADMINIST	53	84	29	XX-XXIXXXXX
CHEMISTRY, INTRO	44	26	01	XXXXXIXXXXX-
COMMUNICATIONS	50	90	40	XXXXX+XXXXX
DATA PROCESSING	53	88	38	XXX-XXIXXXXXX
ECONOMICS ADVANCED	50	83	36	XXXXX+XXXX
ECONOMICS INTRO	48	54	12	XXXXXXIX-XXXX
ELECTRONICS	55	82	37	-XXXXXIXXXXX
ENGINEERING, INTRO	43	45	11	XXXXIXXXX-
ENGINEERING TECH	55	85	40	X-XXXXIXXXXXX
ENGLISH, FRESHMAN	49	67	23	XXXXI-XXX
ENGLISH COMP	51	86	34	XXXX-IXXXXX
ENGLISH LITERATURE	50	76	20	XXXXX+XXXXX
FORESTRY	55	66	17	XXXX-IXXXXX
FRENCH, INTRO	47	60	11	XXXXXIXX-XX
GEOGRAPHY	52	73	31	XXXX-XIXXXXXX
GERMAN, INTRO	49	64	17	XXXXXXI-XXXXX
HISTORY	50	78	29	XXXXX+XXXXX
MATH: ALGEBRA	45	40	05	XXXXXIXXXX-X
MATH: CALCULUS	43	23	01	XXXXXXIXXXXXX-
MICROBIOLOGY	50	76	27	XXXXXX+XXXXXX
MUSIC THEORY	49	71	26	XXXXI=XXX
PHILOSOPHY	49	62	18	XXXXXXI-XXXXX
PHYSICAL EDUCATION	51	94	16	XXX-IXXXX
PHYSICS	48	58	15	XXXXXIX-XXX
POLITICAL SCIENCE	50	77	17	XXXXX+XXXXX
PSYCHOLOGY, INTRO	51	71	16	XXXXX-IXXXXXX
RUSSIAN, INTRO	42	54	12	XXXXXXIXXXXXX -
SOCIOLOGY, INTRO	52	62	18	XXX-XIXXXXX
SPANISH, INTRO	50	60	18	XXXXXXI-XXXXX
SPEECH	50	74	29	XXXX+XXXX
WELDING	59	91	56	- XXXXXXIXXXXXX
ZOOLOGY	49	54	12	XXXXXXI-XXXXX

THE STUDENT'S DATA REPORT

The following information is included on your Data Report: Look it over now.

IDENTIFICATION

JONES LAWRENCE BLAKE (STUDENT NAME)	HILLCREST, YAKIMA (HIGH SCHOOL)

17 (AGE)	M (SEX)	SPRING 69 (DATE OF GRADUATION)	85-103-0L63 (W A C ID NUMBER)	(COLLEGE ID NUMBER)

If an error is found in this line, particularly in the coding for age, or sex, the data report should be returned to the appropriate processing center for reprocessing. Significant differences in the college expectancies will occur if either of these items is coded incorrectly.

WASHINGTON PRE-COLLEGE TEST DATA REPORT

HIGH SCHOOL AVERAGES	
ENGLISH	3.50
MATHEMATICS	2.80
SCIENCES	2.00
SOCIAL STUDIES	3.50
FOREIGN LANGUAGE	2.50
ELECTIVES	3.20
OVERALL	2.94

HIGH SCHOOL RECORD		
SUBJECT		CREDIT
ENGLISH		6.00
REQUIRED	6.00	
MATHEMATICS		4.00
ALGEBRA	2.00	
GEOMETRY	2.00	
NATURAL SCIENCE		3.00
PHYSICS	2.00	
OTHER	1.00	
SOCIAL STUDIES		4.00
HISTORY	4.00	
FOREIGN LANGUAGE		4.00
SPANISH	4.00	
ELECTIVES		11.00
BUS EDUC	2.00	
OTHER	9.00	
TOTAL CREDITS		32.00

SUBTEST SCORES	
ENGLISH COMPOSITE	51
VOCABULARY	61
ENGLISH USAGE	57
SPELLING	61
READING SPEED	50
READING COMPREHENSION	68
VERBAL COMPOSITE	51
QUANTITATIVE SKILLS	64
APPLIED MATHEMATICS	53
MATHEMATICS ACHIEVEMENT	63
QUANTITATIVE COMPOSITE	61
SPATIAL ABILITY	65
MECHANICAL REASONING	64

Example taken from the data report for Lawrence Blake Jones shown on page 5.

The student's identification number is issued at the time you took the test. It is the number that should be referred to in all correspondence relating to your test results. Write this number in this booklet.

The college I.D. number is supplied by the college when you register.

HIGH SCHOOL RECORD

The list will include the name of the course and the total number of credits earned in the subject during grades 9 through 11.

The total number of credits earned through the sixth-semester is shown at the bottom of this list.

HIGH SCHOOL AVERAGES

Grade point averages are computed for English, foreign languages, mathematics, natural sciences, social studies and electives (business, music, art, agriculture, industrial arts, home economics, etc.) Physical education, office helper and teacher's assistant are among the most common listings that are included in the average of "electives".

An overall grade point average is computed for all high school work through the sixth-semester. This average includes all subjects on the list, weighted according to the number in the "credit" column. Because not all high schools in the state compute their overall grade point averages in the same way, this average may not agree with the one computed by the high school.

WASHINGTON PRE-COLLEGE TEST RESULTS

The following scores are included in the student's data report. These are derived from the subtests that make up the Pre-College Test. A brief description of each score and subtest follows:

English Composite. This composite score is a weighted average of vocabulary. English usage and spelling subtest. This score is used by many colleges as an aid in placing students in the various levels of freshman English courses.

Vocabulary. This test measures knowledge of grammar, correct word usage, capitalization and punctuation.

Reading Comprehension. This test measures ability to comprehend the printed work in paragraphs of story form.

Verbal Comprehension. This composite score is a weighted average of the Vocabulary, English Usage, Spelling, and Reading Comprehension subtests.

Applied Mathematics. This test applied arithmetic and elementary algebra to simple practical problems.

Mathematics Achievement. This test contains problems of elementary algebra and geometry.

Quantitative Composite. This composite score is a weighted average of the Quantitative skills, Applied Mathematics and Mathematics Achievement subtests.

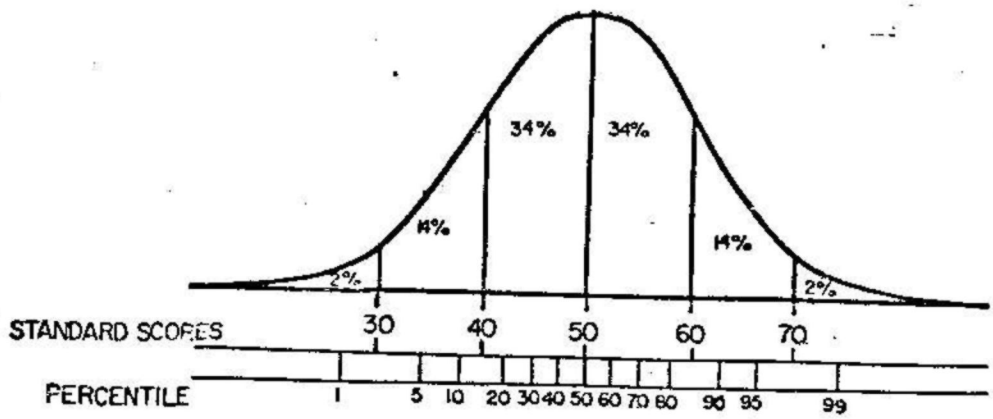
Spatial Ability. This test is designed to measure the student's ability to visualize mentally three dimensional figures.

Mechanical Reasoning. This test measures the understanding of simple physical principles as applied to common, frequently observed mechanical devices or situations.

Quantitative Skills. This test measures skill in handling quantitative data in observing relationships between sets of numbers, in determining whether or not the given data is sufficient to solve the stated problem, and in deciding which of the two stated quantities is greater.

STANDARD SCORES

All scores recorded in the WPCT column are standard scores. For all the high school students who take the Washington Pre-College Test the average is 50, and about two-thirds of your group score between 40 and 60. Less than 3 percent usually score above 70 and less than 3 percent usually score below 30. (See diagram below).



PERCENTILE CHARTS FOR COLLEGE SUBJECT AREAS

Having completed the Washington Pre-College Test, you have an advantage over other entering college students in other states in that by studying your data report, you can help plan your college program to maintain a fairly even load each quarter or semester. As you look at the data report, you will see some of your prediction scores are above the all school average, some are the same, some are lower. You should find that in the classes where your scores are above average, you will have the most success, conversely, you will probably experience the most difficulty in the classes where you score below average. Of course, you must keep in mind that interests, motivation and personal values will affect the grades you earn.

It is helpful in such an analysis to plot the Subject Percentile Chart on page 7. From your data report, transfer your prediction scores to the boxes under the appropriate subject headings and plot these scores on the chart using the score table in the left margin. On the next page is shown a sample of the percentile chart filled out for Lawrence Blake Jones. Note that he has transferred his prediction scores to the appropriate subject columns. Then he has located the points on the graph and connected these with lines in the same manner as was done on the percentile chart for high school grades and WPCT scores. Read the percentile ranks off the number scale in the right margin.

Plotting a graph of these prediction scores on a profile chart will show your peaks and valleys. The peaks will indicate subjects in which the student may expect to be most successful. By locating these points in relation to the percentile band on the right margin, you can see your predicted position in a subject area compared to other students.

You may notice that on your data report, the prediction band for one subject may appear low or in the C or D area for one subject while in another subject the prediction band may appear high or in the B area. Yet on the Subject Percentile Chart, the points representing these two subjects may appear at approximately the same height on the chart. In comparing this percentile chart with your predicted grade bands, it should become quite evident that some departments are more strict than others in grading policy. A prediction band relatively low on the data report should not necessarily discourage you. Your position on the Subject Area Percentile Chart indicate relative strength in an area in relation to your peers. This position may be looked upon as your "predicted rank in class". Compare this rank in class (percentile rank) with your grade prediction band to get a feeling of the relationship between predicted grade range and predicted rank.

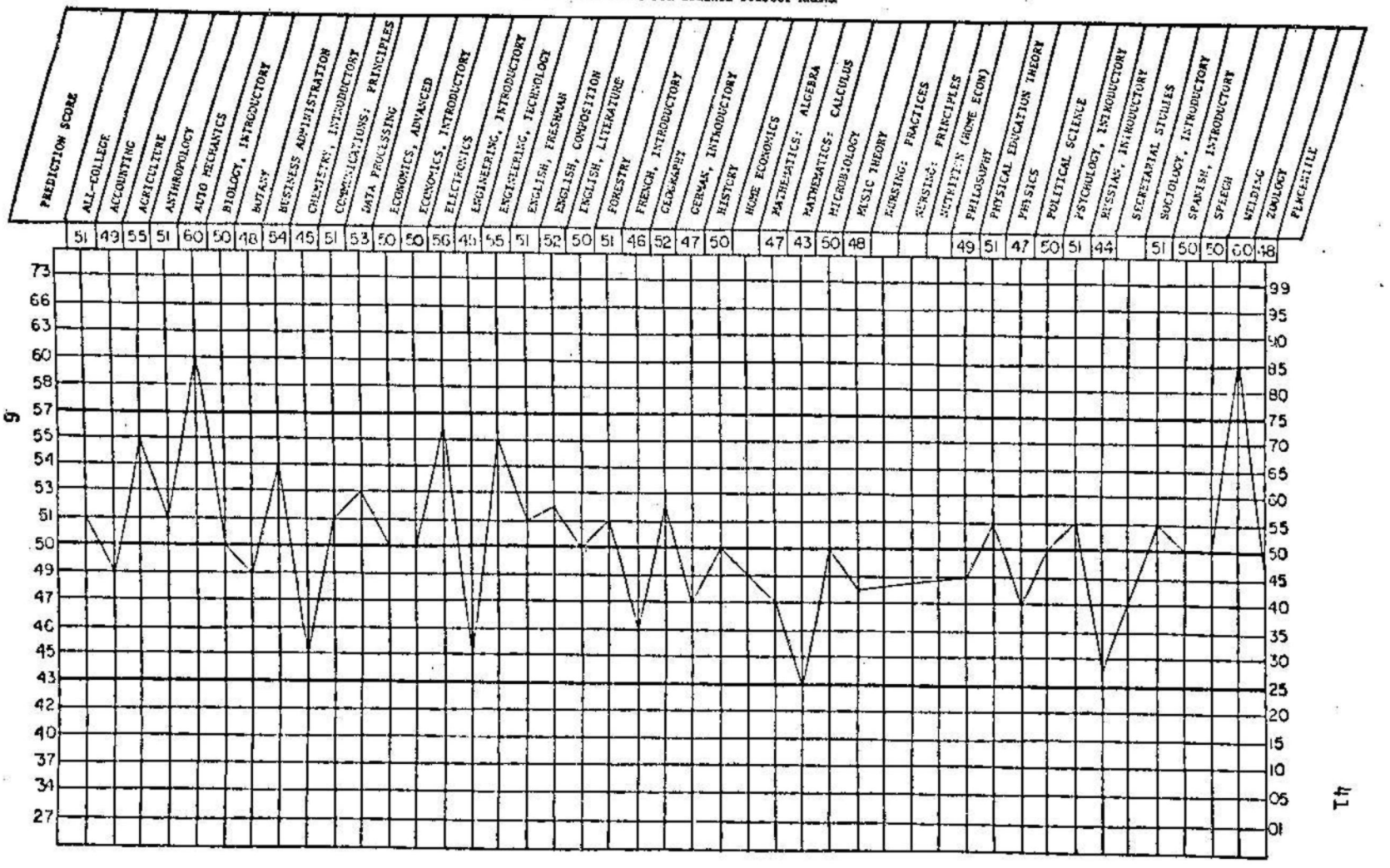
It is important that you understand this chart before proceeding to the next set of graphs.
You should ask yourself these questions:

(1) In the subject areas that most interest me are my rank predictions above the 50th percentile?
(2) What is the predicted range of grades for these subjects?
(3) What does a low predicted grade range mean when the predicted rank is above the 50th percentile? When predicted rank is below the 50th percentile? What about a high predicted grade range with predicted rank above and then below the 50th percentile?

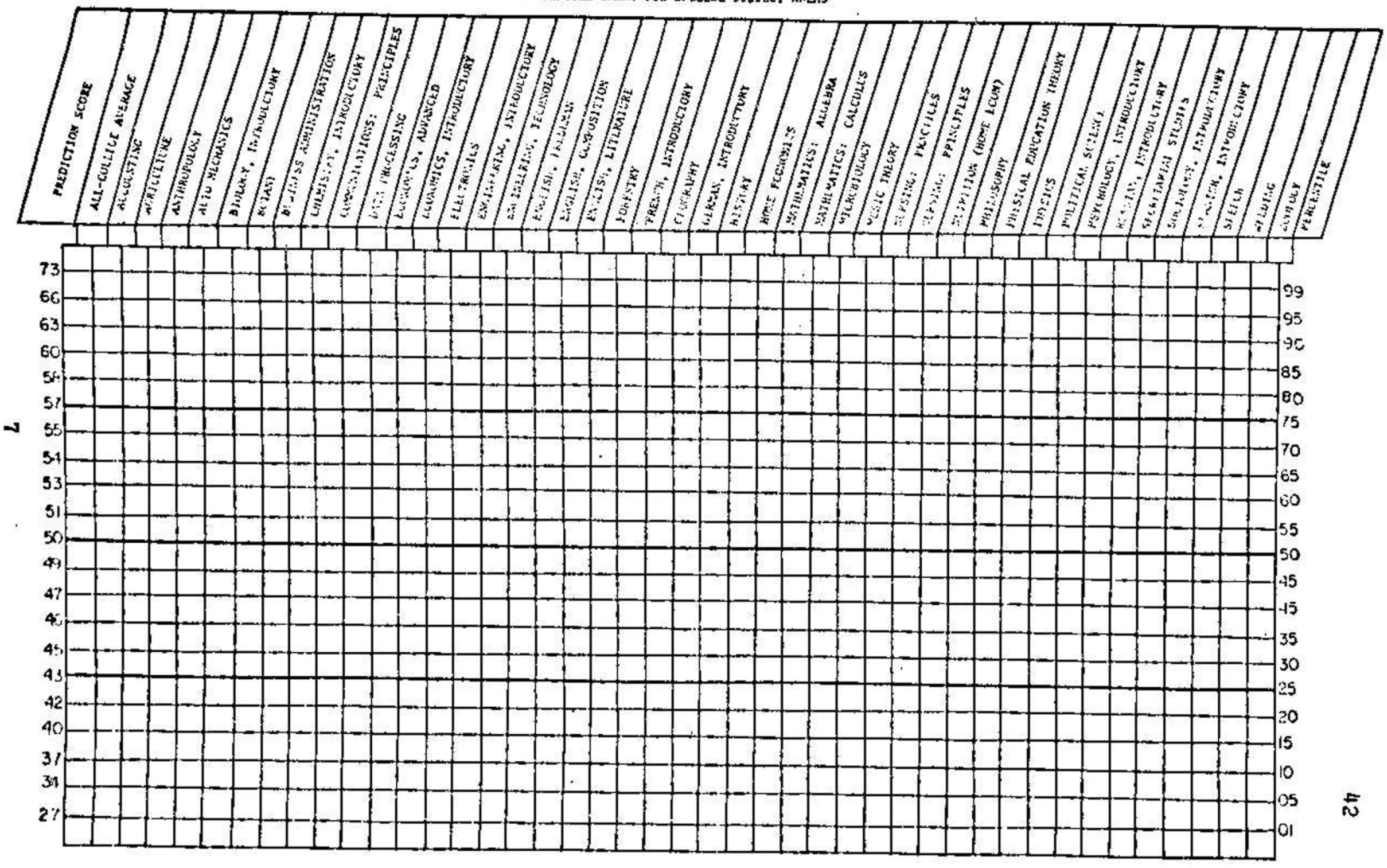
If you cannot answer these questions to your own satisfaction get an appointment with your counselor and show the completed charts and the data report to him (or her) and get answers.

To save time and avoid confusion look at the subject fields that hold some degree of interest first. Then look at other subjects later.

PERCENTILE CHART FOR COLLEGE SUBJECT AREAS



PERCENTILE CHART FOR COLLEGE SUBJECT AREAS



INTERPRETATION OF THE COLLEGE GRADE EXPECTANCIES

On the data report, college expectancies for success in all college work as well as in forty-three criterion areas are represented in several ways. First, a prediction score is shown for each area. These prediction scores are only estimates of success in college. These scores range from 20 to 80 with an average of 50. Taken by themselves, these prediction scores will have little meaning. However, in the two columns to the immediate right, headed "C or above" and "B or above", can be seen what percent of the students in the past who had identical prediction scores earned C or above and B or above in the corresponding areas. Although not indicated in the data report, some students also earned grades of D and F. As an example, consider the following data reported to a student in History:

	Prediction Score	C or Above	B or Above	50 percent chance grades will average within range marked F D C B A
History	50	76	20	XXXXX+XXXXX

This line of data shows that of the students in the past who had prediction score of 50 in History, 76 percent earned a C, B or A grade in their history courses while 20 percent earned a B or A grade. In this example, 24 percent earned a grade point average of less than C in their history courses. A majority of these earned D's and the balance received a failing grade. The student receiving this data report can assume then, that if his performance in history is typical of the students in the past with an identical grade score, his chances are 76 out of 100 of receiving an average of C or better in all of his history courses and 20 out of 100 of receiving an average of B or higher.

An understanding of the remainder of this line of data is even more fundamental to a complete interpretation of the prediction score. The symbol (-) on the F and A scale represents the average grade for all college students in history. The symbol (I) on the scale represents the letter-grade equivalent of the prediction score 50 reported for this student. The width of the band identified by a series of X's on the scale represents the range within which there is a 50 percent chance that history grades for this student will average. It is important to recognize that the prediction score represents no more than the mid-point of the range within which a 50 percent chance exists for grades in that particular area to fall. This can also be interpreted to mean that 50 percent of the students with a prediction score of 50 in History will probably receive grades within this band. Twenty-five percent will probably do better and the remaining 25 percent will probably do poorer.

Check One:
Returning Student ✓
New Student ___

UNIVERSITY OF THE PACIFIC
HOUSING INFORMATION FOR HEAD RESIDENT

April 28

Room Number ___ Assigned to: South Wigmore
College Enrolled COP

NAME James M. PATTON

Home Address 7144 Fulton. Home Phone: ___
Area Code & Number

N. Hollywood (City) Calif (State) (Zip Code)

Name of Parents or Guardians MERRILL P. PATTON

Birth Date July 8, 1946 (Mo. Day Yr.) Class Next Semester: Fr. ___ Soph. ___ Jr. ___ Sr. X

Major Pharmacy Roommate Preference ___ Room Pref. PREFER SINGLE ROOM

Do you smoke? NO Do you object to roommate's smoking? ___

Please indicate on the back of this card your special interests, requests, health problems, or other pertinent information which you care to give which might better enable the head resident to place you in the best possible situation for you, insofar as this is possible.

INFORMATION REQUESTED BELOW IS OPTIONAL,
BUT MAY ASSIST US IN SERVING YOU MORE EFFECTIVELY

Special interests, skills, hobbies, etc.: ___

Health Problems? None

Special Requests None

Church Preference METHODIST

FIGURE 3.

not. Returning students had priority for preference over new students. Upperclassmen had priority over lowerclassmen. There was a date stamped in the upper right-hand corner of this card that indicated when it had been returned. Those who returned their housing cards earlier had preference over those who returned their cards late. Thus, the order of preference went from returning students to upperclassmen to prompt return of the card to the Housing Office. A person who fulfilled all of these criteria had priority over a person who only fulfilled one or two of these criteria. Thus, the criteria were used again to determine who would be in overflow housing versus super-overflow housing.

Placement of persons with the same interests, similar smoking objections, and similar class standings was attempted. Special considerations were given to persons with verified health problems. Roommate preferences were usually adhered to.

Thus, the placement of persons into rooms was not on a random basis. The placement of persons into normal housing versus overflow housing was based on standard criteria, but variations for placement did take place. There was an attempt at standardization of placement. That was the reason for the "Housing Information for Head Resident" card, but this information was

obtained to further objectify what could have been a strictly objective choice.

It might be noted that Marks was serving his first year as Director of Residents for the South-West Complex at the time of this situation of overcrowding. Thus, it is likely that he may have been more objective in his placement of persons in rooms than he would have been had he known most of the those students returning. His ignorance of the personalities and the life styles of the persons being placed may have objectified what could be a subjective choice.

A breakdown of placement by class may illustrate the distribution in overcrowded conditions as opposed to normal conditions. Of 119 freshmen, 52 were in overflow conditions, 29 were in super-overflow conditions, and 38 were in normal conditions. Thus, 31 percent were in normal conditions, 24 percent were in super-owerflow conditions, and 44 percent were in overflow conditions. If one is to combine the overflow and the super-overflow conditions percentages, one finds 68 percent of the freshman class was in other than normal housing conditions.

Of 89 sophomores, 22 were in overflow conditions, 16 were in super-overflow conditions, and 51 were in normal conditions. Thus, 58 percent were in normal

conditions, 18 percent were in super-overflow conditions, and 24 percent were in overflow conditions. This shows 43 percent in conditions other than normal housing.

Of the 42 juniors, 8 were in overflow conditions, 4 were in super-overflow conditions, and 30 were in normal conditions. Thus, 71 percent were in normal conditions, 10 percent were in super-overflow conditions, and 19 percent were in overflow conditions. This shows 29 percent in conditions other than normal housing.

Of the 16 seniors, there was only one in each of the overflow and the super-overflow conditions and 14 were in normal conditions. Thus, 88 percent were in normal conditions and there were 6 percent in each of the overflow and the super-overflow conditions. This shows 12 percent in conditions other than normal housing.

The percentages of those in overflow or super-overflow housing decreases with each higher academic ranking. This is due to the higher number of returning students in the upper classes. When asked how any freshmen found their way into the normal housing, Marks explained that the returning students were placed in normal housing from the senior class on down to the freshman class. Then a return was made to the senior

TABLE I

ASSIGNMENT OF ROOMING CONDITION

BY ACADEMIC CLASS

FRESHMEN		
	Total in sample = 119	
	Overflow = 52 Super-overflow = 29 Normal = 38	Combined overflow and super-overflow = 81
	Overflow = 44% Super-overflow = 24% Normal = 31%	Combined overflow and super-overflow = 68%
SOPHOMORE		
	Total in sample = 89	
	Overflow = 22 Super-overflow = 16 Normal = 51	Combined overflow and super-overflow = 38
	Overflow = 24% Super-overflow = 18% Normal = 58%	Combined overflow and super-overflow - 43%
JUNIOR		
	Total in sample = 42	
	Overflow = 8 Super-overflow = 4 Normal = 30	Combined overflow and super-overflow = 12
	Overflow = 19% Super-overflow = 10% Normal = 71%	Combined overflow and super-overflow = 29%
SENIOR		
	Total in sample = 16	
	Overflow = 1 Super-overflow = 1 Normal = 14	Combined overflow and super-overflow = 2
	Overflow = 6% Super-overflow = 6% Normal = 88%	Combined overflow and super-overflow = 12%

class, placing new students in overflow and super-overflow housing, working down to the freshman class. This can be seen to be less than random. But, the criteria offered as information on the housing card were used as determinant of who would be living with whom.

Despite the fact that placement in normal versus overcrowded conditions was not random, the possibility that those placed in one type of housing would do better than those placed in another type seems unlikely. Nowhere in the literature could there be found any evidence that those upperclassmen who remained in the same dormitory setting did better academically than those who recently arrived in that setting. Neither could evidence be found for the reverse to be true. Nevertheless, there is a possibility that the method of placement, giving priority of normal rooming to returning students, may have had an effect upon this research.

CHAPTER IV

THE DESIGN OF THE PROBLEM AND THE TREATMENT OF DATA

The South-West Complex was designed to accommodate 250 male students. In the fall of 1969, due to overcrowding, 291 students were housed in this residence hall for the majority of the fall semester. Some of those who were placed in rooms were not in what the University would call overcrowded conditions. They were placed in rooms that were designed to accommodate two or three people. When there was one more person per room than the room was designed to hold, all those in the room were said to be in overflow conditions. When more than one person above what the room was designed to accommodate was placed in a room, all those in the room were said to be in super-overflow conditions.

Since all those who were housed in this residence hall were included in this research, the South-West Complex may be viewed as being a complete sample. Where data were not available for testing, persons were eliminated from the sample for this research. The only elimination of subjects was due to a lack of data. The types of elimination will be discussed later.

The significance of the problem of overcrowding in residence halls seemed timely. Each fall, many colleges and universities across the United States find that they are going to be overcrowded. Although studies had been done to determine the effects of this type of inconvenience upon the students' academic achievement, none had taken an entire population representing students of differing years of college. The broader focus of this study seemed pertinent to investigation.

The theoretical framework for this problem follows that used by Severinsen, Viviano, and Hopkins (50:141-43). There was to be an experimental group and a control group. The experimental group was represented by those who were placed in overflow or super-overflow housing. The control group was represented by those who were placed in what the university called normal housing. In the testing by Severinsen et al. the predicted grade point was used as one control variable. The University of the Pacific uses the Washington Pre-College Testing Program to ascertain an indicator of future success in academic work. The results of these tests were used in this design. But where an actual previous college grade point was available, this was used in lieu of the Washington predicted grade. Thus, the previous grade point in college was used whenever available and the

Washington predicted grade was used when a previous grade was unavailable. The rationale behind using these two indicators interchangeably was that the constancy of the criteria for their usage would offset any error. The Washington predicted grade was used only when there was not a previous grade point. Thus, these two indicators were used as one control variable. A dependent variable was the actual grade point average achieved in the fall of 1969.

Where either control variable was unavailable, subjects were eliminated from this research. There were some who never had taken the Washington test and did not have a previous grade point, some who had previous college grades that were not able to be transposed into the standard four-point system used by the University, and some who never completed the semester. Of the total number of 291 who were housed in the South-West Complex in the fall of 1969, 261 had enough data available for them to be included in this research.

Data were gathered for a number of possible intervening variables. The year in college was gathered with the assumption that class difference might make some difference upon the individual in terms of adjustment.

The number of persons in a room, as gauged by the University standard of what would be normal, overflow, and super-overflow housing, was gathered. The differing housing accommodations were of primary importance in the initiation of this research.

The major of roommates seemed a possible criterion to judge the adaptability to academic matter, but this was rejected due to lack of accuracy. If roommates were the same, there might be more possibility for better academic achievement. Seven areas were defined as being distinct enough to use as separate areas of similarity. They were as follows: (1) science, (2) social science, (3) humanities, (4) pharmacy, (5) conservatory of music, (6) engineering, and (7) other. These criteria followed closely the divisions within the University. But this proved unsatisfactory because in the case of art, athletics, and speech, all seemed to fall within the area of "other." Further, within the area of speech, one could be interested in debate, speech therapy, or drama. The similarity would only be a departmental one. In the Conservatory of Music, the person interested in music therapy would be more in line with the speech therapist or psychologist than with the composition major. The sub-groupings of majors proved to be too difficult to sub-group as the

persons list only overall majors with the University rather than listing sub-majors emphasis.

A great deal of data was gathered in the area of residence location. A list of the home town or city was made. But the determination of who lived in a rural, suburban, or urban area could not be ascertained. The delineation of rural and urban was too difficult to determine without an up-to-date evaluation of the 1970 census which is not yet available. Population listings as of the 1960 census would be blatantly inaccurate in California. This independent variable was rejected as being too prone to error.

The religion of roommates was considered as a possible independent variable, but it was rejected when it was discovered that persons often listed a definite religion in data given to the University for registration but failed to list a preference or listed specifically no preference when they registered for housing.

Also listed on the housing card was a preference of a specific room by number. This might have been an independent variable if it had not been that the Director of Residents at the South-West Complex had been so careful to seek out alternate preferences that were not listed on the housing card.

The age of the roommates seemed a possible independent variable. If eighteen year olds were rooming with twenty-one year olds, there might be some significant adjustment difference as compared with eighteen year olds rooming with those the same age. After examining the data, it was determined that year in class would closely correlate and measure much the same information. Further evaluation of the data indicated that there were very few roommates who were not of the same academic standing. This sameness in class year was due to the placement in rooms by the residence staff. An attempt was made to place persons of the same year in college in the same room.

Previous experience in dormitory living was considered as a possible independent variable. It was accepted when it was found that enough data were available.

The length of stay in overcrowding was considered. As an independent variable there might have been differences between short-term overcrowding and long-term overcrowding. Upon closer examination, there were no clearly delineated lines that could be drawn. Most people lived in overcrowded conditions for about the same period of time. Those who did not were too small a sample to investigate.

Roommate preference seemed to be a possible criterion for study as an independent variable. However, those who requested roommates were almost completely in uncrowded or normal situations. Thus, their correlation with a study of the effects of overcrowding would be of little value. Investigation of this seemingly less than chance distribution of students was explained by the Director of Residents of the South-West Complex, Jess Marks. He explained that because there was a specific preference involved, the placement was easier in uncrowded conditions. Further, most of these were upperclassmen who had lived in the dormitory before. Thus they were given seniority privilege.

Another criterion was considered for use as an independent variable. Daley and Bershied had studied the increased liking resulting from anticipation of personal contact with someone casually known (18:29-40). But since the arrangement of housing had been so late in coming, there had been no chance for people to be notified of their future roommate in advance. It was in most cases a sight-unseen situation. The only ones who knew their roommates were those who had made specific requests for specific roommates.

Another rejected independent variable was whether or not roommates had known each other in

advance, even though they may not have chosen each other. The problem here was that no effective criteria could be determined to figure what constituted prior knowledge. Having seen each other but never having spoken, having spoken but never considered as a friend, and having been a friend but not having chosen each other for roommates were considered as possible categories. But these seemed very inexact and the research for further gradation seemed too unfruitful.

Thus, the independent variables that finally were chosen included previous dormitory experience, placement in the two types of overflow housing and in normal housing, and academic rank in college.

Hypothesis. The hypothesis was that under the conditions of overcrowding, students' academic achievement would be affected. Implicit in this was the assumption that overcrowding would tend to cause a negative effect upon acheivement. It was thought that the use of all freshmen in the research by Severinsen, Viviano, and Hopkins might have created a result that would be different than if a cross-section of academic classes were used (50:141-43). Freshmen might make adjustments that were different from those made by juniors, for example.

Null hypothesis. The null hypothesis was that under the conditions of overcrowding, students' achievement would be unaffected. Thus, there should be no significant difference between the experimental group, those in overcrowded conditions; and the control group, those in normal conditions.

The University of the Pacific computer was programmed by Dr. Lee Fennell to compute a difference of means, a standard deviation, and a "t" test for the difference of the previous grade point average (utilizing the Washington grade prediction when a previous average was unavailable) from the actual earned average for the fall of 1969.

Computations were run first for overflow, super-overflow, and normal conditions for the entire sample. This was followed by a run to determine the data for those who had and those who had not had previous dormitory experience. There were no past data for two of these persons. Data were computed for those who had had previous dormitory experience and at the same time were in overflow, super-overflow, or normal housing. The same was run for those with no previous dormitory experience who had been placed in overflow, super-overflow, or normal housing. At this time it was determined that the super-overflow housing and the overflow housing

were dwindling to such small numbers that for further exploration they would be combined into a category to be called overflow or overcrowded housing. All further sorting on housing conditions would find this combined category. Sorting would be done on super-overflow and overflow housing, but the computer would be run for the combined category only.

An arrangement of these data was made to allow further analysis. An arrangement of overflow and super-overflow, overflow and normal, and super-overflow and normal housing data was arranged under categories of previous dormitory experience and lack of previous dormitory experience for analysis by the "t" test. The following formula was used:

$$\text{"t"} = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1 - 1} + \frac{s_2^2}{n_2 - 1}}}$$

Following the above computations, new categories were formed using the freshman, sophomore, junior, and senior class divisions to run a "t" test for each using the overflow and normal housing data. The same formula as described above was used for this computation.

With these calculations complete, the level of significance was determined for the "t" tests. This being the final step in the treatment of the data, analysis of the results was ready to be made.

CHAPTER V

RESULTS OF DATA ANALYSIS

The arrangement of the data began with an analysis of the effects of overcrowding on the different academic classes. The freshman class both in overflow housing, combined to include both overflow and super-overflow, and in normal housing, indicates a significant difference between the previous GPA (Grade Point Average) and the actual GPA. In both cases the level of significance was greater than .001. For all other classes, the "t" test for the difference of means between the previous and the actual GPA was of an insignificant level.

For the freshmen in overflow housing, the previous GPA was 1.94 and the actual GPA was 2.73. For the freshmen in normal housing, the previous GPA was 2.17 and the actual GPA was 2.63. It should be recalled that in the program that was written for this analysis the Washington grade prediction score was automatically substituted for the previous GPA when the latter was unavailable. In both the overflow and the normal housing, the GPA went up from a previous level.

TABLE II

THE RESULTS OF OVERFLOW AND NORMAL HOUSING BROKEN DOWN FOR EACH OF THE ACADEMIC CLASSES

	FRESHMAN OVERFLOW		
Group = 81	Actual GPA	Previous GPA	Difference
Overflow*	2.73	1.94	0.81
t = 6.97 (p = <.001)			

	FRESHMAN NORMAL		
Group = 38	Actual GPA	Previous GPA	Difference
Normal	2.63	2.17	0.46
t = 3.77 (p = <.001)			

	SOPHOMORE OVERFLOW		
Group = 38	Actual GPA	Previous GPA	Difference
Overflow*	2.65	2.46	0.20
t = 1.12 (p = <.30)			

	SOPHOMORE NORMAL		
Group = 51	Actual GPA	Previous GPA	Difference
Normal	2.50	2.56	-0.06
t = -0.48 (p = <.70)			

	JUNIOR OVERFLOW		
Group = 12	Actual GPA	Previous GPA	Difference
Overflow*	2.50	2.27	0.24
t = 1.01 (p = <.30)			

*"Overflow" should be interpreted to include a combined category of overflow and super-overflow for this table.

TABLE II (Continued)

Group = 30	JUNIOR NORMAL Actual GPA	Previous GPA	Difference
Normal	2.65	2.67	-0.02
t = 0.12 (p = <.90)			

Group = 2	SENIOR OVERFLOW Actual GPA	Previous GPA	Difference
Overflow*	2.47	1.3	1.16
t = .92 (p = <.40)			

Group = 14	SENIOR NORMAL Actual GPA	Previous GPA	Difference
Normal	2.70	2.53	0.17
t = .53 (p = <.60)			

*"Overflow" should be interpreted to include a combined category of overflow and super-overflow for this table.

Although the level of significance was insufficient to be considered noteworthy in each of the other classes, the people in these classes consistently bettered their previous GPA's in overflow conditions. These were slight improvements. In the sophomore and junior classes, there was slight drop in GPA over the previous average for those who were housed in normal conditions. Only in the freshman class was any significance found. The level of significance was greater than .001 for those in the freshman class.

A "t" test of significance was run for all those who had never lived in a dormitory. The results for those who had lived in a dormitory before were insignificant. But for those who had never lived in a dormitory, the results were very significant. The level of significance was greater than .001. It might be noted that those with previous dormitory experience had a mean previous GPA of 2.5. They improved to a mean GPA of 2.59. Those with no previous dormitory experience had a mean previous GPA of 1.99 and improved to a mean GPA of 2.67. This would seem to be a spectacular improvement.

"T" tests were run on those in different types of housing. Of those in normal housing, there was a slight improvement in GPA from a 2.47 to a 2.57; the

TABLE III

THE RESULTS OF OVERFLOW AND NORMAL HOUSING

FOR EACH OF THE ACADEMIC CLASSES

	FRESHMAN		
	Actual GPA	Previous GPA	Difference
Overflow*	2.75	1.94	0.81
Normal	2.63	2.17	0.46
t = 2.71 (p = <.001)			

	SOPHOMORE		
	Actual GPA	Previous GPA	Difference
Overflow*	2.65	2.46	0.20
Normal	2.50	2.56	-0.06
t = 1.53 (p = <.20)			

	JUNIOR		
	Actual GPA	Previous GPA	Difference
Overflow*	2.50	2.27	0.24
Normal	2.65	2.67	-0.02
t = 1.20 (p = <.30)			

	SENIOR		
	Actual GPA	Previous GPA	Difference
Overflow*	2.47	1.31	1.16
Normal	2.70	2.53	0.17
t = .74 (p = <.50)			

*"Overflow" should be interpreted to include a combined category of overflow and super-overflow for this table.

TABLE IV

RESULTS OF DORMITORY LIVING UPON THOSE WITH AND THOSE WITHOUT PREVIOUS DORMITORY EXPERIENCE (UNDIFFERENTIATED AS TO HOUSING ARRANGEMENT IN OVERFLOW OR NORMAL)

PREVIOUS DORMITORY EXPERIENCE			
Group = 156	Actual GPA	Previous GPA	Difference
Experienced	2.59	2.50	0.09
$t = -1.10$ ($p = <.30$)			

NO PREVIOUS DORMITORY EXPERIENCE			
Group = 134	Actual GPA	Previous GPA	Difference
No Experience	2.67	1.99	0.68
$t = 8.81$ ($p = <.001$)			

level of significance was greater than .30. Of those in overflow housing, there was an improvement in GPA from a previous 2.09 to a 2.70; the level of significance was greater than .001. For those in super-overflow housing, there was an improvement in GPA from 2.09 to 2.69; the level of significance again was greater than .001. Thus, those in overflow housing and those in super-overflow housing did significantly better in improvement over previous GPA than those in normal housing.

"T" tests were run on those who had had no previous dormitory experience and were placed in the different types of housing. In all situations the level of significance was greater than .001. Those in normal housing went from a previous GPA of 2.21 to a 2.64. In overflow housing, the subjects went from a 1.89 to a 2.77. In super-overflow housing, the subjects went from a 1.84 mean previous GPA to a 2.76.

Similar tests were run for those who had had previous experience in dormitory living. For those in normal housing, there was no change in GPA from the previous GPA. For those in overflow housing and super-overflow housing, there was a slight increase in GPA over the previous GPA. But the level of significance was greater than .10 for those in overflow housing and greater than .60 for those in super-overflow housing.

TABLE V

RESULTS OF THE EFFECTS OF THE TYPE OF HOUSING PLACEMENT ON THE GRADE POINT AVERAGE

	NORMAL		
Group = 134	Actual GPA	Previous GPA	Difference
Normal Housing	2.57	2.47	0.10
t = 1.24 (p = <.30)			

	OVERFLOW		
Group = 83	Actual GPA	Previous GPA	Difference
Overflow Housing	2.70	2.09	0.62
t = 5.62 (p = <.001)			

	SUPER-OVERFLOW		
Group = 50	Actual GPA	Previous GPA	Difference
Super-Overflow Housing	2.69	2.09	0.60
t = 3.45 (p = <.001)			

TABLE VI

RESULTS OF THE EFFECTS OF THE TYPE OF HOUSING PLACEMENT UPON THE GRADE POINT AVERAGE OF THOSE WITH NO PRIOR DORMITORY EXPERIENCE

	NORMAL		
Group = 38	Actual GPA	Previous GPA	Difference
Normal Housing	2.64	2.21	0.42
t = 3.48 (p = <.001)			

	OVERFLOW		
Group = 46	Actual GPA	Previous GPA	Difference
Overflow Housing	2.77	1.89	0.88
t - 5.79 (p = <.001)			

	SUPER-OVERFLOW		
Group = 26	Actual GPA	Previous GPA	Difference
Super-overflow Housing	2.76	1.84	0.92
t = 4.06 (p = <.001)			

TABLE VII

RESULTS OF THE EFFECTS OF THE TYPE OF HOUSING PLACEMENT UPON THE GRADE POINT AVERAGE OF THOSE WITH PRIOR DORMITORY EXPERIENCE

	NORMAL		
Group = 95	Actual GPA	Previous GPA	Difference
Normal Housing	2.57	2.57	-0.00
t = -0.00 (p = 0.00)			

	OVERFLOW		
Group = 37	Actual GPA	Previous GPA	Difference
Overflow Housing	2.62	2.33	0.29
t = 1.93 (p = <.10)			

	SUPER-OVERFLOW		
Group = 24	Actual GPA	Previous GPA	Difference
Super-overflow Housing	2.60	2.47	0.13
t = 0.55 (p = <.60)			

"T" tests were run for those with no previous dormitory experience comparing different types of housing. The difference between those placed in overflow housing and those placed in super-overflow housing yielded a level of significance that was greater than .10. Those placed in overflow housing compared with those in normal housing indicated a level of significance greater than .01. Those placed in super-overflow housing compared with those in normal housing indicated a level of significance greater than .02. Thus, when compared to those who were uncrowded, those who were crowded with no previous dormitory experience did significantly better.

A similar test was run for those who had had previous experience in dormitory living. The difference between overflow and super-overflow was not significant at .50. The difference between overflow and normal was mildly significant at .05. The difference between super-overflow and normal was not significant at .50.

A trend started to build when the significant data were compiled. From the results, freshmen did significantly better than their previous GPA's no matter in what condition of housing they were placed. The results were at a level of significance greater than .001 which was quite significant. No other class

TABLE VIII

COMBINED RESULTS OF THE EFFECTS OF THE TYPE OF PLACEMENT UPON THE GRADE POINT AVERAGE OF THOSE WITH NO PRIOR DORMITORY EXPERIENCE

OVERFLOW/SUPER-OVERFLOW

Group = 72	Actual GPA	Previous GPA	Difference
Overflow Housing	2.77	1.89	0.88
Super-overflow Housing	2.76	1.84	0.92

$t = .17$ ($p = <.10$)

OVERFLOW/NORMAL

Group = 84	Actual GPA	Previous GPA	Difference
Overflow Housing	2.77	1.89	0.88
Normal Housing	2.64	2.21	0.42

$t = 2.75$ ($p = <.01$)

SUPER-OVERFLOW/NORMAL

Group = 64	Actual GPA	Previous GPA	Difference
Super-overflow Housing	2.76	1.84	0.92
Normal Housing	2.64	2.21	0.42

$t = 2.52$ ($p = <.02$)

TABLE IX

COMBINED RESULTS OF THE EFFECTS OF THE TYPE OF PLACEMENT UPON THE GRADE POINT AVERAGE OF THOSE WITH PRIOR DORMITORY EXPERIENCE

OVERFLOW/SUPER-OVERFLOW

Group = 61	Actual GPA	Previous GPA	Difference
Overflow Housing	2.62	2.33	0.29
Super-overflow Housing	2.60	2.47	0.13

t = .75 (p = <.50)

OVERFLOW/NORMAL

Group = 132	Actual GPA	Previous GPA	Difference
Overflow Housing	2.62	2.33	0.29
Normal Housing	2.57	2.57	-0.00

t = .75 (p = <.05)

SUPER-OVERFLOW/NORMAL

Group = 119	Actual GPA	Previous GPA	Difference
Super-overflow Housing	2.60	2.47	0.13
Normal Housing	2.57	2.57	-0.00

t = .69 (p = <.80)

responded at a significant level either to overcrowded or normal housing. Freshmen did significantly better in overcrowded housing than they did in normal housing; the level of significance is greater than .001 again. No other class responds at a level of significance.

Those with no dormitory experience did significantly better than those who had lived in dormitories before. Those with previous experience had a significance level greater than .30; those with no previous experience recorded at a level of significance greater than .001. Of these, 119 out of 267 were freshmen. Forty-four percent of those tested were freshmen with no previous dormitory experience.

Those who were placed in overflow and super-overflow housing recorded a significant improvement in GPA. In both instances the level of significance was greater than .001. Combining overflow and super-overflow housing, the freshmen were represented by 81 out of 133 in this category. This was 61 percent of this category.

No matter how the housing was broken down, the level of significance for those with no previous dormitory experience indicated a very significant rise in grade point. The level of significance was greater than .001 for those in normal, overflow, and super-overflow

housing. Freshmen made up 44 percent of this group.

There was no appreciable level of significance for those with previous dormitory experience. Of these the percentage of freshmen was assumed to be very low. No data of prep school dormitories were available.

Of those with no previous dormitory experience, there was a significant trend for those in overflow and super-overflow housing to do better than those in normal housing. For those in overflow housing the level of significance was greater than .01; for those in super-overflow housing the level of significance was greater than .02. Even of those with previous dormitory experience, the subjects placed in overflow housing registered significantly in overflow housing when compared to normal housing. The level of significance was greater than .05.

Thus, there was a tendency for those who had had no previous dormitory experience to register a better academic improvement than those who previously lived in a dormitory. There was a tendency for freshmen to do better in all settings. Their greatest degree of improvement occurred in overflow conditions with eighty-one subjects showing a "t" for difference of 6.97. Those in normal housing showed a 3.77 "t" for difference for thirty-eight subjects. Further, there was a tendency

for those in overcrowded conditions to show an academic improvement that outdistanced those in normal housing.

Of peculiar interest was the fact that those placed in overflow housing, regardless of academic class, had a lower previous average than those who were placed in normal housing. Consistently, as a group, these subjects improved their GPA's. The freshmen were the only ones to improve at a significant level, however.

If one were to postulate why those with no previous dormitory experience showed a better rate of improvement, a number of possibilities could be offered. They improved no matter what the setting was. The "t" for the difference was 5.79 for forty-six subjects in overflow conditions, 4.06 for twenty-six subjects in super-overflow conditions, and 3.48 for thirty-eight subjects in normal conditions. Thus, those in overcrowded conditions showed a greater degree of improvement than those in normal conditions. Coming to a dormitory for the first time, the subjects had to make an adjustment that a person with previous experience did not have to make. They had no cues from previous experience by which to gauge what was expected. Thus, whether in normal conditions or overcrowded conditions, they had to structure their environment. They had less

previous experience with which to gauge the way a dormitory "ought" to be. Their concept of "dormitory" had not been socialized by experience. Thus, no matter in what condition they were placed, they were still learning how and how not to utilize the dormitory for academic purposes. The newness of experience may have caused them to be more cognizant of the necessity of adaptation. Those in overcrowded conditions had more to structure than those in normal conditions.

Another reason that they may have had a better rate of improvement may result from the fact that a dormitory was designed, no matter how inadequately, for students. The environment included a peer group that was 100 percent composed of college students. Few other environments could offer this. Thus, no matter how subliminally, there was probably more opportunity to be aware of the concept of "student" in a dormitory than in any other previous environment. This might be described as a Hawthorne effect that takes place whether or not attention was deliberately given to the new dormitory arrival. The recognition one gained by being surrounded by a group of people who acknowledge a person as a peer, whether a degree of liking is included or not, may have had the same effect as the attention one gained in what was traditionally regarded as the

Hawthorne effect.

The Hawthorne effect may have taken place with the special attention that one gained in being a new arrival. But many of the services that the dormitory offered to all its inhabitants may have seemed to have been especially aimed at the new arrival who did not know that they were offered to everyone.

It might be noted that of those who showed a significant improvement in academic achievement, all had to undergo similar experiences. All had to be in new situations for which they did not have past experience. The freshman, the new dormitory arrival, the overcrowded, all shared a common lack of prior experience.

Because the Hawthorne effect, the necessity to structure the environment, and the effectiveness of the special arrangements that were made by the University were all characterized by newness, it was difficult to predict what would have occurred had the overcrowded conditions lasted for a second semester. One can only surmise that the dynamics of newness or unpredictability would wear off after a given period of time. Much of what may have been an asset in that it forced students to deal with a new environment might have proved a liability when that newness no longer existed.

As stated before, the persons placed in overflow and super-overflow showed a lower previous GPA than those placed in normal housing conditions. The assignment to normal versus overcrowded housing consistently found the overcrowded students had a lower previous mean GPA no matter whether the class was freshman, sophomore, junior, or senior. This calls into question the assignment procedure. The pink cards that have been discussed give the bulk of data to assist in room assignment. Since priority was given to those who made preferences, it must be assumed that those who were placed in overcrowded conditions were those who made the least number of preferences. This may be significant for those who were not freshmen. As the persons who requested roommates were the first to be assigned, they were most often placed in normal housing conditions. Those without roommate preferences were placed later and had a better chance of being assigned to overcrowded conditions. If there were a relationship between preference and academic achievement, then there may have been a dynamic which was unaccounted for in this research. Perhaps the person who had made fewer preferences about his environment was liable to do poorer academically. Further, when his environment was complicated by conditions that were beyond his lack of preference, it may have been

possible that he achieved more readily. It might have been significant to see if such a person tended to make preferences in room assignment after having been placed in overcrowded conditions. Perhaps the overcrowding for those lacking preference and the increased achievement by these same persons would have indicated some change in attitude.

As has been stated, the persons assigned to normal housing conditions never achieved an increase in academic level that would be considered statistically significant. A number of possible reasons may be postulated. Perhaps they were the better students in the dormitory to begin with and they maintained their level of competence. They remained fairly constant in achievement. They may have been the subjects of a reverse Hawthorne effect. In the sophomore and junior classes, those in normal conditions showed a slight decrease in academic achievement. This decrease was statistically insignificant. But there may have been untested factors that would indicate why this slight decrease took place. They may have received less attention than those in overcrowded conditions. Further, they may have undergone hardships that made their normal situation the real abnormality in the dormitory. The increased use of facilities, the increased noise level of more people in

crowded conditions, and the lack of financial remuneration (which was offered to those in overcrowded conditions as compensation) may have had a demoralizing effect upon them. After all, they were the ones who were supposedly privileged by being in normal conditions.

If the students in overcrowded conditions had been reversed, one wonders what might have occurred. Would the higher achievers have done even better than they had before? Would the lower achievers have done even more poorly? There seemed to be a tendency for those in overcrowded conditions to have had a higher rate of achievement. It should be pointed out that this research and the research of Severinsen, Viviano and Hopkins tests a sample that has been in overcrowded conditions for a short period. The conditions at Western Illinois University lasted for only one quarter. This research at the University of the Pacific tested a condition that lasted longer, one semester, but it was still only one academic unit of time. Research in areas of more than one academic unit of time is very necessary to calculate whether or not overcrowding would have continued to have had a positive relationship with scholarship.

The South-West Complex was used as a complete sample, thus constituting a microcosmic universe, and

application of this research was not designed for application beyond the population studied. Yet, some questions raised by the study by Severinsen et al. were answered by this research for this population. They had wondered if the results of their research were possible for replication in another sample. They were. There does seem to be a statistically significant better academic adjustment by those in the experimental (overcrowded) group. Beyond that they wondered if there were some unknown factors that might override the effects of housing conditions. This research indicates there may be two. First, freshmen tend to do significantly better no matter in what conditions of housing they are placed. The sophomores, juniors, and seniors did not show such statistically significant adjustment to overcrowding. The research by Severinsen et al. used a sample composed exclusively of freshmen. Second, previous dormitory experience seemed to be a factor for this research. Those who have had previous dormitory experience do not adjust as well as those who have not. One must be cautioned that those that comprised the bulk of those without previous experience were, indeed, freshmen. But this is another possible unknown factor that may have been at work in the research by Severinsen et al.

The research by Severinsen et al. suggested that adverse conditions may be quite tolerable and could be convenient targets for aggression that might be unexpelled in normal housing situations. It was further suggested that more than two in a room may be more advantageous. Both of these may hold true for this research (50:143).

Just as in the study by Severinsen et al., there may have been factors for which there was no control in this research. One that was suggested was the one of preference on cards given as information data for housing placement. There may have been other possible factors.

CHAPTER VI

SUMMARY AND CONCLUSIONS

This investigation confirms that under conditions of overcrowded housing, students' academic achievement is affected. The South-West Complex at the University of the Pacific was used as a total sample for the purposes of analysis. The academic records of those residing in the South-West Complex were used for those who had had past academic collegiate experience. The Washington Pre-College Test scores were used for those without previous academic collegiate experience. The sample was made in the fall of 1969.

The results of this investigation indicated that those in overcrowded conditions did significantly better academically than those who were in normal housing. Freshmen did significantly better than upperclassmen, no matter in what housing condition they were placed. But those freshmen in overcrowded conditions did significantly better than any other group. It is difficult to ascertain whether or not this was because of the overcrowding or because they were freshmen. Those freshmen in normal housing were too few to yield accurate data. Of those with previous academic collegiate experience,

those in overcrowded conditions did better than those in normal housing.

There are many possible reasons for the improvement of those in overcrowded conditions. Certainly the high number of freshmen may be a factor in improvement. The freshman group was prepared to be adaptive to a new situation. For those who were overcrowded, including freshmen, a Hawthorne effect may have taken place. Overcrowded students were given special attention and consideration that was not available to those who were not overcrowded. Those upperclassmen who were assigned to overcrowded conditions were not assigned randomly. The upperclassmen who preferred a roommate were usually placed in normal housing. Those without preference were assigned to overcrowded conditions. This non-preferential student may have been spurred to do better in an atmosphere of attention and consideration. On the other hand, the student who had preferences may have been achieving to his potential and, thus, would not improve academically. The preferential student may, also, have suffered from the proportional lack of attention given him in comparison to those who were overcrowded.

The results of this study were complicated by the fact that no attempt was made by the researcher to control variables in advance of the research.

Investigation was made of an already existent condition. The procedure for room assignment was made by University officials acting in their regular capacity.

This study certainly supports the findings of Severinsen et al. But it would be useful to replicate this study in a controlled environment. The disproportionate number of freshmen in the research done at the University of the Pacific certainly obscures more representative findings. There is a great need for more research to determine more exactly the effects of overcrowded living conditions upon students' academic performance.

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GLOSSARY

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DEFINITION OF TERMS

Residence Hall or Dormitory--the place supplied by the University for a fee where students are housed on campus.

Regular Housing--that placement of as many students in a room as is considered to be the maximum that a room is intended to hold.

Overflow Housing--the placement of one more student in a room than is intended for regular housing. Also, the housing of students in rooms or cubicles that are set aside only for temporary use at the beginning of each semester.

Super-Overflow Housing--the placement of students in a room in excess of what would be defined as overflow housing.

Director of Residents--the title given to the person employed by the University to be in charge of all aspects of administration of the South-West Complex.

South-West Complex--a large men's residence hall housing approximately 250 students in regular housing.

Head Resident--the title given to the person in charge of varying degrees of administration of the residence hall in which he is in charge. This variance in responsibility differs from dormitory to dormitory because the rules and regulations of some dormitories are assumed by the students.

Resident Advisor--the student who is responsible to the Head Resident or Director of Residents for assisting in the administration of the dormitory.

Resident Assistant--a student who assists the Head Resident or Director of Residents by being responsible for a section of the dormitory. He is usually mainly responsible for the well-being of the people in his section.

Residence Staff--a group composed of the Head Resident, the Resident Advisor, and the Resident Assistant.

Overcrowding--that situation that exists when more people are assigned to a room than is designated as being regular housing. In application to

situations not included within the confines of the University, this term should be applied to a situation defined by architects, city planners, biologists, anthropologists, sociologists, and psychologists that changes the usual interaction process of the animals or people involved because of their environmental placement. The environment would be defined as being confining.