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ABSTRACT

As part of a multi-phase, multi-method study of the House Plan concept at Cypress College in California, this report explores faculty attitudes toward various aspects of the college as well as the House Plan itself. A random sample of 100 faculty members, stratified along division lines, were sent a brief, open-ended questionnaire soliciting opinions on community colleges in general and Cypress College, the House Plan, and the college's administration in particular. Ninety-two questionnaires were returned. The majority of the sample (57) expressed extremely positive and enthusiastic feelings towards the overall community college concept; there were only 7 negative, 13 neutral, and 11 "need for improvement" responses. Half of respondents expressed positive attitudes toward Cypress College and generally felt it was a good example of a community college. Twenty-two respondents expressed negative opinions of the college. Only 20 faculty members viewed the House Plan favorably, while 46 members expressed dissatisfaction, 10 ambiguous feelings, and 10 neutrality towards the concept. Half of the respondents expressed negative attitudes toward the college administration, although not the same half that disliked the House Plan; 26 viewed the administration favorably. In addition, specific positive and negative House Plan aspects were reported by faculty. (Author/TR)

RESEARCH REPORT #3

FACULTY ATTITUDES

Judy Davidson
Institutional Research Officer
Cypress College

June, 1976

RESEARCHER'S STATEMENT OF RESPONSIBILITY

I certify that the data contained herein are accurate and unbiased to the best of my knowledge and research abilities. I further certify that I have the sole responsibility for the content of this report and for any errors. I further certify that this ~~reserach~~ was carried out in full accordance with ethical standards concerning human subjects.

Judy Davidson
Institutional Research Officer

ACKNOWLEDGMENTS

I wish to express my grateful appreciation to all those faculty members of Cypress College who took the time and trouble to answer the questionnaire.

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ABSTRACT

I. Introduction.

This abstract is not to be taken as, nor should it be construed as, a summary or overview of all of the findings of the Report. It should not be read without either a complete reading of the accompanying Report or at least extensive reference to it. The reader is further advised to keep in mind that any research report is an abstraction from reality, and that therefore any abstract is a further abstraction from reality.

II. Faculty attitudes towards community colleges and Cypress College.

The majority of the sample expressed extremely positive and enthusiastic feelings towards the concept of community colleges in general. There were only 7 negative responses in the entire sample of N=92. The remainder of the responses were either neutral, blank (no answer), or expressed that some aspects of community colleges would be improved. However, these latter answers were by and large also positive. One can therefore say that about 3/4 of the faculty have positive feelings about the concept of community colleges in general, although a few of them feel that there are certain aspects which could be improved.

A little over half of the sample expressed positive feelings towards Cypress College and in general felt that it is a good example of a community college, although they were not as enthusiastic about Cypress College as they were about the concept of community colleges in general. About 1/4 of the sample expressed negative feelings towards Cypress College, and the remainder of the sample consisted

of neutral responses, blanks (no answers), or responses indicating that Cypress could be improved. Again, these latter responses were by and large also positive, and one can therefore say that about 60% of the faculty have positive feelings towards Cypress, although a few of them feel that there are certain aspects which could be improved.

III. Faculty attitudes towards the administration.

Half of the sample expressed negative feelings towards the administration, although it was not the same half as had expressed negative feelings towards the House Plan. About 28% of the sample expressed positive feelings, although with some reservations, while the remainder of the sample were either neutral, or did not answer, or expressed mixed feelings. It was found that those who had expressed negative feelings towards the administration also tended to be less positive in their feelings towards community colleges and Cypress College, and tended to give more negative responses to the stimulus "The House Plan."

The reader is again urged to read the complete Report and to remember that this abstract is not meant in any way to be a complete listing or summary of the findings.

THE CONCEPT OF THE HOUSE

Bigness in education has the advantages of efficiency and economy, but also its disadvantages -- the greatest of which is the tendency of the student to become indistinguishable and "lost." Breaking up the bigness into more educative, manageable and sociologically acceptable groups is the essence of the House Plan.

Architectural response:

A. Each House, serving from 400 to 1000 students, will be located at a pedestrian node.

B. Each House has its own conveniently located parking areas.

C. The House is a place where (1) student meets student; (2) professor meet professor, and even more important; (3) student meets professor in an informal, relaxed atmosphere.

D. Spaces within the House consist of student-faculty lounge, seminars, snack bar-kitchen, library, carrels, student officers' office, offices for faculty associates and counselors, terraces, etc.

E. The House permits more personalized student services.

1. INTRODUCTION

This report is part of a multi-phase, multi-method study of the House Plan. Previous reports in this series concerns (1) characteristics of new students and (2) the student experience at Cypress. Since a vital part of any college is its faculty, I decided that a study of faculty attitudes towards the House Plan would be centrally relevant to the overall Plan study. This report then concerns faculty attitudes towards various aspects of Cypress College, including but not limited to the House Plan.

Early in April, 1976, a stratified random sample of the full-time teaching faculty was drawn using a random number table, with a projected sample size of N=100.[1] Stratification was done along Division lines; that is a random sampling of the faculty within each Division was one, with the number sampled from each Division being proportional to that Division's overall size. I want to parenthetically note that such stratification can be done along several dimensions; for example, the sample could have been stratified according to such things as sex, race, length of time at Cypress, etc.. In general, however, stratification is done in order to control for certain variables which the researcher feels may possibly be relevant. In this case,

[1] N=100 would have been the size of the sample had everybody whose name was drawn for inclusion in the sample responded. In actuality, 92% responded, so actual sample size was N=92. See page 2.

since it is the House Plan being studied, and since each Division is associated with a House, then the logical stratification seemed to be Division membership.

Note that the projected sample size of N=100 is approximately 50% of the population of full-time teaching faculty. In general, randomly-drawn samples need not be such a large fraction of the population size; usually 10% is considered adequate. In this case, however, the projected sample size of N=100 was used in order to take advantage of certain mathematical properties of large sample sizes, such as the Law of Large Numbers.

Obviously, in this study, in order to make use of the properties of randomness and of large numbers, response percentage was crucial. The final number of responses was 92 which is, of course, 92% of the projected sample size. Since the 8% of non-responses is within the acceptable range of sampling error, and since the 8 non-responses were distributed throughout the various strata of the sample and were not concentrated in any one Division, then it is probably safe to assume that these 92 responses can be taken as a random sample of the faculty and therefore probably as representative of the faculty.[2]

Factors which contributed to the high percentage of responses obtained were probably the following:

1. The questionnaires were mailed to the faculty with a cover letter which included a detailed (and sincere) statment of how the confidentiality of their responses would be protected.

2. The questionnaire was one page in length and did not include any complicated instructions.

3. Extensive follow-up was one, both by mail and by personal contact.

[2]Confidence limits will be discussed later. See pages 11,12,16,17,38,and 39.

2. The research instrument

Figure 1. shows the research instrument which was used. There are several important features of it:

1. Note that in general, it is an instance of a class of tests called "projective" tests, which are used in clinical psychology as diagnostic tests for both normal and abnormal personality traits.[3] We are, of course, not interested in this particular use of projective tests, but rather in their use as a means of tapping into attitudinal structures. The feature of projective tests which lends itself to attitudinal research is their "open-endedness." In this particular type of projective test, commonly known as the "complete-a-sentence" test, the answerer is instructed to complete sentences, the beginnings of which are certain types of stimulus words or phrases. This contrasts with the usual sort of multiple-choice or fill-in-the-blank types of questions more commonly used in survey research. It was that an open-ended test would be more useful in this case (faculty attitudes) for the following reasons:

   a. The loss of information in projective tests is far less than in "objective" tests; i.e., given an answer to an open-ended question (or stimulus, as in this case), it is always possible to code it into categories. If, however, the test is so constructed such that the answerer is "forced" to choose among a number of pre-coded response categories, such as "slightly agree," "strongly agree," etc., then the attitudes behind such choices are irretrievably lost.

[3] For discussions and examples of projective tests, both complete-a-sentence and other types, see Rapaport (1968), Wolman (1965), Rorschach (1921), Morgan and Murray (1935), Machover (1948,1951), Bender (1938,1946), Tendler (1930), Rohde (1946), Lindzey (1961), Rotter and Fafferty (1950), Forer (1950), Sachs and Levy (1950), Jung (1918), Hanfmann and Getzels (1953), Sanford et al (1943), and Stein (1947).

Figure 1.

Community Colleges _____

Cypress College _____

The House Plan _____

The thing I like about the House Plan is _____

The thing I don't like about the House Plan is _____

The administration here _____

b. Open-ended answers allow for possible responses which the researcher may not have thought of. That is, "objective" tests which use forced-choice closed response categories is that of trying to decide a priority and usually in the face of very little empirical data the sorts of answers which might "reasonably" be given by a respondant. Thus, tests which use such response categories as "strongly agree," "moderately agree," etc. (or numbers which supposedly but in actuality do not correspond to these categories) make the assumption that these categories will cover the entire spectrum of, for example, attitudes.[4] In open-ended response categories, in contrast, no such assumption is made, and in allowing the respondant to express exactly how he or she feels, and therefore allow for the possibly of answers which otherwise might not be obtainable, with respect to both the type of attitude being expressed and the intensity of it. For example, one of the responses to the stimulus "Community Colleges" suggested that the respondant felt that one of the functions for which a college is being used is as a pasttime for housewives who might otherwise have nothing much to do. This is the sort of response which is unexpected and therefore contributes in this case to the range of possible functions of a community college. For another example of the advantage of open-ended response categories in attitudinal research, consider that a response

[4] I realize that such forced-choice, closed response categories are also constructed for ease in coding; however, it also seems to be the case that researchers who use these firmly believe that their response categories do in fact cover the entire spectrum of possible answers.

to the stimulus "Community College" such as "I'm sold on them 100%!" could hardly be captured by having the respondant choose among categories such as "strongly agree," "moderately agree," etc.

On the other hand, open-ended categories do present difficulties in coding and summarizing; however, such coding can be done by a linguist trained in semantics and conversational structures.

2. The research instrument was designed to incorporate the linguistic feature of sequential implicativeness. That is, from the ethnomethodologists and the conversation analysts (see Garfinkel, 1967; Sacks, 1968-1975; Davidson, 1975), it is known that conversation proceeds sequentially; that is, a given utterance is produced and interpreted not in isolation, but rather as an item in a particular sequence. In the research instrument under consideration, this feature of sequential implicativeness was used in the placement of the stimulus phrases; i.e., the aim was to discover attidudes towards, e.g., the House Plan in light of the individual's attitudes towards community colleges in general and to discover his or her attitudes towards the administration in light of his or her attitudes towards the House Plan, and further back, towards community colleges. This of course assumes that most people will answer the questionnaire from top to bottom, and there was in fact a great deal of empirical evidence that this was the case.

This feature of the questionnaire (the sequencing of the stimulus items) is incidentally independent of its projective feature. That is, projective tests in general may or may not be designed such that the items are in a specified order.

I want to further parenthetically note that sequential implicativeness does <u>not</u> imply causal implicativeness; that is, merely because a given item "Y" is answered as part of a sequence of which item "X" is a prior part does <u>not</u>

mean that one can thereby say that "X causes Y." In this questionnaire, for example, we do not want to construe that a person's attitude toward the House Plan is caused by his or her attitude toward Cypress College merely because the items were placed in a given order. The particular ordering of items used in this questionnaire is a constructed, imposed ordering devised for the particular purposes of this study, and this ordering may or may not correspond to causal ordering.

3. Faculty attitudes towards community colleges

The first stimulus item on the questionnaire was "Community Colleges." A semantic analysis, using a few categories as possible, gives the following breakdown:

Positive responses:	57	(61.96%)
Negative responses:	7	(7.61%)
Neutral responses:	13	(14.13%)
Could be improved:	11	(11.96%)
No answer:	4	(4.34%)
	92	100.00%

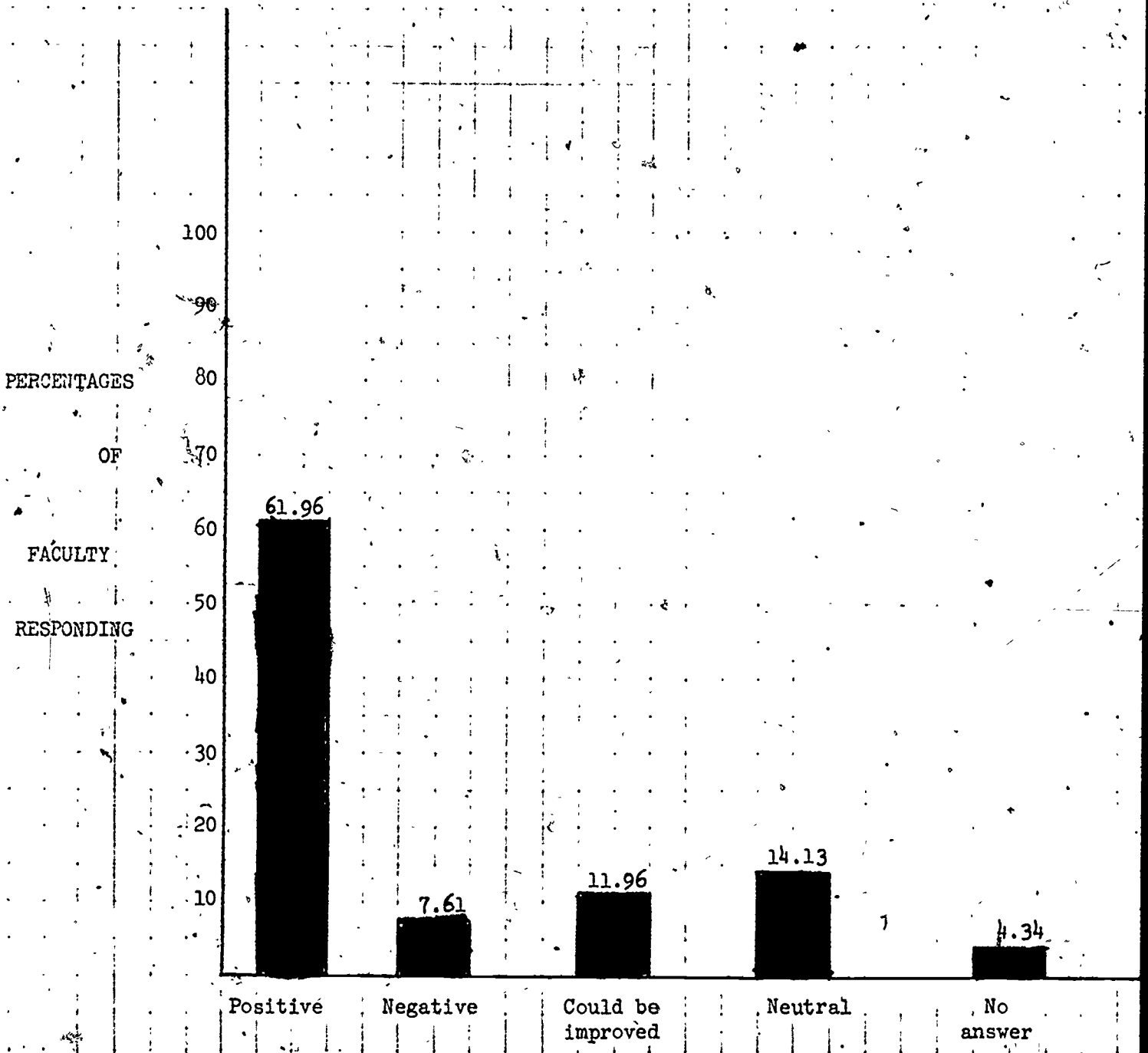
This distribution is graphed in Figure 2.

The numbers, however, tell only part of the story. In general, those responses coded as "positive" were almost exuberant in their praise of the benefits of community colleges. Typical answers were such things as "the greatest thing in education,""outstanding education innovation," "I believe in them," "Neat!", "Excellent!", while those responses coded as negative displayed far less emotional intensity of attitude. A typical answer was "are like high school." Furthermore, those answers coded as negative typically consisted of comparatively short 5-10 word answers, while those coded as positive were typically much longer, often multi-sentential in length, again indicating a greater intensity of attitude. What this means in general is that the emotional intensity of positive responses was much greater than that associated with the few negative responses.

Also of interest are those responses coded as "Could be improved." In general, these responses were not negative, but rather indicate positive feelings towards community colleges with some reservations, and in some cases, there were definite suggestions for improvement. It may be a possibility that these

Figure 2.

Distribution of responses to "Community Colleges." N=92



"could be improved" responses are in actuality positive responses; if so, then the distribution of responses would be the following:

Positive responses:	68	(73.92%)
Negative responses:	7	(7.61%)
Neutral responses:	13	(14.13%)
No answer:	4	(4.34%)
	92	100.00%

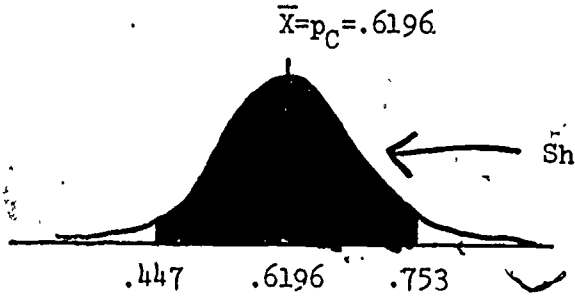
For statistical purposes; however, we shall use the more conservative figure of 61.96% positive responses. Since this represents the proportion of positive answers to the particular stimulus "Community colleges," throughout this chapter, this proportion will be called $p_c = .6196$.

If we classify all the responses into two categories, call them positive and non-positive (where non-positive does not necessarily imply negative), then we can say that the variable X = proportion of positive responses to the stimulus "Community Colleges" is binomially distributed, with the following theoretical probability distribution:

Number of positive responses	Probability of obtaining this number of positive responses
0	$\binom{N}{0} (3/5)^0 (2/5)^N$
1	$\binom{N}{1} (3/5)^1 (2/5)^{N-1}$
⋮	⋮
N-1	$\binom{N}{N-1} (3/5)^{N-1} (2/5)^1$
N	$\binom{N}{N} (3/5)^N (2/5)^0$

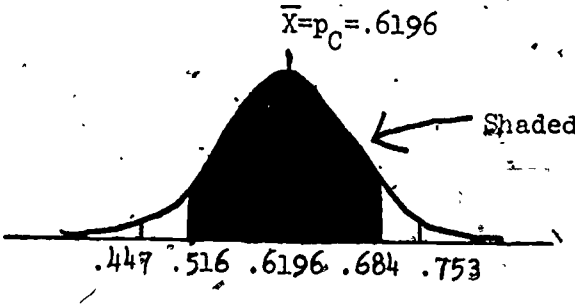
(N = total number of responses)

Note that this distribution closely approximates a normal distribution as N gets larger. Furthermore, from the Law of Large Numbers, we know that as sample size gets larger, the distribution of the sample statistic, usually the mean, approaches normality, and the mean of this sampling distribution is μ with a standard deviation (also called a standard error) of $\frac{\sigma}{\sqrt{N}}$. When dealing with proportions, the sampling distribution of means also approaches normality as sample size gets larger, and the mean of this sampling distribution is $\mu = p$ = proportion of sample giving positive answers, with a standard error of $\sqrt{\frac{p(1-p)}{N}}$. In the particular sampling distribution with which we are dealing, the mean therefore is $p_c = .6196$ and the standard error $\sqrt{\frac{(3/5)(2/5)}{92}} = .051$. Given these parameters, we can place confidence limits on our use of the sample mean as an estimate of the population mean. Because the sampling distribution closely approximates a normal distribution, then 99.73% of the area under the curve will be within $\pm$ 3 standard deviations of the mean.



What this means is that 99.73% of the time, the actual population mean will fall into the shaded area; i.e., the probability is 99.73% that the actual population mean lies between .447 and .753. It also means that given repeated sampling of

sample size N=92 from the same population, over the long run we could expect that the proportion of Faculty answering positively to the stimulus item "Community colleges" would be between 45% and 75% about 99% of the time. If we lower the confidence level to 90%, then the confidence limits become .516 and .684 which means that 90% of the time, the actual population mean will be between .516 and .684 and that given repeated sampling of sample size N=92 from the same population, we would expect the proportion of faculty answering positively to the stimulus "Community colleges" to be between 52% and 68% with a probability of 90%.



In summary, most of the faculty are extremely enthusiastic about the concept-in-general of the community college, and only a very few have negative feelings.

4. Faculty attitudes towards Cypress College

The second stimulus item on the questionnaire was "Cypress College." A semantic analysis, using as few categories as possible, gives the following breakdown:

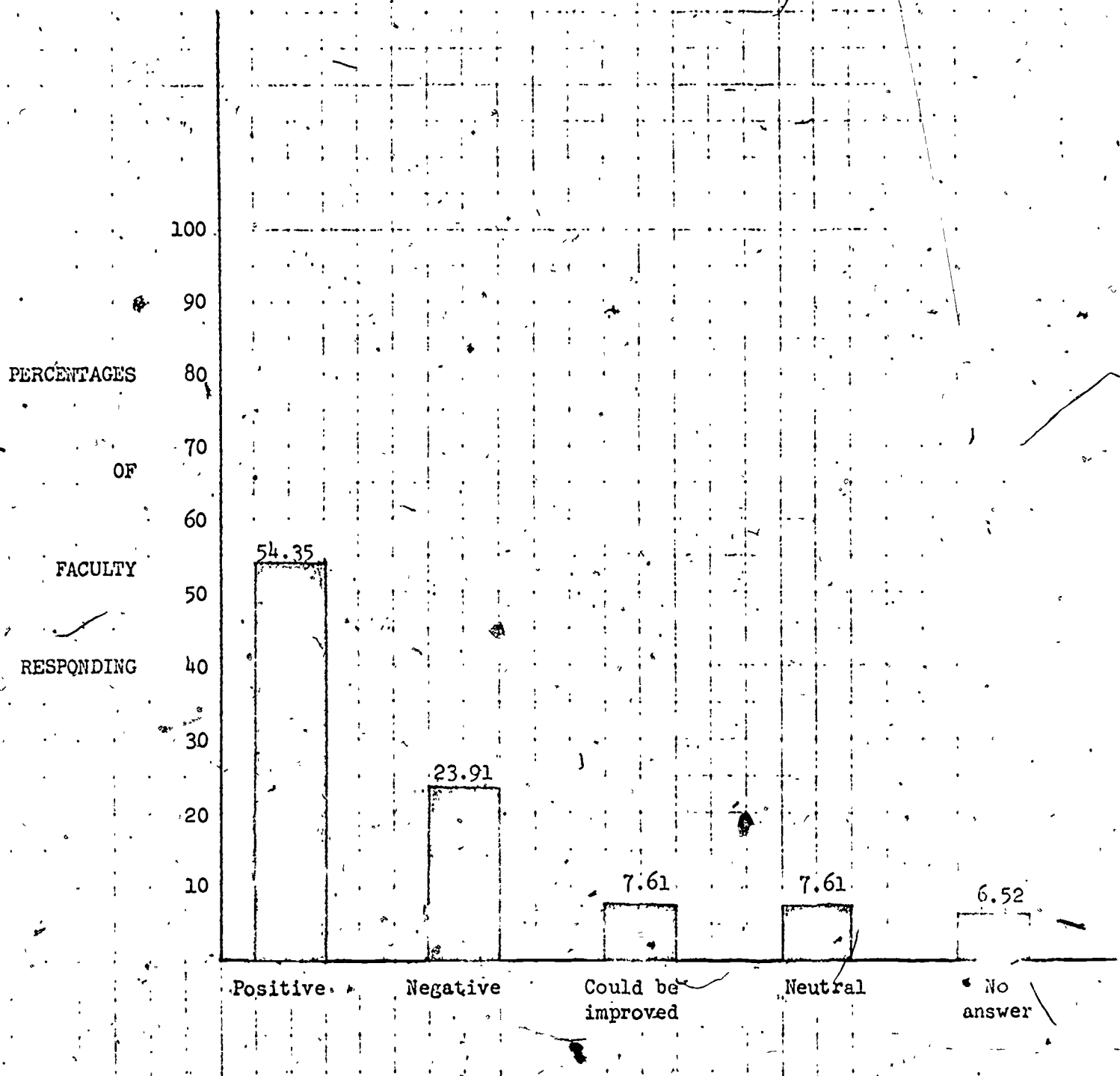
Positive responses:	50	(54.35%)
Negative responses:	22	(23.91%)
Neutral responses:	7	(7.61%)
Could be improved:	7	(7.61%)
No answer:	6	(6.52%)
	92	100.00%

This distribution is graphed in Figure 3.

Note first of all that the proportion of faculty giving positive responses to this stimulus "Cypress College" is lower than the proportion given positive answers to the stimulus "Community colleges." Furthermore, the proportion giving negative answers to the stimulus "Cypress College" is higher than the proportion of negative answers to "Community Colleges." Again, the numbers tell only part of the story. In general, those responses coded as "postitve" responses to the stimulus "Cypress College" were not as enthusiastic as those coded positive to the first stimulus of "Community College;" i.e., on the whole, those faculty who were positive toward Cypress College were less enthusiastic and emphatic about their positive feelings. Typical responses coded as positive were such things as "Nice place," "Pleasant campus," "Fulfills many of the functions of community colleges." Furthermore, those answers coded as negative responses to the stimulus "Cypress College" were on the whole more emphatic in their negativeness than were the negative responses to the first stimulus of "Community Colleges." Typical answers coded negatively to the stimulus "Cypress College"

Figure 3.

Distribution of responses to "Cypress College." N=92



were such things as "Mediocre," "Depressing," "impersonal concrete jungle." In summary, positive feelings toward Cypress College were not as intense as positive feelings towards community colleges in general, while negative feelings towards Cypress College were more intense than negative feelings towards community colleges in general.

It might be informative to know if the 54% who answered positively to the stimulus "Cypress College" constitute a completely-contained subset of those who answered positively to the stimulus "Community Colleges." That is, are those who answered positively to the stimulus "Cypress College" the same ones (but fewer of them) who answered positively to the stimulus "Community College." The following breakdown shows how all those faculty who answered positively to the stimulus"Cypress College" distributed according to how they answered the stimulus "Community Colleges":

Positive responses:	43	(86.00%)
Negative responses:	1	(2.00%)
Could be improved:	5	(10.00%)
Neutral responses:	1	(2.00%)
No answer:	0	(0.00%)
	50	100.00%

Note that the overwhelming majority of those who answered positively to the stimulus "Cypress College" also answered positively to the stimulus "Community Colleges," indicating that in general, the higher percentage of negative responses to the stimulus "Cypress College" (23.91%) as compared to negative responses to the stimulus of "Community Colleges" (7.61%) can almost entirely be accounted for by a change in attitude from positive to negative by those faculty who responded positively to the stimulus "Community Colleges." This further bears out the observation that in general faculty are less intense and less positive in their feelings towards Cypress College than they were towards the concept of community colleges in general, although it should be noted that

the majority of faculty (54%) do have positive feelings towards Cypress, and that the percentage of negative responses towards the stimulus "Cypress College" is still quite small (23.91%).

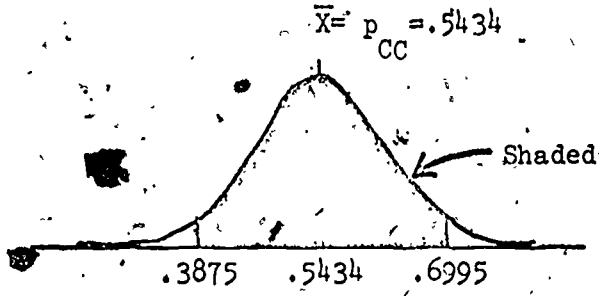
If we classify all the responses into two categories, positive and other, then we can say that the variable Y=proportion of positive responses to the stimulus "Cypress College" is binomially distributed, with the following theoretical probability distribution:[5]

Number of positive responses	Probability of obtaining this number of positive responses
0	$\binom{N}{0}(1/2)^0\ (1/2)^N$
1	$\binom{N}{1}(1/2)^1\ (1/2)^{N-1}$
.	.
.	.
.	.
N-1	$\binom{N}{N-1}(1/2)^{N-1}\ (1/2)^1$
N	$\binom{N}{N}(1/2)^N\ (1/2)^0$

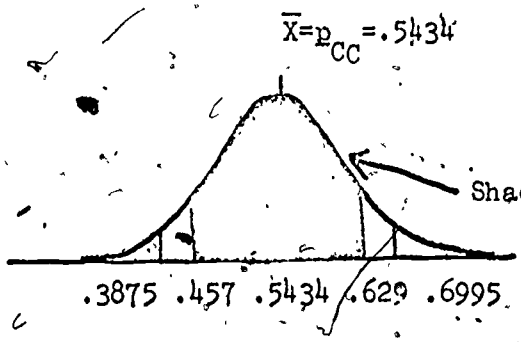
Again, because our sample large is large, this distribution closely approximates the normal distribution with mean= μ =p=proportion of positive answers and standard error of $\sqrt{\frac{p(1-p)}{N}}$. In this particular sampling distribution, the mean is there p_{cc} = .5435 and the standard error is $\sqrt{\frac{(.54)(.46)}{92}}$. Again, given these parameters, we can place confidence limits on our use of the sample mean as an estimate of the population mean. For a 99.73% level, these confidence

[5]Note that this is a different theoretical probabiltiy distribution than the one described in Chapter 3, since we are here dealing with a different variable.

limits are .3875 and .6995. This means that the probability of 99.73% that the actual population mean lies between .3875 and .6995, and graphically speaking, that it will fall into the shaded area:



For a confidence level of 90%, the limits become .457 and .629.



Remember that this means that with repeated sampling [illegible] the same population with respect to this particular stimulus of "Cypress College," we would expect that for about 99% of the time, the proportion of faculty responding positively would be between 39% and 70%, and for about 90% of the time, the proportion of faculty responding positively would be between 46% and 63%.

In summary, a little over half of the faculty expressed positive feelings towards Cypress College, while only 20% expressed negative feelings; however, the positive feelings expressed were less intense and the negative feelings more intense than were the responses toward the stimulus "Community Colleges."

5. Faculty attitudes towards the House Plan

The third stimulus item on the questionnaire was "The House Plan." A semantic analysis, using as few categories as possible, gives the following breakdown:

Positive:	20	(21.74%)
Negative:	46	(50.00%)
Mixed:	10	(10.87%)
Neutral:	10	(10.87%)
No answer:	6	(6.52%)
	92	100.00%

This distribution is presented graphically in Figure 4.

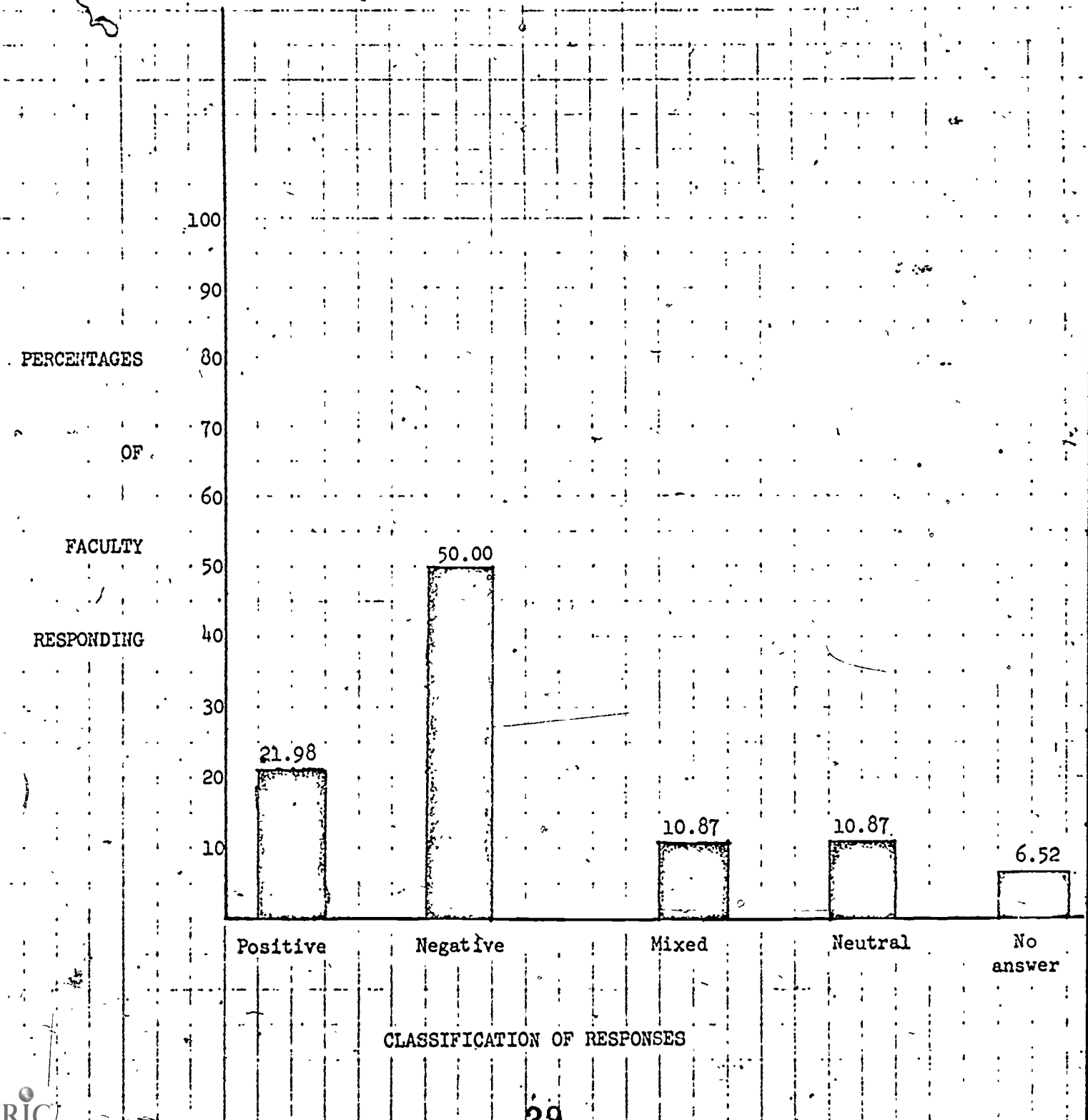
In general, the negative responses displayed more intensity of feeling than did the positive responses, i.e., those who were negative to the House Plan were in general more emphatic than those who were positive. Typical of the responses coded as positive were "Like it", "is basically a sound idea but..." "is working out better than expected," "I believe it has more pluses than minuses." (Note the equivocation.) Typical of the responses coded as negative were "Ridiculous!" "is a joke,""is a mess," "is a bad mistake."

With respect to the category "Mixed," responses were coded into this category only if the respondant said specifically that his or her feelings were mixed or if the respondant put down two polar adjectives, such as "it has both good and bad points."

It might be informative to examine the subsample consisting of those who responded negatively to the stimulus "House Plan." We shall call this subsample A with N=46. If we look at this subsample and examine its members for their

Figure 4.

Distribution of responses to "The House Plan". N=92



responses to the first stimulus, "Community colleges," we find the following distribution:

Subsample A (those who answered negatively to "House Plan")

Positive:	24	(52.17%)
Negative:	4	(8.70%)
Could be improved:	9	(19.57%)
Neutral:	8	(17.39%)
No answer:	1	(2.17%)
	46	100.00%

This distribution is presented graphically in Figure 5.

Note that in general, this subsample consisting of those who responded negatively to the stimulus "The House Plan" has a somewhat different distribution from the subsample of those who responded non-negatively to the same stimulus; i.e., we can form a second subsample from all those left over after taking out those who responded negatively. We shall call this subsample B with N=46, and it has the following distribution of responses to the stimulus "Community Colleges:"

Subsample B (those who answered non-negatively to "House Plan").

Positive:	33	(71.74%)
Negative:	3	(6.52%)
Could be improved:	3	(6.52%)
Neutral:	4	(8.70%)
Blank:	3	(6.52%)
	46	100.00%

This distribution is presented graphically in Figure 6.

These two subsamples cannot be systematically compared to see if there is a relationship between attitudes towards the House Plan and attitudes towards the concept of community colleges in general. That is, do faculty who have a negative attitude toward the House Plan differ significantly in their attitude toward the concept of community colleges in general from those faculty who have non-negative attitudes toward the House Plan?

Figure 5.

Subsample of faculty who responded negatively to "The House Plan" distributed by their responses to "Community Colleges." Expressed as Percentages of N=46.

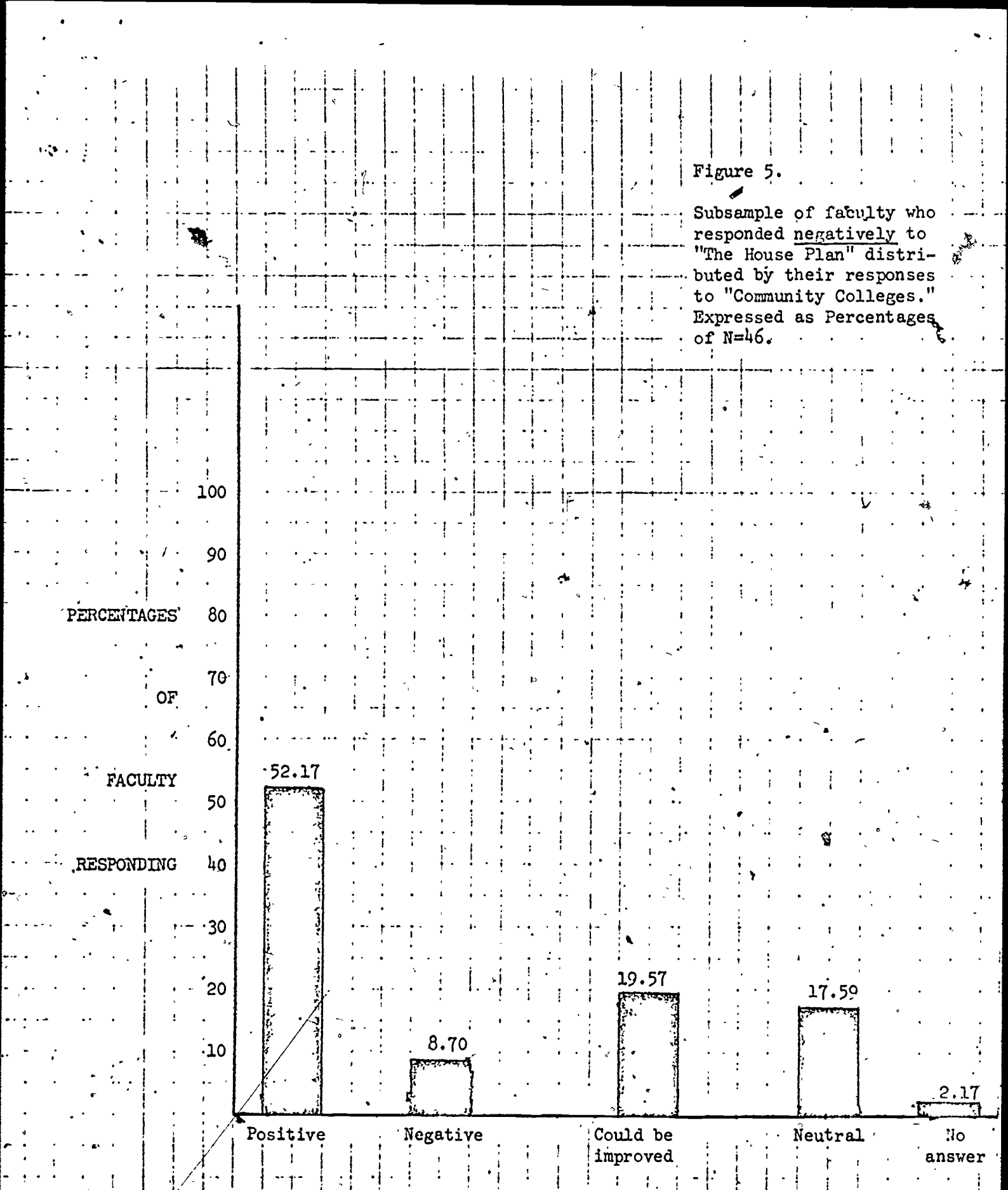
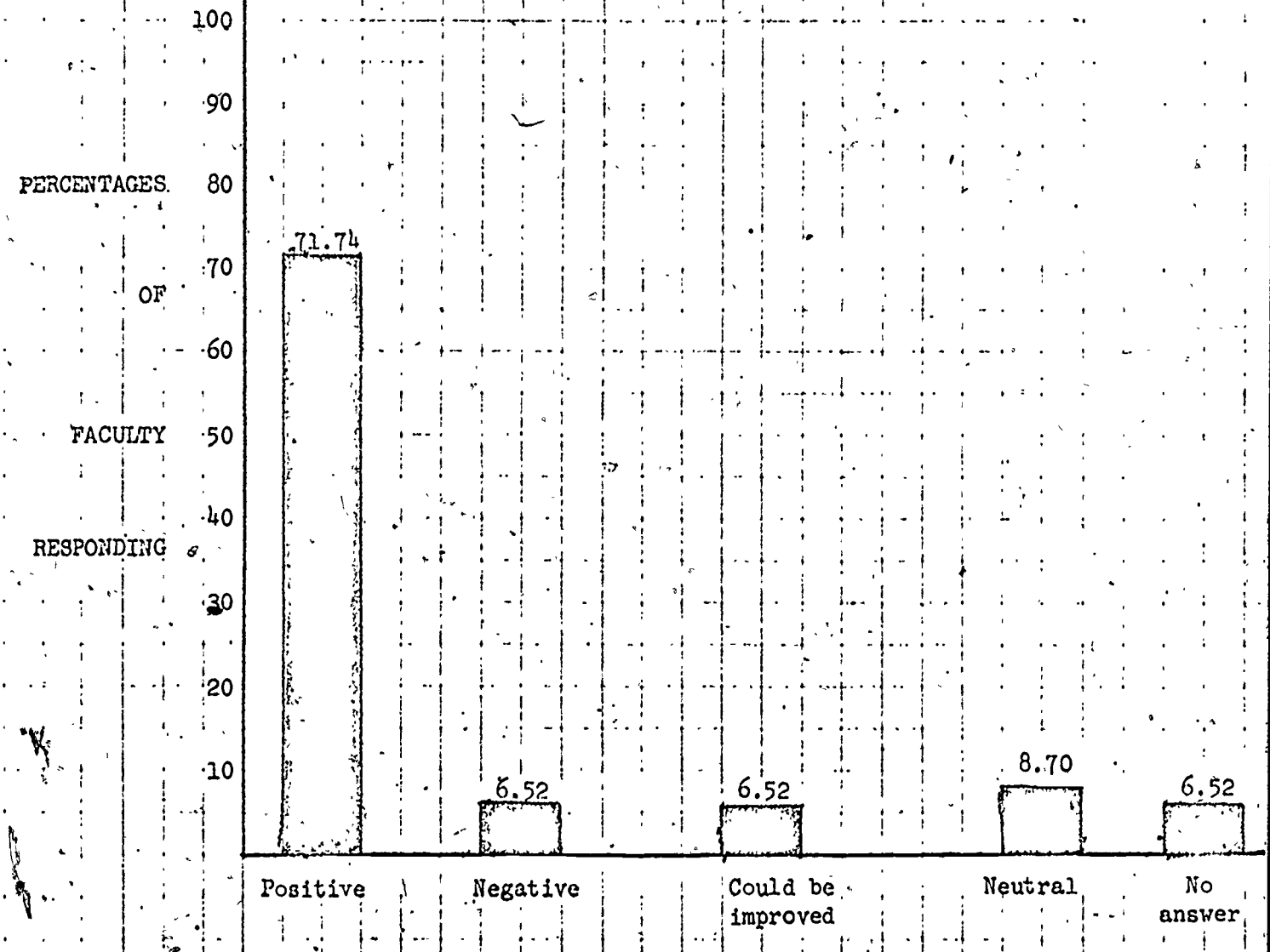


Figure 6.

Subsample of faculty who responded non-negatively to "The House Plan" distributed by their responses to "Community colleges." Expressed as percentages of N=46



Note that each subsample, A and B, can itself be considered binomically distributed if we classify all the responses to the stimulus "Community Colleges" into two categories, positive and non-positive. Then for each subsample, there is a proportion of those faculty who answered positively to the stimulus "Community Colleges:"

Proportion of those who answered positively from subsample A $= p_A = .5217$

Proportion of those who answered positively from subsample B $= p_B = .7174$

These two proportions will be the ones under consideration for the test of significant differences between subsamples A and B. Now the difference of these two proportions itself forms a sampling distribution which closely approximates the normal distribution for large sample sizes. The mean of this sampling distribution of proportion differences is $\mu_A - \mu_B = 0$ with standard error of

$$\sigma_{A-B} = \sqrt{q\,(q-1)\left(\frac{1}{N_A} + \frac{1}{N_B}\right)}$$,where $q = \frac{N_A\,p_A + N_B\,p_B}{N_A + N_B}$. When the standard score (i.e., the test statistic for the observed difference between the two proportions of subsample A and subsample B is computed according to the formula:

$$Z = \frac{p_A - p_B}{\sigma_{A-B}}$$

it is found that there is a significant difference between the two subsamples with respect to the proportion of positive responses to the stimulus "Community Colleges" at the .05 level (for a one-tailed test). In other words, those faculty who responded negatively to the stimulus "House Plan" give significantly fewer positive responses to the stimulus "Community Colleges" than did those faculty who

responded non-negative does not mean positive, but rather includes the categories "positive," "Neutral," "mixed," and "no answer."

Is the same true with respect to responses to the stimulus "Cypress College"? That is, do those faculty who responded negatively to the stimulus "House Plan" (subsample A) respond less positively to the stimulus "Cypress College than do those faculty who responded positively to the stimulus "House Plan" (subsample B). For each subsample, the breakdown of responses to the stimulus "Cypress College" is as follows:

Subsample A's responses to stimulus "Cypress College" (N=46)

Positive:	19	(41.30%)
Negative:	18	(39.13%)
Could be improved:	4	(8.70%)
Neutral:	3	(6.52%)
No answer:	2	(4.35%)
	46	100.00%

This distribution is graphed in Figure 7.

Subsample B's responses to stimulus "Cypress College" (N=46)

Positive:	31	(67.38%)
Negative:	4	(8.70%)
Could be improved:	3	(6.52%)
Neutral:	4	(8.70%)
No answer:	4	(8.70%)
	46	100.00%

This distribution is graphed in Figure 8.

Again, the distributions for each subsample can be considered binomial if we collapse the categories to positive and non-positive, and again we can test for the difference between the two subsamples with respect to the following proportions:

Proportion of those who answered positively to "Cypress College" from subsample A $= p_A = .4130$

Figure 7.

Subsample of faculty who responded negatively to "The House Plan" distributed by their responses to "Cypress College." Expressed as percentages of N=46.

Subsample A.

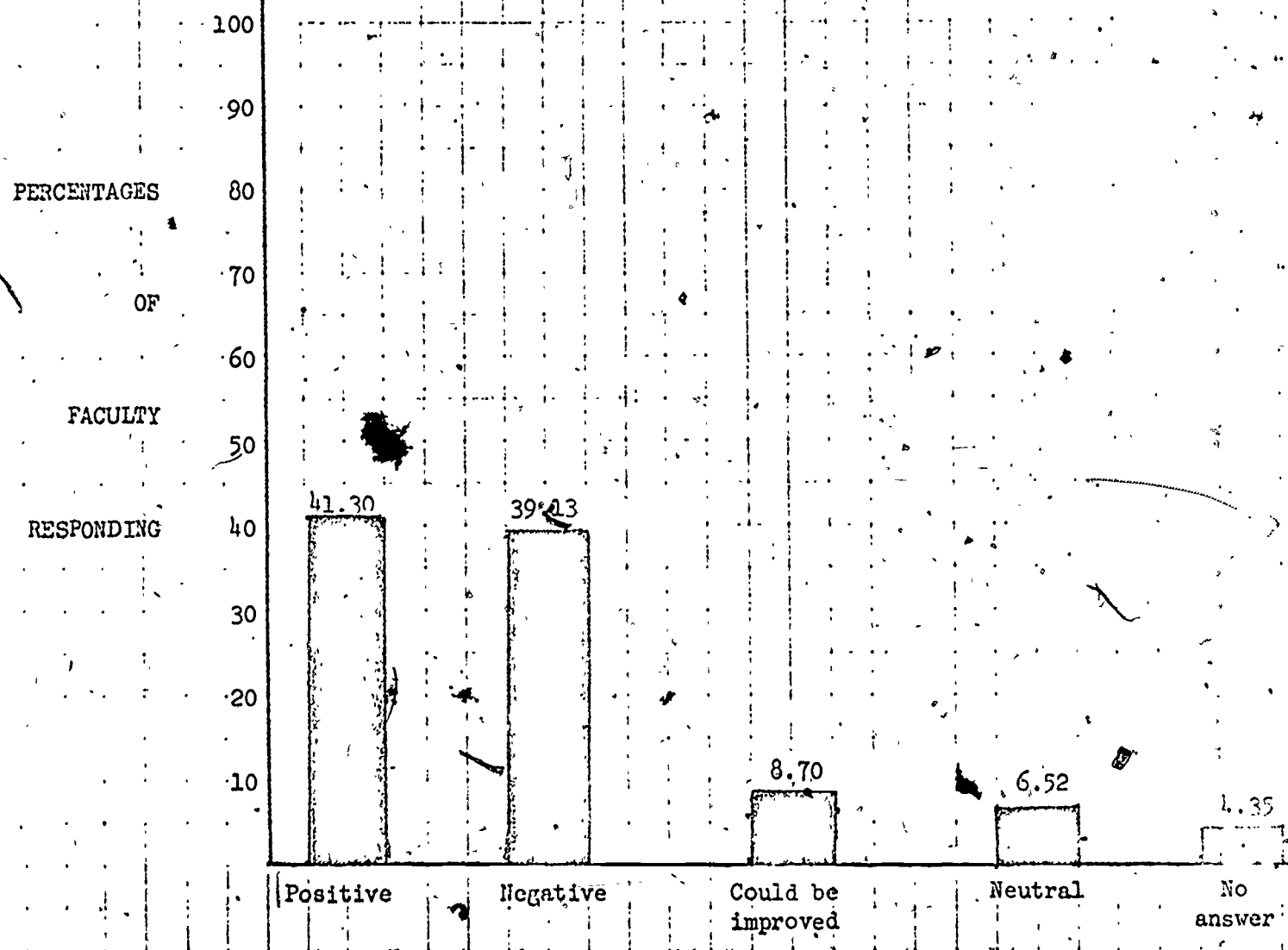
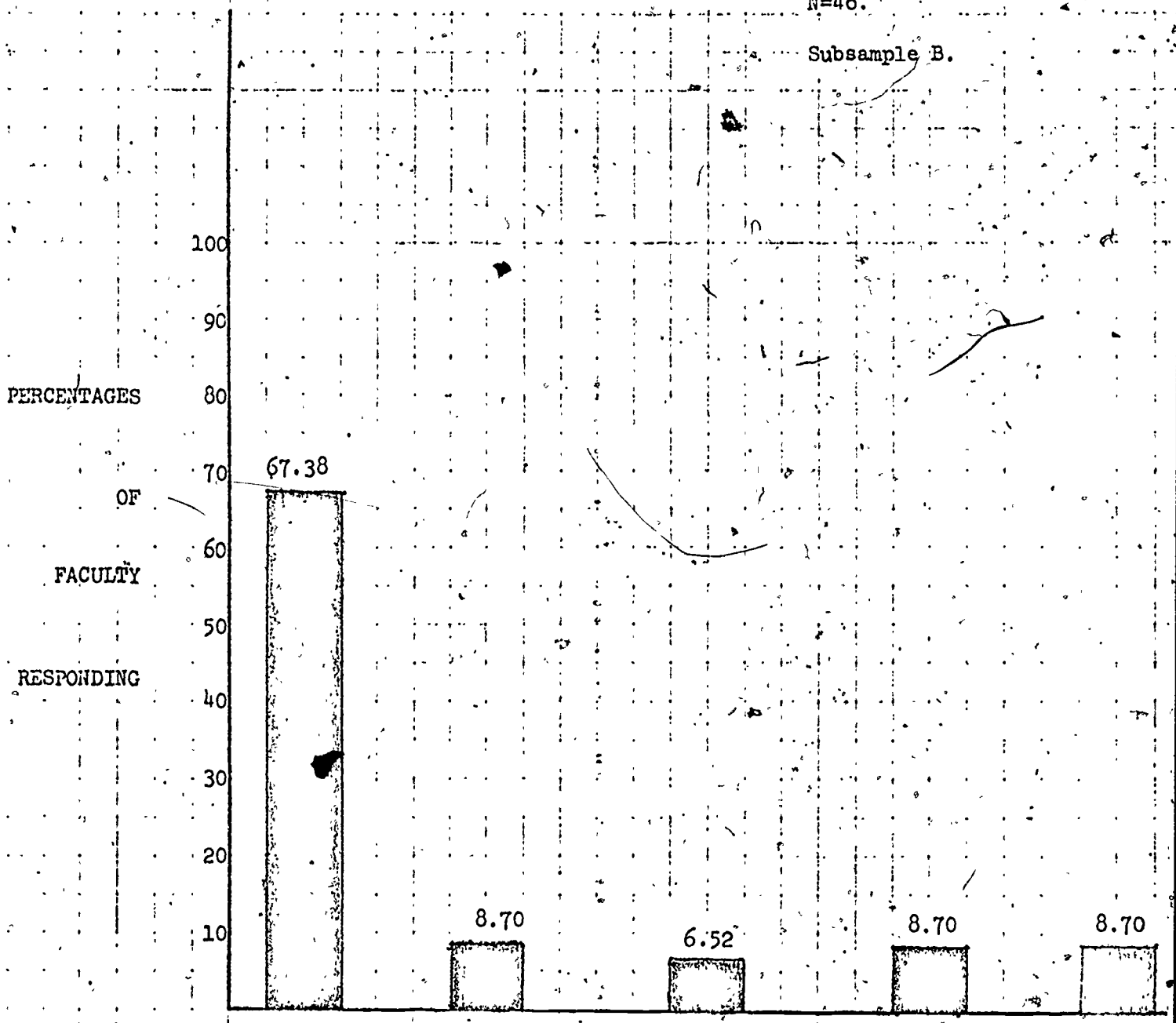


Figure 8.

Subsample of faculty who responded non-negatively to "The House Plan" distributed by their responses to "Cypress College." Expressed as percentages of N=46.

Subsample B.



Proportion of those who answered positively to "Cypress College" from subsample B $= p_B = .6738$.

Using the same kind of sampling distribution of differences between proportions and the same test statistic as used earlier, it is found that there is a significant difference between the two subsamples with respect to the proportion of positive responses to the stimulus "Cypress College" at the .05 level (for a one-tailed test). In other words, faculty who responded negatively to the stimulus "House Plan" give significatnly fewer positive responses to the stimulus "Cypress College" than did those who responded non-negatively to the stimulus "House Plan."

In summary, half of the faculty responded negatively to the stimulus "The House Plan." This half of the faculty also gave significantly fewer positive responses to the stimuli "Community College" and "Cypress College" than did the other half of the faculty, indicating that there may be a relationship between feelings towards the House Plan and feelings towards the concept of community colleges in general and Cypress College in particular, but at this point, it is not possible to say whether or not this is a causal relationship. It should be noted, however, that 40% of those faculty who responded negatively to the stimulus "The House Plan" had positive feelings towards Cypress.

6. Reported positive aspects of the House Plan

The fourth stimulus was "The thing I like about the House Plan is." The distribution of responses for the entire sample is as follows: (N=92)

Proximity and grouping of faculty with similar interests	12	(13.04%)
Greater teacher-student interaction	10	(10.87%)
Smaller, more intimate units of people	9	(9.78%)
Grouping together of students with similar interests	6	(6.52%)
Greater student involvement in campus life	5	(5.44%)
Physical arrangements and attractiveness	5	(5.44%)
Convenience of services, such as clerical and food services	5	(5.44%)
Proximity of counseling services	4	(4.35%)
Other (irrelevant or illegible answers)	12	(13.04%)
Nothing (as in "There is nothing I like about the House Plan.")	15	(16.30%)
No answer	9	(9.78%)
	92	100.00%

Note that the greatest single category of response was "Proximity and grouping of faculty with similar interests." Note further that although there were 15 "Nothing" responses, 14 of them expectably from the subsample of faculty who responded negatively to the stimulus "The House Plan," that nonetheless the rest of the subsample that responded negatively to the stimulus "The House Plan" were

able to come up with positive aspects of the House Plan. A breakdown of the entire sample into two subsamples, those who responded negatively to the stimulus "The House Plan" and those who responded non-negatively, may be instructive with respect to how they viewed positive aspects of the House Plan:

Subsample A (negative responses to the stimulus "The House Plan). N=46

Proximity and group of faculty with similar interests	4	(8.70%)
Greater student-teacher interaction	4	(8.70%)
Smaller, more intimate units of people	2	(4.35%)
Grouping together of students with similar interests	0	(0.00%)
Greater student involvement in campus life	2	(4.35%)
Physical arrangements and attractiveness	5	(10.87%)
Convenience of services, such as clerical and food services	1	(2.17%)
Proximity of counseling services	2	(4.35%)
Other (irrelevant or illegible answers)	9	(19.57%)
Nothing (as in "There is nothing I like about the House Plan.")	14	(30.42%)
No answer	3	(6.52%)
	46	100.00%

Subsample B (non-negative responses to the stimulus "House Plan." N=46

Proximity and grouping of faculty with similar interests	8	(17.40%)
Greater student-teacher interaction	6	(13.04%)
Smaller, more intimate units of people	7	(15.22%)

Subsample B (cont.)

Grouping together of students with similar interests	6	(13.04%)
Greater student involvement in campus life	0	(0.00%)
Convenience of services, such as clerical and food services	4	(8.70%)
Proximity of counseling services	2	(4.35%)
Other (irrelevant or illegible answer)	3	(6.52%)
Nothing (as in "There is nothing I like about the House Plan.")	1	(2.17%)
No answer	6	(13.04%)
	46	100.00%

Note that for subsample B (those who answered non-negatively to the stimulus "The House Plan"), the greatest response to a single category was for the category "proximity and grouping of faculty with similar interests," while for subsample A (those who answered negatively to the stimulus "The House Plan"), this category had a comparatively small number of responses, and this subsample instead saw the physical arrangements and architectural attractiveness as being the single most important positive aspect of the House Plan.

7. Reported negative aspects of the House Plan

The fifth stimulus on the questionnaire was "The thing I don't like about the House Plan is." The distribution of responses for the entire sample is as follows: (N=92)

Diffusion (separateness, segregation, isolation, compartmentalization)	42	(45.65%)
Uses too much money	11	(11.96%)
Duplication of materials and services	5	(5.43%)
Impossibility of overcoming effects of a commuter college	5	(5.43%)
Fostered by the administration	4	(4.35%)
Lack of privacy	2	(2.17%)
Bad food	1	(1.09%)
Nothing (i.e., there are no negative aspects of the House Plan)	1	(1.09%)
Everything (i.e., all aspects of the House Plan are negative	3	(3.26%)
Other (irrelevant or illegible answers)	7	(7.61%)
No answer	11	(11.96%)
	92	100.00%

The category "diffusion" (also expressed as "separateness," "isolation,""segregation," "compartmentalization," lack of communication," "divisiveness," "fragmentation," etc.) includes all those answers in which respondants expressed as a negative aspect of the House Plan that it diffuses, divides, or otherwise separates either faculty from other facutly or students from other students. The

category "Impossibility of overcoming effects of a commuter college" includes those answers in which respondants expressed that they felt that nothing, including the House Plan, would be able to overcome the effects of a commuter college. The remaining categories are self-explanatory.

Note that in contrast to the stimulus "The thing I like about the House Plan is," where there were widely scattered responses, in this case, almost half of the responses dealt with the diffusing aspect of the House Plan. Note further that there is a slight, but difinite, indication that the negative attitude toward the House Plan may be a more stable attitude than the positive attitude, as shown by the following: of the 46 persons who responded negatively to the stimulus "The House Plan," 14 (or 30%) of them answered that they did not find anything positive about the House Plan. In contrast, of the 20 persons who responded positively to the stimulus "The House Plan" (see page 19 for the breakdown of responses to "The House Plan)[6], 16 of these 20 did find negative aspects of the House Plan. In other words, on the whole, there is a tendency for those who responded negatively to the stimulus "The House Plan" to be more stable in their attitude than are those who responded positively to the same stimulus.

If we again break down the entire sample into two subsamples, those who responded negatively to the stimulus "The House Plan," and those who responded positively to the same stimulus, then we find the following distributions with respect to the negative aspects of the House Plan (remember that non-negative includes positive, neutral, and mixed responses):

[6] Remember that the positive responses are only part of the non-negative subsample, which also includes neutral and mixed answers.

Subsample A (Those who responded negatively to the stimulus "The House Plan)

Diffusion (separateness, segregation, isolation, compartmentalization)	20	(43.48%)
Uses too much money	7	(15.22%)
Impossible to overcome the effects of a commuter college	5	(10.87%)
Duplication of materials and services	3	(6.52%)
Everything (i.e., all aspects of the House Plan are negative)	3	(6.52%)
Fostered by the Administration	2	(4.35%)
Lack of privacy	1	(2.17%)
Bad food	0	(0.00%)
Other (irrelevant or illegible answers)	3	(6.52%)
No answer	2	(4.35%)
	46	100.00%

Subsample B (Those who responded non-negatively to the stimulus "The House Plan"

Diffusion (separateness, segregation, isolation, compartmentalization)	22	(47.82%)
Uses too much money	4	(8.70%)
Impossible to overcome the effects of a commuter college	0	(0.00%)
Duplication of materials and services	2	(4.35%)
Everything (i.e., all aspects of the House Plan are negative)	0	(0.00%)
Fostered by the Administration	2	(4.35%)
Lack of privacy	1	(2.17%)
Bad food	1	(2.17%)
Nothing (i.e., there are no negative aspects of the House Plan)	1	(2.17%)
Other (irrelevant or illegible answers)	4	(8.70%)
No answer	9	(19.57%)
	46	100.00%

Note the high degree of agreement between the two subsamples with respect to the two negative aspects named most often: diffusion (also expressed as separateness, segregation, etc.) and cost. Where the two subsamples differ is with respect to the third most-named negative aspect; about 11% subsample A reported the impossibility of overcoming the effects of a commuter college as the negative aspect of the House Plan, while subsample B reported the duplication of materials and services and the fact that the House Plan is fostered by the Administration as the third place-negative aspects of the House Plan.

In summary, diffusion was named most often as a negative aspect of the House Plan" and those who responded negatively, it was also found that diffusion was still named most often as a negative aspect of the House Plan.

8. Faculty attitudes towards the administration

The sixth and last stimulus on the questionnaire was "The administration here." The distribution of responses for the entire sample was as follows: (N=92)

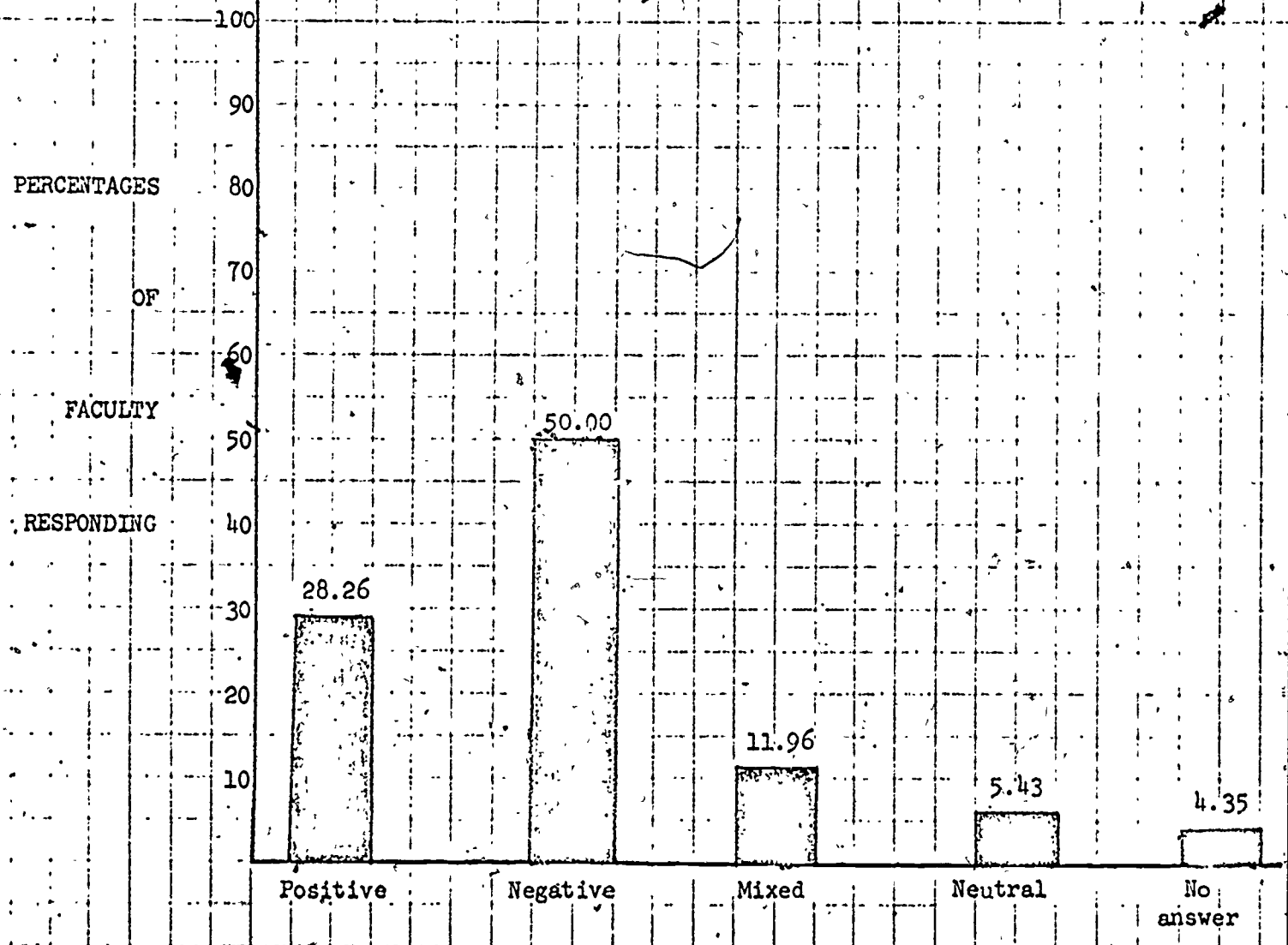
Positive responses:	26	(28.26%)
Negative responses:	46	(50.00%)
Mixed responses:	11.	(11.96%)
Neutral responses:	5	(5.43%)
No answer:	4	(4.35%)
	92	100.00%

This distribution is graphed in Figure 9.

In general, the negative responses displayed more intensity of feeling than did the positive responses. With the exception of a very few enthusiastic responses, such as "Fantastic-very cooperative," "Great!" and "Excellent from my viewpoint," the positive responses were somewhat "toned-down" or qualified. For example, there were responses such as "seems all right to me," "so far has been fair to me," "so far, so good," "by and large doing an adequate job," "appears friendly," "seems reasonably open to student input," "open-minded in general," "o.k. little leadership...but little interference also." Again, with very few exceptions, most of the responses coded as positive were quite short with respect to the number elicited by the stimulus phrase. In contrast, those responses coded as negative in general displayed more intensity of feeling, either through a short pointed comment or through a list of reasons and/or explanations of the negative aspects of the daministration. For example, there were responses such as "is for the birds," "doesn't care," "no comment!!" "Lacks

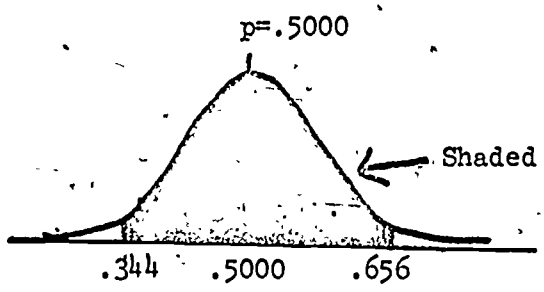
Figure 9.

Distribution of responses to "The Administration here."
N=92



conviction!". Other responses coded as negative consisted of lists of what the respondants felt were problem areas in the administration; others consisted of long explanations of the respondants' negative feelings.

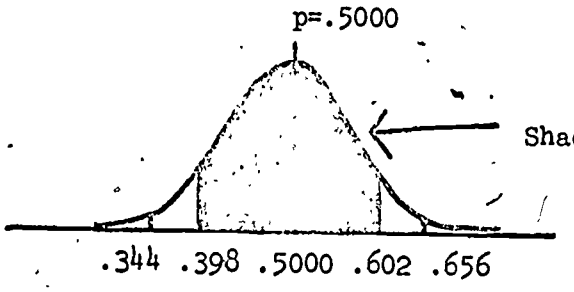
If we classify all the responses into two categories, negative and non-negative, then we can say that the variable Z=proportion of negative responses to the stimulus "The Administration here" is binomially distributed,[7] with the mean of the sampling distribution of μ =p=proportion of sample giving negative responses, with a standard error of $\sqrt{\frac{p(1-p)}{N}}$; i.e., the mean in this particular case is p=.5000 and the standard error is .052. Given these parameters, we can again place confidence limits on our use of the sample mean as an estimate of the population mean. Again, because the sampling distribution closely resembles a normal distribution, then 99.73% of the area under the curee will be within $\pm$ 3 standard deviations of the mean.



What this means again is that 99.73% of the time, the actual population mean will fall into the shaded area; i.e., the probability is 99.73% that the actual population mean lies between .344 and .656. It also means that given repeated sampling of sample size N=92 from the same population, that over the long run we could expect that the proportion of faculty answering negatively to the stimulus "The Administration here" would be between 34% and 66% about 99% of the time.

[7] See pages 10 and 16 for more complete explanation of the operations described in a brief from here. We are here doing exactly the same things as on pages 10 and 16, but with a different variable.

If we lower the confidence level to 90%, then the confidence limits become .398 and .602.



This means that given repeated sampling of sample size N=92 from the same population, that we would expect the proportion of faculty responding negatively to the stimulus "The Administration here" to be between 39% and 60% about 90% of the time.

Note that while the proportion of negative responses to "The Administration here" was the same percentage as negative responses to "The House Plan," that it was not the same 50% responding negatively in both cases. That is, some of those persons who responded negatively to "The House Plan" responded positively (or at least non-negatively) to "The Administration here," while some of those persons who responded negatively to "The administration here." The relationships between these four subsamples can perhaps best be illustrated through a Venn diagram, which is used in probability and logic to show the logical relationship between sets. In the Venn diagram (Figure A. on page 40), each region of color represents a particular subsample. For example, the blue region represents what we have been calling subsample A, which consists of all those faculty who responded negatively to the stimulus "The House Plan." The black region represents all those faculty

Figure A.

Venn diagram illustrating logical relationships between subsamples.

Space colored 1 indicates subsample of negative responses to "The House Plan."

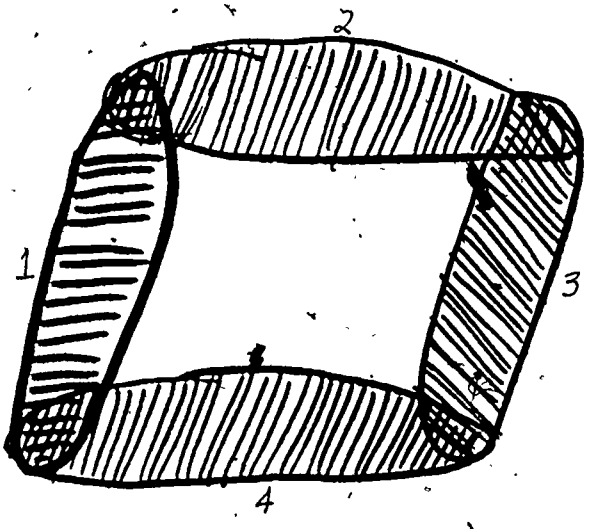
Space colored 2 indicates subsample of negative responses to "The Administration here."

Space colored 3 indicates subsample of positive responses to "The House Plan."

Space colored 4 indicates subsample of positive responses to "The Administration here."

Note that area sizes in this diagram do <u>not</u> indicate subsample size.

Areas of overlapping colors indicate the intersection of two subsamples. For example, the area of overlap between blue and green indicate those persons who answered negatively to both the stimuli "The House Plan" and "The Administration." The area of blue <u>not</u> overlapping any other color indicates those persons who answered negatively to the stimulus "The House Plan" but who had neither positive nor negative feelings towards the stimulus "The Administration here."



who responded positively to the stimulus "The House Plan." The intersection or overlapping of two colors, for example, blue and green, indicate the subsample consisting of those persons who responded negatively to both the stimuli "The House Plan" and "The Administration here", but note that the green space (negative answers to "The Administration here") is not the same as the blue space (negative responses to "The House Plan"). If it were the same 50% of the faculty answering negatively to both "The House Plan" and "The Administration here," then the blue and green areas would totally cover each other and occupy the same space.

This Venn diagram of course does not show relative proportions of each subsample, so it may be further instructive to divide up the total sample into two subsample, broken down according to attitude toward Administration, with subsample C consisting of negative responses to "The Administration here," and subsample D consisting of non-negative responses to "The Administration here." The following are the distributions for these two subsamples with respect to responses to "The House Plan," which will incidentally further indicate that it is not the same 50% of the faculty responding negatively to both "The House Plan" and "The Administration here":

Subsample C (Those responding negatively to "The Administration here.") N=46

Attitudes towards House Plan:

Positive responses:	10	(21.74%)
Negative responses:	27	(58.70%)
Mixed responses:	5	(10.87%)
Neutral responses:	3	(6.52%)
No answer:	1	(2.17%)
	46	100.00%

Subsample D (Those responding non-negatively to "The Administration here.") N=46

Attitudes towards House Plan:

Positive responses:	10	(21.74%)
Negative responses:	19	(41.30%)
Mixed responses:	5	(10.87%)
Neutral responses:	7	(15.22%)
No answer:	5	(10.87%)
	46	100.00%

Note that subsample C's proportion of negative responses to the stimulus "The House Plan" is higher than that of subsample D, and we can test for whether or not this difference is significant if we again assume that this variable, attitude towards House Plan, is binomially distributed. Then for each subsample, there is a proportion of those faculty who answered negatively to the stimulus "The House Plan":

Proportion of those who answered negatively from subsample C: $= p_C = .5870$

Proportion of those who answered negatively from subsample D: $= p_D = .4130$

These two proportions will be the ones under consideration for the test of significant differences between subsample C and D with respect to attitudes toward the House Plan. Again,[8] the difference of these two proportions itself forms a sampling distribution which closely approximates the normal distribution for large sample sizes. The mean of this sampling distribution of proportion differences is $\mu_C - \mu_D = 0$ with standard error of

$$\sigma_{C-D} = \sqrt{q(q-1)\left(\frac{1}{N_C} + \frac{1}{N_D}\right)},$$

where $q = \dfrac{N_C p_C + N_D p_D}{N_C + N_D}$.

[8] This is the same operation as on page 24, but dealing, however, with different subsamples.

When the standard score (i.e., the test statistic for the observed difference between the two proportions of subsample A and subsample B) is computed according to the formula $z = \frac{p_C - p_D}{\sigma_{C-D}}$ it is found that for a one-tailed test, there is a significant difference between the two subsamples with respect to the proportion of negative responses to the stimulus "The House Plan" at the .05 level. In other words, those faculty who responded negatively to the stimulus "The Administration here" have significantly more negative responses to the stimulus "The House Plan" than did those faculty who responded non-negatively to the stimulus "The Administration here."

We can also test for whether or not the two subsamples differ significantly with respect to attitudes towards community colleges in general. The distributions of responses for the subsamples with respect to responses to the stimulus "Community Colleges" are the following:

Subsample C (Those who answered negatively to "The Administration here.") N=46

Responses to stimulus "Community Colleges."

Positive responses:	25	(54.34%)
Negative responses:	7	(15.22%)
Could be improved:	7	(15.22%)
Neutral responses:	7	(15.22%)
	46	100.00%

Subsample D (Those who answered non-negatively to "The Administration here.") N=46

Responses to stimulus "Community College."

Positive responses:	32	(69.56%)
Negative responses:	0	(0.00%)
Could be improved:	4	(8.70%)
Neutral responses:	6	(13.04%)
No answer	4	(8.70%)
	46	100.00%

We shall again assume dicholtomous response categories in order to assume a binomial distribution. We shall be dealing with the proportion in each subsample of those who responded positively to the stimulus "Community Colleges":

Proportion of those who answered positively from subsample C: $= p_C = .5434$

Proportion of those who answered positively from subsample D: $= p_D = .6956$

Again, using the same sort of significance test as was used on page 42, in which the sampling distribution of the difference between the proportions is used, it is found that for a one-tailed test, there is a significant difference between the two subsamples with respect to the proportion of positive responses to the stimulus "Community Colleges" at the .05 level. In other words, those faculty who responded negatively to the stimulus "The Administration here" have significantly fewer positive responses to the stimulus "Community Colleges" than did those faculty who responded non-negatively to the stimulus "The Administration here."

We can further test for differences between the two subsamples with respect to their attitudes towards "Cypress College." The distributions of responses for the subsamples with respect to responses to the stimulus "Cypress College" are the following:

Subsample C (Those who answered negatively to "The Administration here.") N=46

Responses to stimulus "Cypress College."

Positive responses:	20	(43.48%)
Negative responses:	17	(36.96%)
Could be improved:	6	(13.04%)
Neutral responses:	2	(4.35%)
No answer:	1	(2.17%)
	46	100.00%

Plan, the concept of community colleges in general, and Cypress College, with the negative subsample giving significantly more negative responses to "The House Plan," and significantly fewer positive responses to both "Community Colleges" and Cypress College." In other words, there appears to be a relationship between attitudes towards these four stimuli, but one cannot assume that this is a causal relationship or make any assumptions about the direction of causality.

9. Afterword

Faculty in general were extremely enthusiastic about the concept of community colleges in general, and most felt that Cypress is a good example of what a community college should be. Half of the sample expressed negative feelings toward the House Plan, although most of them were able to list some advantages of it. About one-fifth of the sample expressed positive feelings towards the House Plan, and the remainder were either neutral, had mixed feelings, or refused to answer. The half of the faculty expressing negative feelings towards the administration was not the same half who expressed negative feelings towards the House Plan, although a relationship was found between the two variables. Furthermore, it was found that in general, there were relationships between attitudes towards the concept of community colleges in general, towards Cypress College in particular, towards the House Plan, and towards the administration, although at this time no causality or direction of causality can be imputed.

Subsample D (Those who answered non-negatively to "The Administration here.")

N=46

Responses to stimulus "Cypress College"

Positive responses:	30	(65.22%)
Negative responses:	5	(10.87%)
Could be improved:	1	(2.17%)
Neutral responses:	5	(10.87%)
No answer:	5	(10.87%)
	46	100.00%

Again assuming binomiality of the variable, we shall be dealing with the following proportions from each subsample of those faculty who responded positively to the stimulus "Cypress College":

Proportion of those who answered positively from subsample C: $= p_C = .4348$

Proportion of those who answered positively from subsample D: $= p_D = .6522$

Again, testing for whether or not the difference between these proportions is significant using the same test as before, we find that for a one-tailed test, there is a significant difference between the two subsamples at the .01 level; i.e., those faculty who responded negatively to the stimulus "The Administration here" gave significantly fewer positive responses to the stimulus "Cypress College" than did those faculty who responded non-negatively to the stimulus "The Administration here."

In summary, when the entire sample is divided into two subsamples consisting of faculty who responded negatively to "The Administration here" and those who responded non-negatively, it is found that there are significant differences between the two subsamples with respect to their attitudes towards the House

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