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ABSTRACT

In conjunction with a comprehensive faculty questionnaire, a sample of University of Southern California faculty were asked about their experiences with, attitudes toward, and opinions regarding multidisciplinary and interdisciplinary research programs. One-third of the faculty reported experience with both interdisciplinary and multidisciplinary research, 17 percent had experience with multidisciplinary research only, and 14 percent reported only interdisciplinary research experience. The balance of 36 percent were divided into 17 percent with no experience in either type of research and 19 percent nonrespondents to this item. Analyses were made of the attitude and opinion items relative to the types of experience the faculty reported. Overall the faculty indicated a mildly favorable attitude toward both types of research. They gave higher ratings to the type of research with which they had experience. Those who had experience with both multidisciplinary and interdisciplinary research viewed them with equal favor. The organizational structure and reward systems of the university were seen as neutral to both types of research, although the USC administration was perceived as favorable and the faculty expect to see more of both in the near future. (Author)

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INTERDISCIPLINARY AND MULTIDISCIPLINARY PROGRAMS; ATTITUDES AND EXPERIENCES OF USC FACULTY

by

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Interdisciplinary and Multidisciplinary Programs:
Attitudes and Experiences of USC Faculty

SUMMARY

In conjunction with a comprehensive faculty questionnaire, a sample of USC faculty were asked about their experiences with, attitudes toward, and opinions regarding multidisciplinary and interdisciplinary research programs. One-third of the faculty reported experience with both interdisciplinary and multidisciplinary research, 17% had had experience with multidisciplinary research only and 14% reported only interdisciplinary research experience. The balance of 36% were divided into 17% with no experience in either type of research and 19% nonrespondents to this item.

Analyses were made of the attitude and opinion items relative to the types of experience the faculty reported. Overall the faculty indicated a mildly favorable attitude toward both types of research. They gave higher ratings to the type of research with which they had had experience. Those who had had experience with both multidisciplinary and interdisciplinary research viewed them with equal favor.

The organizational structure and reward systems of the university were seen as neutral to both types of research, although the USC administration was perceived as favorable and the faculty expect to see more of both in the near future. It was seen as desirable that an interdisciplinary program should include both teaching, and research functions and that responsibility for curriculum and faculty should be shared with the traditional schools and departments with the program retaining a dominant voice. Although it was rated desirable that the program should maintain an administrative and technical support staff, the administrative staff should not have the major role in policy decisions regarding the program. The participation of faculty could be either part of their normal job or for extra compensation.

Interdisciplinary and Multidisciplinary Programs: Attitudes and Experiences of USC Faculty

INTRODUCTION

In conjunction with an NSF Research Management grant, the Office of Institutional Studies was asked to survey the USC faculty in regards to their experience with interdisciplinary and multidisciplinary programs and their opinions about such programs. Six items were developed relating to inter- and multidisciplinary programs and added to a comprehensive faculty questionnaire distributed during the Fall of 1973.

PROCEDURE

Data Collection

The questionnaire was distributed to a random sample of 40% of the faculty of each school in the university except Medicine, where a sample of one-sixth was selected. Completed questionnaires were received from 289 faculty, 65% of the sample and approximately 18% of the total full-time USC faculty. Analyses of available personnel data, such as age, sex, rank, years at USC, salary, etc., revealed no differences between the respondents and non-respondents except that the response rate of faculty in Public Administration and Law was unusually low relative to that of the other schools. The figures above refer to the number of completed questionnaires that were returned, but the section of items about interdisciplinary and multidisciplinary programs was omitted by many respondents. Varying with the individual items, the missing responses ranged from 8% to 33% of the respondents. Because of the low rate of response from two schools, the undersampling of Medical faculty, and the number of missing cases, it is not possible to interpret the results as representative of the total USC faculty. Insufficient

information is available for the assessment of degree of bias, but it seems reasonable to assume that lack of interest in and/or knowledge of the topic would be the main reason for omitting these items.

Analyses

The items on multidisciplinary and interdisciplinary programs began with a definition of terms and a question about prior experiences as given below:

INTERDISCIPLINARY RESEARCH is defined as joint, coordinated and continuously integrated research done by experts with distinctly different disciplinary backgrounds producing joint "staff authored" reports. It differs from MULTIDISCIPLINARY RESEARCH where experts from different disciplines work individually on different aspects of a specific problem and produce separate reports which may be published individually or as a collection.

Which type of research experience have you had in each of the (listed locations)? Circle both if applicable.

	Responses		
	3 Interdisciplinary	2 Multidisciplinary	1 Neither
USC.....	3	2	1
Research Center.....	3	2	1
Another academic institution.....	3	2	1
Non-academic setting.....	3	2	1

On the basis of their answers to the above item the respondents were divided into four separate groups: (1) those who had neither experience anywhere (2) those who had had experience with multidisciplinary research (3) those who had experience with interdisciplinary research and (4) those who had had research experience in both situations. Analyses were then made of the opinion and attitude items to determine possible differences among the four experience groupings. A preliminary analysis revealed no differences in attitudes or opinions that were related to the academic rank of the respondents or to their tenure status.

RESULTS

Experience

The size of the four experience groups derived on the basis of the responses to the first item are shown in Table 1.

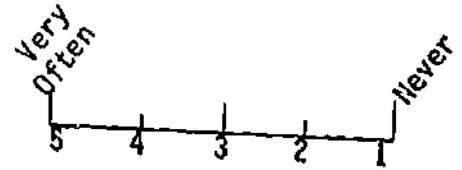
Table 1
Research Experience Groups
(N =289)

<u>Experience</u>	<u>n.</u>	<u>% of Respondents</u>
Neither	50	17%
Multidisciplinary	50	17%
Interdisciplinary	40	14%
Both	95	33%
No response	54	19%

The groupings based on experience are corroborated in the pattern of the responses to an item which asks the faculty to indicate, on a 5-point scale, the frequency with which they confer on research problems with other professionals of varying degrees of similarity of discipline. It is most common for the respondents to confer on research problems with other faculty in their departments and there is no significant difference between the experience groups in the frequency with which they do so. In all other situations there is a statistically significant difference in the reported frequencies in the direction of more frequent contacts for those with multidisciplinary and interdisciplinary research experience. The average frequency with which each group confers on research problems with other professionals is given in Table 2.

Table 2
Average Frequency of Research Conferences

How often do you confer on research problems with each of the units listed below?



	Experience Group				Total
	Neither	Multi	Inter	Both	
Faculty in your department	3.7	3.6	3.6	3.8	3.7
Personnel from other universities	2.7	3.3	3.0	3.4	3.2*
Faculty in your school	2.3	2.8	2.8	3.2	2.9*
Personnel in non-academic settings	2.3	2.2	2.0	2.9	2.5*
Other USC faculty	1.7	2.0	2.3	2.6	2.2*
USC research units	1.5	1.5	1.8	2.3	1.9*

*The differences between the average frequencies is statistically significant.

There is a difference among the faculties of the individual Schools in the proportion reporting multidisciplinary and interdisciplinary research experience. The extremes are Medicine, where all of the faculty who answered the item reported experience with one or both types, and the combined faculty of SAFA and Performing Arts, where 62% of those answering the item reported no experience with either type of research. The responses of the faculty of each school are tabulated in Table 3.

Table 3
Multidisciplinary and Interdisciplinary Research Experience
 Percent of Faculty Reporting each type
 of
 Research Experience

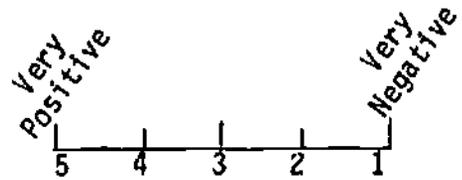
<u>School</u>	<u>Both</u>	<u>Multi</u>	<u>Inter</u>	<u>Neither</u>	<u>No Response</u>
Medicine	58%	21%	15%	0%	6%
Social Science	32%	24%	14%	14%	16%
Natural Science	21%	28%	21%	18%	11%
Others	40%	10%	22%	18%	10%
Engineering	44%	32%	4%	20%	0%
Business	33%	17%	17%	29%	4%
Law & Dentistry	29%	12%	12%	35%	12%
Humanities	20%	10%	20%	35%	15%
SAFA & Performing Arts	11%	11%	6%	44%	28%

Attitudes

Some interesting differences among the experience groups appeared in the reporting of attitudes toward multidisciplinary and interdisciplinary research. The format of the item and the average ratings are shown in Table 4. In every instance attitudes were perceived as somewhat positive. Those who had had no prior experience with either multidisciplinary or interdisciplinary research were less favorably inclined than the others and did not distinguish between the two modes of cooperative research. Those who had had experience with both indicated equally high ratings for the two types of research. The two groups who reported experience with only one type of research gave a high rating to the type with which they had had their experience and a lower rating to the other type of research.

Table 4
Average Attitude Ratings

What do you believe is the attitude of each unit listed below toward inter- and multi-disciplinary research?



	<u>Experience Groups</u>				<u>Total</u>
	<u>Neither</u>	<u>Multi</u>	<u>Inter</u>	<u>Both</u>	
Yourself					
Interdisciplinary	3.6	3.4	4.1	4.5	4.0*
Multidisciplinary	3.4	4.0	3.5	4.4	4.0
Your Department					
Interdisciplinary	3.2	3.4	3.6	3.7	3.5*
Multidisciplinary	3.3	3.6	3.4	3.9	3.6
Your School					
Interdisciplinary	3.8	3.7	3.6	3.8	3.7
Multidisciplinary	3.6	3.9	3.8	3.9	3.8
Your Professional Peers					
Interdisciplinary	3.2	2.9	3.3	3.5	3.3*
Multidisciplinary	3.2	3.4	3.2	3.6	3.4
USC Administration					
Interdisciplinary	3.7	3.9	3.7	3.4	3.6
Multidisciplinary	3.8	3.8	3.8	3.6	3.7

*The difference among average ratings is statistically significant.

There is general agreement that there will be more interdisciplinary and multidisciplinary research at universities in the next five years, but some division on whether or not there should be. The group with prior multidisciplinary research experience were neutral for both teaching and research while the others were in definite agreement that there should be more emphasis on cooperative research and teaching.

Table 5
Attitudes Toward Expansion of Activities
(Percent of Faculty Selecting each Response)

	<u>Responses</u>			
	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Agree</u>	<u>Strongly Agree</u>
There will be more of this type of research at universities in the next five years:				
Interdisciplinary	0%	15%	51%	33%
Multidisciplinary	3%	13%	58%	26%
There should be greater emphasis on this type of research at universities:				
Interdisciplinary	7%	9%	41%	43%
Multidisciplinary	5%	17%	47%	31%
There should be greater emphasis on this type of teaching at universities:				
Interdisciplinary	6%	13%	44%	36%
Multidisciplinary	8%	20%	45%	27%

About half of the faculty respondents agree that the USC organizational structure inhibits these two types of cooperative research and half disagree that this is true. This division is also revealed in responses to the statements concerning academic rewards and probability of achieving tenure. The faculty without tenure responded in the same manner as those with tenure. No differences were noted among the experienced groups.

Table 6
Results of Participation
in
Multidisciplinary or Interdisciplinary Research
(Percent of Faculty Selecting each Response)

	<u>Responses</u>			
	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Agree</u>	<u>Strongly Agree</u>
The current organization structure at USC inhibits this type of research:				
Interdisciplinary	7%	30%	36%	27%
Multidisciplinary	9%	40%	30%	21%
Academic rewards are equal to those for within-disciplinary work:				
Interdisciplinary	18%	30%	32%	20%
Multidisciplinary	11%	24%	45%	20%
Participation in this type of research would decrease the probability of receiving tenure:				
Interdisciplinary	10%	34%	41%	15%
Multidisciplinary	11%	44%	36%	9%

In response to the questions about desire to participate in teaching or research in cooperative programs, the overall response is quite favorable. The faculty with prior experience with interdisciplinary research or both are more favorable than those with only multidisciplinary experience or none.

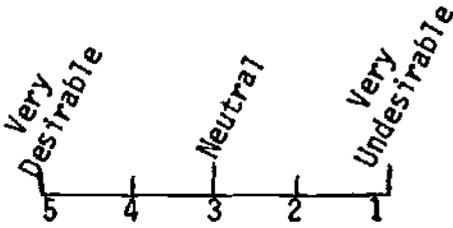
Table 7
Attitudes Toward Participation
in
Multidisciplinary or Interdisciplinary Activities
(Percent of Faculty Selecting each Response)

	<u>Responses</u>			
	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Agree</u>	<u>Strongly Agree</u>
I would like to participate in teaching this type of course:				
Interdisciplinary	11%	15%	40%	34%
Multidisciplinary	10%	18%	44%	28%
I would like to participate in a group doing this type of research:				
Interdisciplinary	8%	14%	37%	41%
Multidisciplinary	6%	16%	44%	35%

Institutional Situations

The faculty were asked to indicate the relative desirableness of six conditions that could exist in an interdisciplinary program at USC. There was agreement among the experience groups that an interdisciplinary program should include teaching as well as research and that the participation of faculty with appointments in their discipline should be considered part of their normal job or could be for additional compensation. It was agreed that the program should maintain an administrative and technical support staff, but that the role of the administrative staff in policy decisions and research design should be subordinate to that of the research staff. The average ratings for each situation are reported in Table 8.

Table 8
Average Ratings of Desirableness
of
Possible Conditions in an Interdisciplinary Program

If a new interdisciplinary program were developed at USC, how desirable would be the following situations?	
The program should include teaching as well as research.....	4.3
The participation of faculty with appointments in their discipline should be considered part of their normal job.....	3.7
The participation of faculty with appointments in their discipline should be for additional compensation.....	3.3
The program should maintain an administrative and technical support staff.....	4.0
Policy decisions regarding the program should be made primarily by the administrative staff.....	2.1
Research design should be determined primarily by the research staff.....	4.3

The items presented in Table 9 deal with the independence of an interdisciplinary program from the traditional schools and departments in regards to its teaching activities. Although the majority (72% - 88%) favor cooperative responsibility, there is a tendency to prefer that the schools or departments be dominant regarding faculty and that the interdisciplinary program be dominant in curriculum decisions. No differences were noted among the experience groups.

Table 9
Responsibility for Teaching Activities
in an
Interdisciplinary Program
(Percent of Faculty Selecting each Response)

If the interdisciplinary program were to include both teaching and research functions, where should the responsibility be for the following?

- 5 Entirely within the program
- 4 Largely within the program
- 3 Equally with the program and Schools or Departments
- 2 Largely within the Schools or Departments
- 1 Entirely within the Schools or Departments

	<u>Response</u>				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Course offering	7%	10%	38%	30%	15%
Degree programs	12%	16%	38%	27%	7%
Faculty appointments	12%	21%	38%	19%	9%
Faculty tenure decision	19%	20%	37%	15%	9%

CONCLUSIONS

On the basis of this brief study it would appear that USC faculty would be receptive to the institutionalization of both multidisciplinary and interdisciplinary research and/or teaching programs. There appears to be little

support for a policy defining administrative staff separate from the research staff. Neither is the program faculty viewed by most respondents as being a unit independent of the regular faculty.

Traditionally the goals of the University have been implemented through the Schools or departments. The introduction into the structure of a new unit that overlaps their areas of responsibility should be accompanied by well defined guidelines and modes of cooperation.