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AUTHOR Gottlieb, Esther E.; Yakir, Ruth
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ABSTRACT

This study used data from the 1991-93 Carnegie International Survey of the Academic Profession to examine the perceptions of college faculty in regard to the emphasis on research over teaching in advanced-industrialized higher education systems, the compatibility of research and teaching, and job satisfaction. It focused on data from 8 countries (West Germany, the United Kingdom, Sweden, the United States, Australia, Israel, Japan, and South Korea), which included 13,984 faculty questionnaire responses. The study found that faculty with a research orientation (RO) generally spent more time on research, and that faculty with a teaching orientation (TO) spent more time on teaching. There was no significant difference in the mean job satisfaction of the two orientation groups, although higher ranking academics were found to be more satisfied than academics at lower ranks. A total of 43 percent of the RO faculty thought that their research had a positive effect on their teaching, whereas only 30 percent of the TO faculty felt that their research had a positive effect on their teaching. Country and gender effects are also discussed. (Contains 26 references.) (MDM)

ESTHER E. GOTTLIEB
Seminar Hakibbutzim, and
West Virginia University,
Morgantown WV 26505-6122
e-mail: eeg@wvnvm.wvnet.edu
fax: (304) 293-6957

RUTH YAKIR
Seminar Hakibbutzim College
149 Namir Rd.
62507 Tel-Aviv, Israel
Fax: 972 (3) 699-0269

PERCEPTIONS OF THE RESEARCH-TEACHING NEXUS AND JOB SATISFACTION: AN ANALYSIS FROM THE CARNEGIE INTERNATIONAL SURVEY OF THE ACADEMIC PROFESSION.

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In trying to analyze the data from the Carnegie International Survey (1991-1993) two goals are intended. First, we mean to show the permanence of some patterns of the faculty's opinion on the teaching-research nexus and their perceptions of its as complimentary or competitive. Second, we intent to seek patterns by analyzing multiple indicators of faculty characteristics as related to research and teaching interests.

Analyses of faculty perceptions of academic work in general, and in particular of faculty characterizations of the teaching-research nexus as complimentary or competitive in nature, have organizational and policy implications for everyday academic life and higher education planning.

Before we present the study we would like to comment on the context of the academic professoriate in the late twentieth century.

COMMENTARY

The great successes of the graduate schools in the U.S. and the organization of the research university during and after the Second World War had effected disciplinary research and knowledge production of other countries similar to the great successes of the German university model in the second half of the nineteenth century. Whether the field was basic or applied, long established or still in its infancy, research became a professional service like law or medicine, and a Ph.D. in the humanistic or scientific disciplines came to have the same function as an M.D. in medicine. The institutionalization of the university departments and the learned societies resulted in disciplinary organized knowledge. "The result was vest increased production of knowledge, and knowledge that was more valuable for being "scientific"--which is to say, disciplined, or deriving its authority from a discipline" (Shumway, 1994:99).

The development of research for the educational purposes of the university allowed great latitude and increased the variety of fields. Thus expanding knowledge could only be handled by the ever increasing of specialization, graduate studies have become correspondingly more important than undergraduate studies, and research more important than teaching (see Metzger, 1987). Through the expansion of research and higher education after the first Soviet Sputnik, the leading universities in the US become consortiums of research institutions. The increasing integration of academic, industrial and governmental research in U.S. universities meant an ever growing need for academic teachers and high-level professional researchers. The nature of conceptualizing scientific growth in this period is captured by the discursive event of abandoning the term *pure research* for the term *basic* or *fundamental* research which imply a more applied character. Faculty have tended to identify themselves less often as teachers or educators, and more often as physicists, sociologists, linguists, etc. (Ben-David, 1972: 105-106).

In the 1960's while much of the budget, in the United State, was spent on the provision of education to increased numbers of students from a class of newcomers (female, ethic and racial deprived) to higher education, most intellectual

and organizational efforts were concentrated on the creation of facilities and arrangements to improve research and graduate training (the post-Sputnik reaction). This 'mirage,' as Ben-David ([1977] 1992) called it, of a vast university system educating half of the relevant age group and at the same time conducting research at a respectable level, was implanted into European systems, and emulated in the rapidly industrialized countries in Asia, among them Japan, and later in South Korea.[1]

In systems which were moving toward mass education separate measures were not taken to address the needs of 'general' students with vague plans for professional careers, and the failure to cater for this constituency manifested itself in university revolts. One of the results was that the preoccupation with research in the 1960s was replaced by a similarly exclusive concern with the educational functions of the university. This reversal has not led to a better balance between research teaching and training during the 1970s and 1980s; "because of the political aims of the reform... and serious financial pressure... both teaching and research suffered" (Ben-David, ([1977] 1992:123).[2]

The Research-Teaching Nexus

Investigation of academic work were undertaken by a variety of studies, notably those by Joseph Ben-David and Burton R. Clark. Both have warned of changes that threaten the teaching and research nexus in the academy. "The basis for the unity of teaching and research has been weakened by the rapid rise of university research that has little or no connection with teaching, and by the rapidly growing imbalance between the rewards for research and those for teaching" (Ben-David, 1972: 112). Clark's field study of U.S. academics, contends that a widening gulf has opened between two parts of the academic profession in the US: the more prestigious upper part, who have to prove they are producing knowledge, and who are more involved in peer judgment and more independent of clientele and market forces; and the less professionalize lower part of the faculty who are committed to teachable undergraduate materials and who depend on making enrollment and on student reactions (1987:264-265). Clark concludes that the organizational determination of the mix of the two primary tasks, research and teaching, is crucial in the shaping of the profession. "That mix comes close to determining everything else about academic life" (1987:263).

The recent (1991-1993) data collected by the Carnegie international survey of the academic profession enables us for the first time to examine what such "a mix" between teaching and research looks like across national systems. The present study aims to identifying and test associations between teaching and research and a variety of variables in particular job satisfaction, in order to render visible faculty perceptions of the research-teaching nexus.

Historical and sociological aspects of the production and transfer of scientific knowledge have increasingly come to be recognized and described (e.g., Kuhn, 1977). Previous studies dealt with various aspects of the relationship between research and teaching (see Federman, 1987 for a review) samples were confined, in most cases to single institutions or

single countries, like in the case of the Carnegie US surveys (e.g. Carnegie, 1989) and Chen's (1993) study of the Israeli faculty survey. The salient supposition that research and teaching are joint activities is firmly rooted in academic culture and well institutionalized in academic practices has been challenged again and again. Fox (1992) pointed to a strain between research and teaching, her analyses of a US survey of a random sample of social science faculty, stratified by gender, departments and degrees granted (3,968 respondents) suggests that research and teaching do not represent aspects of a single dimension but are conflicting roles. Neumann (1992) who has undertaken a qualitative study and shows how the teaching-research nexus operates on the tangible, intangible and global levels, has chosen to pool senior academic administrators in Australian higher education, 'intellectual authority,' rather the researcher/teachers themselves. Descriptions of teachers'/research producers' own perspectives are hard to obtain, and it is rare to find such descriptions in a cross-disciplinary, cross-national context. As Michel Foucault ([1963] 1972: 215-237) has urged attention to discipline (in its double meaning, being used to refer both to a field of knowledge production and to the practice of power), is not merely a concern about institutions and professionalization; it is above all a concern about subjects-human beings.

Perceptions of the actual working life of professors across disciplines and institutions, and across nations, is the kind of data that the Carnegie International Survey of the Academic Profession makes available for the first time. The Survey, which aimed at collecting data on the state of the academic profession in each country, includes a first-ever systematic analysis of how faculty are faring, in several regions of the world, includes data from 14 countries: Australia, Brazil, Chile, West Germany, South Korea, Hong Kong, Israel, Japan, Mexico, the Netherlands, Russia, Sweden, the U.K. and the U.S.

In addition to demographic data such as gender, age, degrees, specialization and academic preparation the Carnegie International questionnaire focused on: academic career patterns; work loads and allocation of time; job satisfaction, attitudes toward teaching, research, administration, and a rang of social and educational issues. The survey data was gathered during 1991-1993, a total of approximately 20,000 respondents participated.

THE STUDY

The two theoretical perspectives that teaching and research are complimentary or competitive academic activities are by no means apparent, or resolved by past studies.

Is teaching emphasized much less than research in advanced-industrialized higher education systems? If so, by whom, at what levels, and in what size institutions? Are research oriented faculty more satisfied with their work than teaching oriented faculty, or vice versa? How do faculty perceive their teaching and research obligations, as complimenting or competing with each other? The observation that to entire academia a Ph.D.(or its equivalent) has become the minimal requirement, is true for the International Survey, over 95% of the fourteen-nations sample (n=19,290) are holders of the Ph.D. Although the Ph.D. remains mainly directed toward research and the advancement of knowledge in most disciplines,

90% of the new doctors of philosophy enter the teaching profession, causing the familiar complains about the discrepancy between a training in research and a career in teaching. Yet recent data, across-disciplines, on whether most of them undertake further research is simple unavailable (Pellikan, 1993).

Post-industrialized Countries

We opted to study similar rather than different systems, all advanced-industrialized. This decision evolved on the basis of the decision to study countries in which the university systems have expanded both in enrollment and in scientific capabilities as part of the assumption of economic importance of research (see Gottlieb 1994). The ten countries with over 50% of the sample declaring an interest in research or leaning toward research (see Figure 1), have all, but one, enrolment ratios higher than 30 in tertiary education. The United State leads with over 50% of the relevant cohort participating in post-secondary education, while South Korea had 39% in 1990 and West Germany had 34% in 1989. The UK being the exception, with the lowest ratio in this group of countries (23.5%)-- not surprisingly, since it is well known for guarding access to university education and maintaining low ratios of enrollment during the 1960s when all other systems expanded (a situation rapidly changing in resent years.)[3]

Farther we felt justified in dropping Hong Kong, the 'city' country, from the main analysis, were as the Netherlands was included initially but reluctantly dropped later; some of the essential variables having been found to be missing from the data set due to the omission from the Netherlands questionnaire of certain questions crucial to the analysis.[4] The main analysis focused on **eight countries**: Germany[5], UK, Sweden, USA, Australia, Israel, Japan, and South Korea, a total of 13,984 questionnaires.

Data

The data from the first Carnegie International Survey was collected in each of the countries by a local team, the writers of this paper were principal investigators of the Israeli case study along with M. Chen. A common method was used to select institutions and faculty respondents to ensure a reliable random sample[6]. The International version of the questionnaire was developed by the research teams from the existing Carnegie US survey, included over two hundred and fifty items and covered a wide variety of topics which are summarized in Boyer, Altbach and Whitelaw (1994). Some of the countries have further changed the International version by omitting some of the questions and adding context specific ones (about 53% of the International version was used across the fourteen nations). The case studies from the 14 countries provides an overview of the findings from each country, including some insights into the questions this study has proposed (Altbach, 1995-Forthcoming).

For example the statistical analyses of the Israeli data has indicated several variables which seem to have relatively great explanatory power (see Chen, Gottlieb and Yakir 1994). Two such variable were the faculty self-concept of orientation toward teaching and research, and job satisfaction which we are going to review in all the countries in the

survey for which data is available.

FINDINGS

Interest in Teaching/Research

Figure 1 presents the faculty orientation toward research in the fourteen countries. Combining the two categories "interested primarily in research" and "leaning toward research" we can see in Figure 1 percentages ranging from as high as 75.2% for the Netherlands sample to 61.6% for Japan and 55.7% for South Korea and the UK, 50.8% for the US sample to as low as 33.3% for Chile, and 32.1% for Russia.

[Figure 1 about here]

As can be seen in Figure 1, we have a group of four countries in which 60% of the sample indicated teaching interests, and ten countries in which over 50% of the sample indicated research interests. Although teaching is the essence of academics' work, since it is the nearest thing to a common activity that nearly all professors in higher education do, research is what distinguishes professors within their own disciplines and plays a substantial role in forming hierarchies within institutions (see Bourdieu, [1984] 1988: 104-105). Internationally, it is scientific and technological research capabilities that indicate a country's status in the international network of knowledge circulation, whether as a member of a class of advanced industrial nations involved in the production and export of knowledge, or "the vest hinterland" of nations that mainly involved in the consumption of that knowledge and its educational transmission (see Altbach, 1987:xii).

Working Conditions: Job Satisfaction

Since job satisfaction has been shown to influence both productivity and morale, it would seem worthwhile to explore the questions: Are research oriented faculty more satisfied than teaching oriented faculty? Are the sources of satisfaction and frustrations similar or different?

The professoriate is in many respec : a privileged career group in many cultures. Yet the Survey shows that some of the faculty feel pressured. In nearly half the responding countries, 40% or more say their job is a source of considerable personal strain. Japanese, Russian, and Korean faculty report the most pressure. In the US one-third feel considerable pressure from their work. In Israel less than 20% say their job is a source of strain; this relatively low figure might be due to the fact that the political situation creates stress in daily life which far outweighs job stress in academy.

Responses to the six items designed to measure job satisfaction indicate great variability among the countries by item. As can be learned from the charts in Figure 2, the respondents reported most frequently that they are satisfied with

their relationships with colleagues and the courses they teach.

[Figure 2 about here]

Over 50 percent of the faculty in the 13 countries (for which data was available on this question) are satisfied with these two aspects. The lowest satisfaction in this list of items was with "the way this institution is managed," from as low as 8.2% of the Russian faculty and 10.2% of the West German faculty, to approximately 20% for Brazil, Chile, Japan, UK, and the US, and as high as 35.3% for the Israeli faculty and 36.7% for the Sweden faculty. Another source of low satisfaction is "prospects for promotion" as can be seen in Figure 2D. On this item, Korea is outstandingly high, but in all other countries less than 35% of the respondents are satisfied with their prospects for promotion. However, a large proportion of the surveyed faculty answered affirmatively to the question: "If you had to do it over again would you become an academic?" Over 60% of the faculty sampled in Australia, Chile, W. Germany, Hong Kong, Netherlands, and the UK, and an even higher proportion (over 75%) of the faculty sampled in Brazil, Israel, S. Korea, Mexico, Sweden and the US claim they would choose to be academics if they had to do it over.

This is a strong show of identification with the profession yet job satisfaction is not high on several of the faculty work/life measures that were examined. As can be seen from Figure 2G, when asked about job satisfaction "as a whole", only in the US, Sweden, S. Korea and Japan did approximately 50% of the faculty state that they were satisfied, whereas in the other countries less than 50% were satisfied, with Chile, Brazil and Russia expressing least satisfaction. This finding suggests that when asked about their job as a whole, the academic profession relates to negative aspects such as promotion, institutional management, and salary scales. rather than to positive aspects such as academic freedom, job security and collegiality.

In order to learn more about job satisfaction as a comprehensive concept, in relation to the **teaching/research** nexus, a scale was constructed using the six items of this question. Scores were assigned to all the respondents and statistically analyzed. Before reporting the results of that analysis we turn to the question of faculty's teaching/research orientation in comparative prospective in the eight advanced-industrialized countries.

Teaching/Research Orientation

Do the distinctions between faculty entrusted with transmission and delivery of knowledge and those who are oriented more toward scientific research and the creation of new knowledge, surface in faculty's perceptions today, trans-nationally? If so, who is more interested and engaged in research and who prefers teaching? More specifically in terms of the objectives of this study, what variables in the life/work of the academic profession account for the distance between faculty with *teaching orientation* and faculty with *research orientation*, and which group is more *satisfied* with their job?

Overwhelmingly, in all the countries in the survey, male faculty more often declare a research orientation than

female faculty. For example, 55.6% of the West German sample declared research orientation, 95% of whom are male, 72.4% of the Japanese sample declared a research orientation, 94% of them male. The Australian sample shows a more balanced picture on the orientation variable, with about 50% of the sample leaning toward teaching and 50% toward research, of which 71% are male faculty. Males oriented to research show better mean scores on the job satisfaction scale than other groups in all countries surveyed.

Research Orientation Table 1 presents selected characteristics of the professoriate in each country who declared a research orientation. When asked regarding their own preference (question no. 40) they indicated "primarily in research" and "interest in both teaching and research, but leaning toward research." We have called this cadre *research oriented* (RO). As can be seen in Table 1 in the aggregate model of the eight countries 84% of research oriented faculty are male and only 16% female. RO faculty tend to be full professors and work in large institutions (W. Germany is the exception) of more than 10,000 students. 95% of them declared that they are required to do research, and 88% are currently engaged in a research project. Of the eight countries, Australia has the highest proportion of female faculty in the RO group. Rank among this group shows variation across countries. In West Germany, the US, and Japan, full professors are the largest group by rank of the RO faculty. In Australia, Israel and South Korea a higher proportion of associate professors declared themselves to be research oriented. In the UK, instructors were more numerous than other ranks among RO faculty. Almost all RO respondents in the UK, Sweden, Australia, and Israel declared that they are required to do research and that they are currently active. The proportions were lower for West Germany (87%), South Korea (73%), and Japan (64%).

Teaching Orientation Table 2 presents selected characteristics of the professoriate in each country who declared orientation toward teaching. When asked about their preference for teaching as opposed to research (question no. 40) they indicated interest "primarily in teaching" of "in both teaching and research, but leaning toward teaching." We have called this cadre *teaching oriented* (TO). In the aggregate model more male faculty than female faculty show a *teaching orientation* (73% and 27% respectively), The data of the individual countries (see Table 2) shows a much larger proportion of male faculty than female are TO in West Germany (89%) and in Japan and South Korea (86%). Only in Australia (60% male 40% female) and Israel (56% and 43%) are the proportions of male faculty and female faculty with TO more nearly equal. Whereas research orientation was more often associated with larger institutions, teaching is more often associated with smaller ones (<2,500 students). However this is not the case in West Germany (where 68% of the TO faculty teach in institutions with over 10,000 students) or in the US, Australia or South Korea. The differences between research oriented and teaching oriented faculty regarding the requirement that they do research and being actively involved in research, are highly significant ($p<.001$). Examining country samples shows that large proportions of faculty with mainly teaching interests do research: in Israel 90%; in the US 85%; in Australia 83%; and 76% both in the UK and Sweden. Regardless of orientation, in all eight countries over 70% of the samples claimed to be required to do research

and to be currently engaged in research activity, with Israel leading (96.6%) and the US, Australia and Sweden over 90%; South Korea and Japan with the lowest proportions (68.6% and 60.8%). If such high proportions of the faculty are actively engaged in research, who is teaching?

Job Satisfaction

Tables 3 and 4 regress a scale of job satisfaction on a set of selected characteristics of the professoriate in eight countries. The scale which serves as the dependant variable in the regression analysis was constructed as the mean of the items dealing with aspects of job satisfaction as they are formulated in question #27 in the International version of the Carnegie questionnaire: "To what extent are you satisfied with the following aspects of your job?" (27a) through (27g) are the items shown in Figure 2. The lower the score on the 1 to 5 scale, the higher the indication of job satisfaction. The mean score for all the respondents in the eight country sample was 2.54 with a standard deviation of 0.63.

Model I in Table 5 aims at determining the proportion of the variance to be attributed to the country. The first model regresses the average job satisfaction scores on selected faculty characteristics. Seven variables are included in the first model, each being a dummy variable that represents a particular country. If the respondent resides in the country, the variable is given a value of one; otherwise the value remains zero. Hence, dummy variables are independent variables that represent discrete measures limited to two distinct values.

In regressing the dependent variable on a set of dummy variables, one of the dummy categories must be excluded from the analysis because in knowing the cases associated with countries in all but one of the categories, we, by default, know the cases associated with the final category. The variable for Korea was omitted from the analysis because its mean for job satisfaction most closely coincided with the overall mean of all eight countries combined. The value represented by the constant is equal to the mean of the omitted category. The coefficients associated with each of the other countries is its difference from the omitted category, in this case Korea. The values in parentheses under to regression coefficients are standard errors. Although, beyond the scope of this paper, comparisons can be made between countries other than the omitted category but involve knowledge of the variances and covariances of the dummy variables (see Hardy, 1993).

The variable 'country' accounted for approximately 7% of the total variance in the job satisfaction scale. Japanese academics appear to be the most satisfied with their work (mean=2.23) and German academics the least satisfied (2.80). The order for the countries from most satisfied to least satisfied was: Japan, USA, Israel, Sweden, Korea, UK, Australia, and Germany.

Selected characteristics of the professoriate which entered Model II were: Total number of courses taught, academic rank, field (academic department), gender, occupational status, stating that his/her discipline is very important, stating that the department is very important, doing research, research productivity as measured by the number of articles

published in professional journals and the total number of books, articles, etc. (question 41a-j), and academic orientation (research/teaching preference). Non-significant regression coefficients were not recorded. Asterisks along side the significant coefficients indicate the level of significance ($p<.01$*; $p<.001$**; $p<.0001$***).

The enlarged model (II) explained 17.7% of the total variance in the dependent variable. Of the variables entering into the model with the expectation that they would explain variance in job satisfaction, several gave insignificant results. These included, surprisingly, both indicators of research productivity, hours spent on teaching, and the idea that the discipline is very important to the respondent.

Higher ranking academics were generally more satisfied than lower ranks. Teaching a larger number of courses led to less job satisfaction. Better scores on the job satisfaction scale were also associated with more hours spent of research, 'soft' sciences (arts, humanities and social sciences), male gender, and doing research. Feeling that the institution and/or the department are very important is associated with increased job satisfaction. Also, full-time, tenured professors are more satisfied with their jobs than those whose occupational status is not full-time and tenured.

In order to better understand the sources of job satisfaction, we constructed two more regression models which regressed the job satisfaction scale on the same set of independent variables. The two additional models were constructed by separating the aggregate model by academic orientation (see Table 4). The first of the two models was labelled Teaching Orientation and the second Research Orientation. The results of this analysis are summarized in Table 4.

The model labelled Teaching Orientation explains slightly over 20% of the total variance. The model labelled Research Orientation is about equal in explanatory power to the aggregate model (Table 3). However, it is interesting to note some differences in the models. Though there is no significant difference in the scale mean in the two models there are differences in the sources of variance. Hours spent on research and the idea that the discipline is important are both significant sources of variance in the Research Orientation model but not in the Teaching Orientation model. The separated models also shed light on the 'country effect' and focus of differential evaluation of the two population groups in various countries. For example U.S. professors with a teaching orientation are more satisfied with their work than those with a research orientation.

In general we may conclude that the findings of this examination of differential effects on job satisfaction support the argument that the co-existence of teaching and research as partners in the academic enterprise is a complex issue. Examining 'details' lead to the belief that academic profiles are not dichotomous and their description is no simple matter. Since the questionnaire posed direct questions on how teaching is influenced by research and vice versa, how research is influenced by teaching obligations, we turn to the analysis of faculty perceptions on this issue.

Research vs. Teaching--Complementary or Competitive?

How do the respondents perceive the relationship between research and teaching obligations? The responses to three questions were examined. "Strong positive influence" constructed the complementary scale, "strong negative influence" constructed the competitive scale, and "neutral/no influence" the no influence scale. The three questions were (1) perceptions of the effect of research obligations on teaching: "teaching is influenced by my research commitments (Q37f); (2) academic research is influenced by 'the number of courses I am assigned to teach"--course load (Q49c); and (3) by "the number of students in my courses"-- student load (Q49e).

The regression analyses of faculty orientation (see Table 4) described above suggested explanations for faculty perceptions differential by academic orientation. Therefore separating the faculty by academic orientation may serve to describe the competing and complementary aspects of teaching and research. Table 5 presents the results of this analysis using the **aggregate model for all eight countries**.

[Table 5 about here]

(1) 43% of RO faculty think their research obligations have (positive) complementary influence on teaching, compared to only 30% of TO faculty. 48% of TO think research has no influence on their teaching, compared to 31% RO.

(2) Almost 50% of both orientations conceive of 'course load' as having negative influence on research.

(3) However with regard to 'student load,' the highest proportions of both groups (48% TO and 57% RO) see no influence on research. (See Table 5).

So far we have seen that fewer TO faculty than RO faculty see their research commitments as competitive with their teaching. Do all **teaching oriented** faculty share the competitive model of research and teaching? More female faculty (57%) than male faculty (47%) think their course load has a negative affect on research; more female faculty (43% compared to 34% male, $p<.001$) think the level of courses they teach has a negative affect on research. More **research oriented** faculty, both female and male ($X^2=47.41$ $p<.001$), of all ranks ($X^2=80.68$ $p<.001$) and in all sizes of institution ($X^2= 13.47$ $p<.001$) declare that course loads compete with their research obligations. Student loads show exactly the same pattern. Among research oriented faculty higher proportions (43%) of both female and male see a positive influence of their research obligations on teaching; more full professors (46%) than the other ranks think so, and more faculty (50%) in smaller institutions than in institutions of other sizes.

Our analysis of the cross national data corroborates Chen's (1993) finding in his study of the Israeli sample. He concludes that the Israeli faculty is inconsistent regarding the complimentary/ competitive issue. "On one hand, the

majority of the respondents reject the statement that research commitments reduce the quality of teaching. On the other hand, in evaluating the influence of specific conditions of teaching (i.e., the number of courses, number of students, etc.) on research activity, the respondents lean toward the competitive point of view" (Chen, 1993:12).

Several items in the questionnaire are related to the **Complementary/Competitive** controversy. They serve to uncover attitudes and opinions of various segments of the faculty relevant to the question of conflict between the tra litional commitment of higher education to scientific research and scholarship and growing demands for excellence in knowledge transmission and delivery. This demand is especially relevant to countries that have moved in the direction of mass higher education systems (Boyer, 1990, p. 13).

The general pattern which emerges from this analysis shows a significant difference between faculty with different teaching/ research orientations. Perhaps research has positive affects on teaching when looking at academic work in global terms; yet considering specific conditions conducive to research, negative effects surface.

DISCUSSION AND CONCLUDING REMARKS

The patterns reported here hold only for the eight advanced- industrialized countries, and comparable analyses are needed for the more teaching-oriented systems. The variables represent profiles of professional orientation, job satisfaction, and perception of the positive and negative influence of teaching on research and research on teaching. The measures do not capture all aspects of teaching or research performance, nor do not they report on quality of teaching, research or publications. In addition, when we report findings from the aggregate model we have to remember that there is likely to be much greater variation within countries than is found to exist between them, because we have chosen to analyze systems that are more similar than different. With these reservations, however, the findings shed a new light on the relationships among teaching, research and a host of personal and institutional factors.

The crisis in higher education, followed by successive waves of reform during the 1980s, resulted in calls for rethinking the definitions of academic life. "The common terms 'research', 'teaching', 'laboratory direction', etc., designate very different realities, and are no doubt all the more deceptive today since the generalization of a scientific model, under the combined effects of fashion and the homogenizing constraints of research administration, has led the whole body of teachers in higher education to pay homage to science" (Bourdieu, [1984] 1988: 54).

The findings of this study definitely move us "beyond the tired old 'teaching versus research' debate" (Boyer, 1990:16) by showing the possibility of re-elaborating issues of teaching and research into a somewhat different problematic, one which centers on the faculty's preferences for teaching or research and the satisfaction they derive from the various aspects of their work. The present analysis seems to demonstrate that the faculty recognizes the necessity for both teaching and research, if higher education is to fulfill its social mission. In countries where access to higher education

is limited to a relatively small percentage of the population, the emphasis on research as opposed to teaching is more evident in faculty perceptions. In countries where higher education has moved from an elite toward a mass system, more open and inclusive, as in the U.S., we can also detect a near balance between the number of faculty interested in teaching and the number interested in research. U.S. faculty with teaching orientation are slightly more satisfied with their work than those with a research orientation.

Job satisfaction from teaching and from research seems to be related to individual preferences and orientations of the faculty. Though there is no significant difference in the mean job satisfaction of the two orientation groups (2.57 for TO and 2.53 for RO), the way different groups of faculty perceive of the various aspects of their professional activity as sources of job satisfaction seems to be a function of the nature of the national system.

Across the eight countries we found that those interested in teaching spend more time on teaching activities than faculty interested in research (5 hours more in USA, Israel, Japan, West Germany, and the UK; 7 hours more in Sweden and 3 more in Australia), while research oriented faculty more time on research. Evidently each system has a **research cadre** which does more research, but also teaches, and a **teaching cadre** that teaches more hours, but is also engaged in research on the average of 9 hours per week. Having a research cadre and a teaching cadre within each system serves the traditional dual mission of higher education. We may conclude that these activities are not mutually exclusive even though a statistically significant difference between the two groups exists with respect to working hours, level of courses, student requirements, and number of publications.

Two theoretical perspectives to the teaching/research nexus have been postulated. One approach assumes that the two activities complement each other and especially that research enhances teaching. The other assumes that teaching and research are competitive and one activity interferes with the other, especially that teaching detracts from research. Some support for the competitive approach may be derived from the finding that both research oriented and teaching oriented faculty in the eight countries stated that heavy course loads had a negative effect on their research (see Table 5). Additionally, both groups perceive their student load as negatively affecting research. Support for the complementary approach is evident in the perception of the research oriented faculty that research has a positive effect on teaching.

We may conclude that the separation of the faculty by academic orientation has enabled us to illuminate the conflictual as well as the mutually supporting dimensions of the academic role. A research orientation tends to elicit the mutually supporting, complementary aspects of the academic role, while teaching tends to elicit conflictual, competitive interpretations of the academic role.

NOTES

1. By 1987 South Korea achieved 33.9% enrollment in post-secondary education, see Adams & Gottlieb 1993:160.

2. Altbach has noted that the universities of North America and Western Europe are now, for the most part, back in the hands of faculty elites, so some of Ben-David's occupation with politicalization of the campus is no longer relevant in the 1990s (Ben-David [1977] 1992:x).

3. Data from UNESCO (1991) Statistical Yearbook. Paris: UNESCO.

4. Questions such as institutional size and a different system of professional rank made inclusion problematic.

5. The sample was drown only the former West Germany, see Enders, Jurgen. "The Academic Profession in West-Germany" Altbach, 1995-forthcoming).

6. The responsibility for a reliable random sample was the task of each country team. The representation of the data set of each county is discussed in the case studies (see Altbach, 1995-Forthcoming).

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Figure 1

REGARDING YOUR OWN PREFERENCES, DO YOUR INTERESTS LIE PRIMARILY IN TEACHING OR IN RESEARCH?

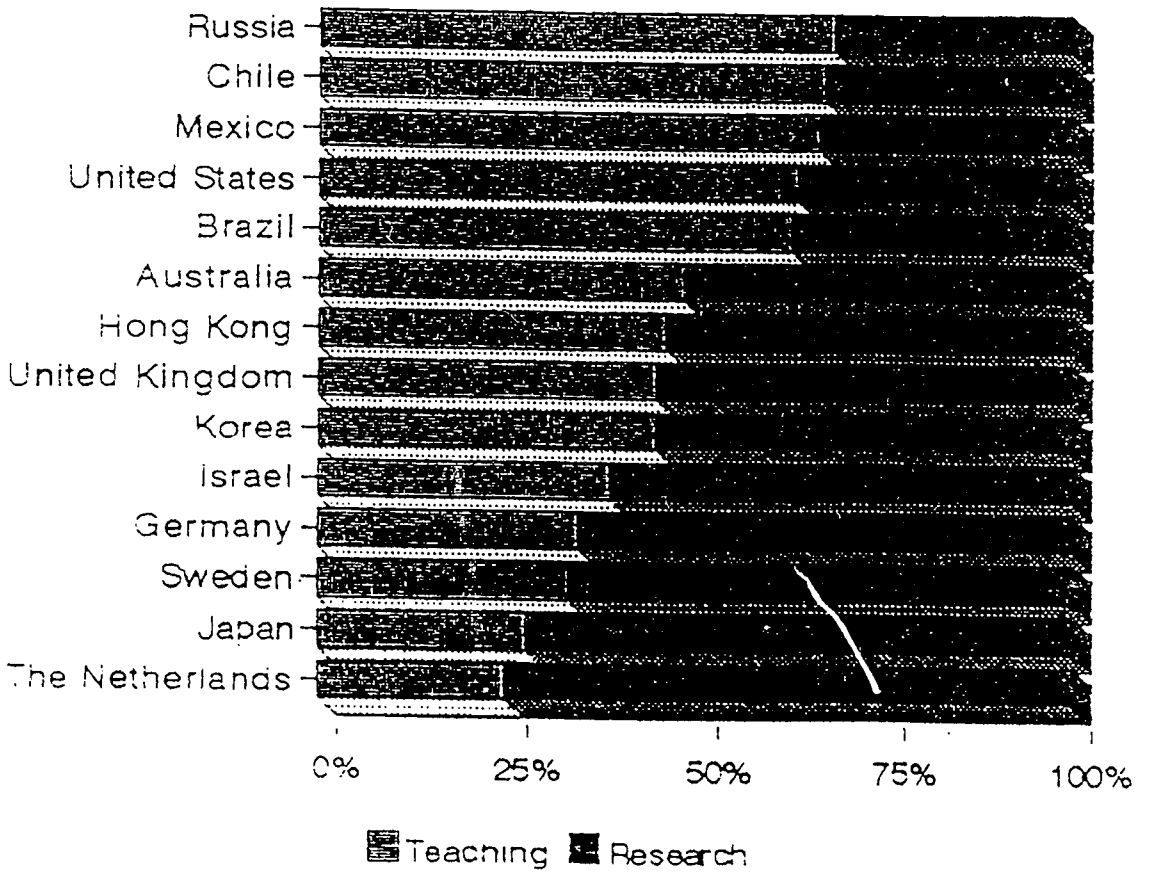
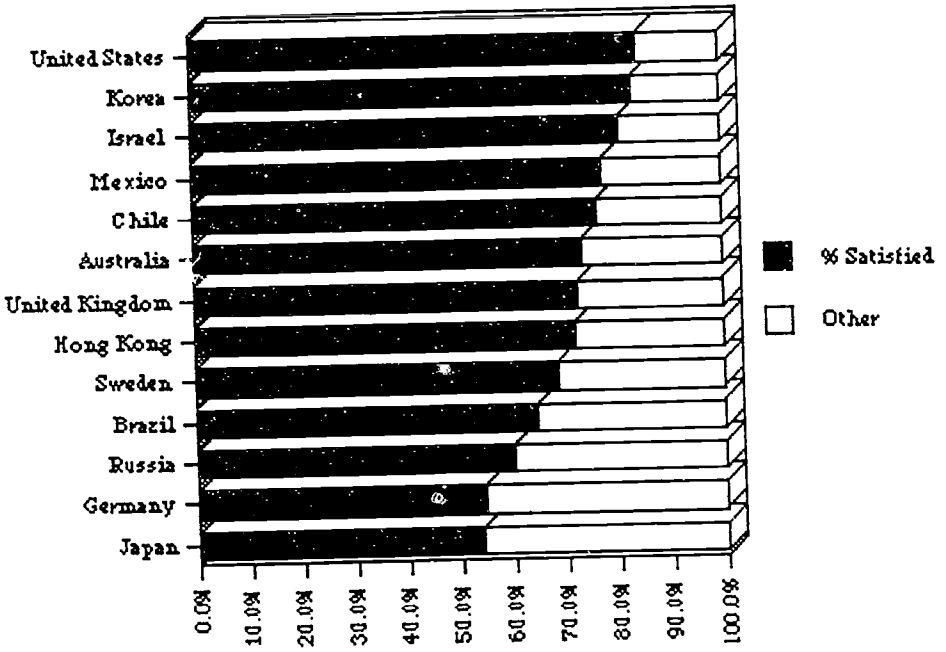


Figure 2

To what extent are you satisfied with the following aspects of your job?

A. Satisfaction with the courses you teach?



B. Satisfaction with relationships with colleagues?

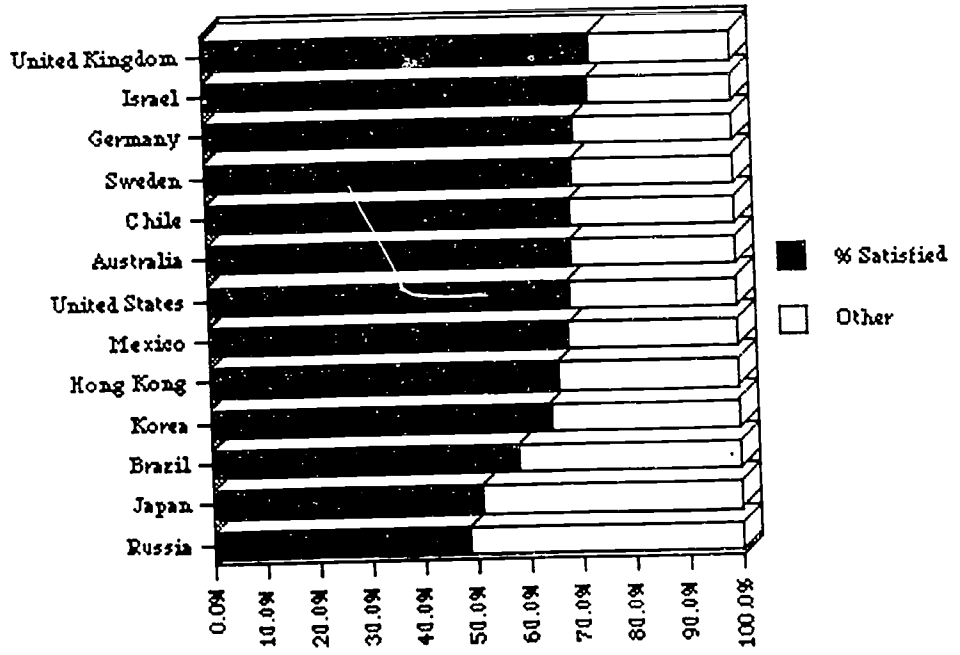
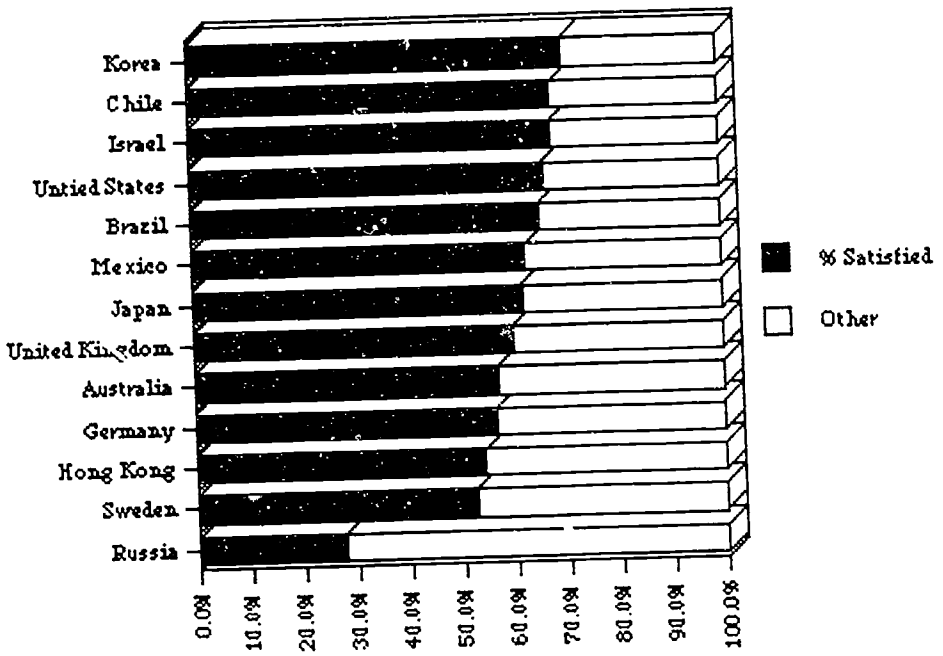


Figure 2

C. Satisfied with your job security?



D. Satisfied with your prospects for promotion?

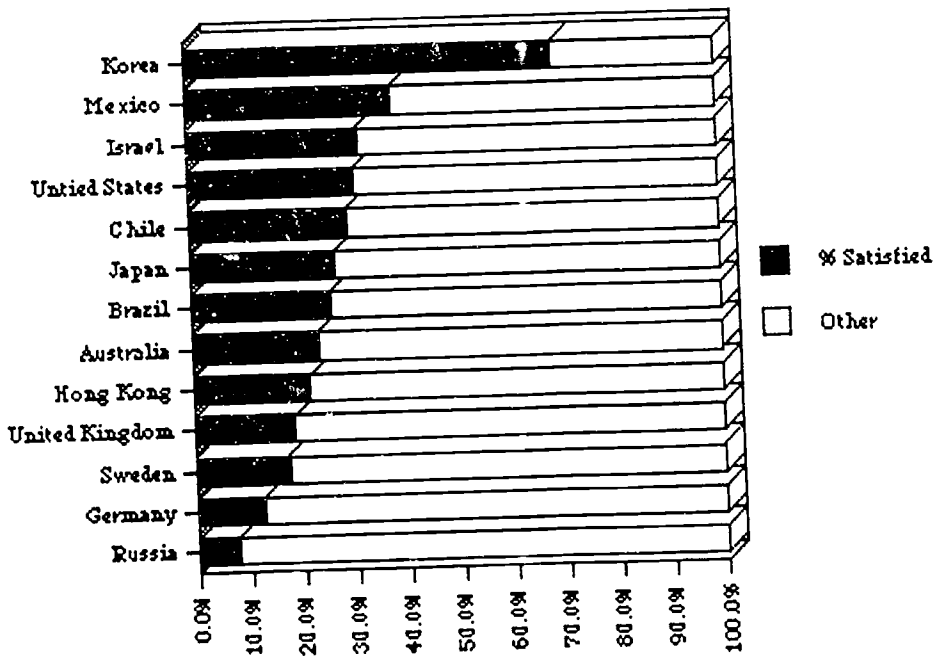
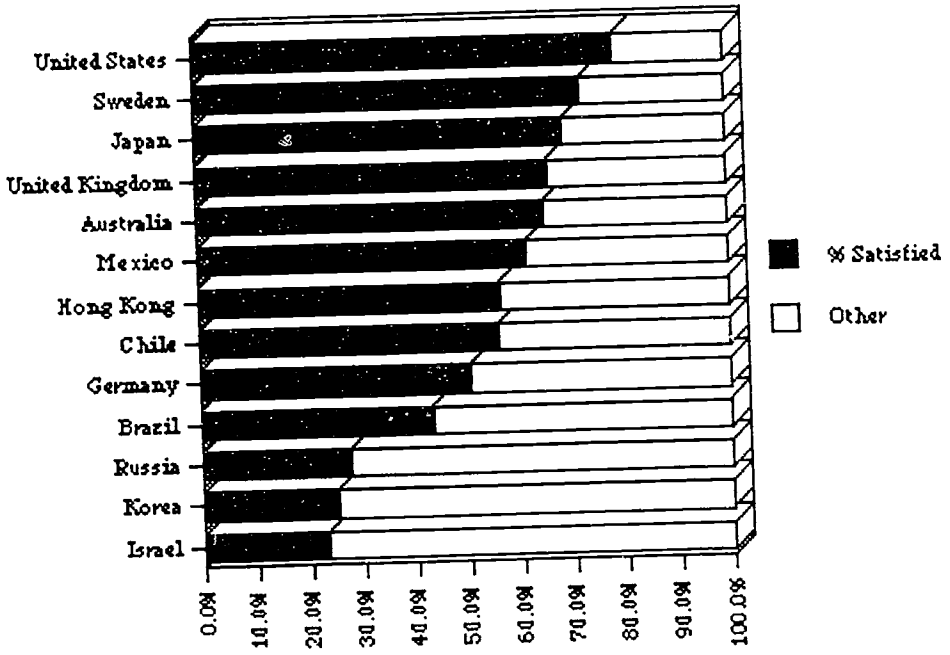


Figure 2

E. Satisfaction with the opportunity to pursue your own ideas?



F. Satisfaction with the way this institution is managed?

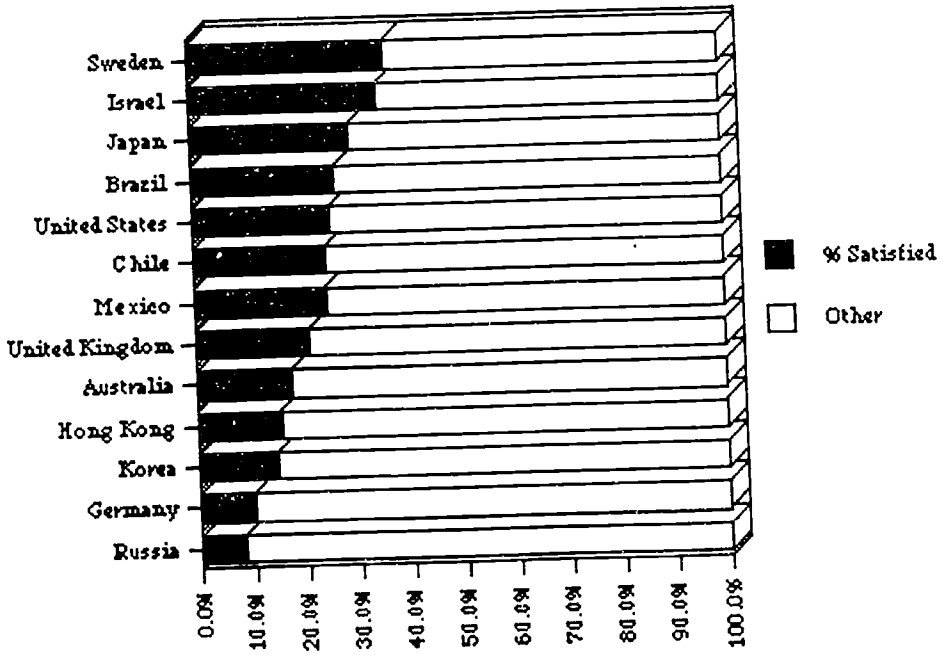


Figure 2

G. Satisfied with your job situation as a whole?

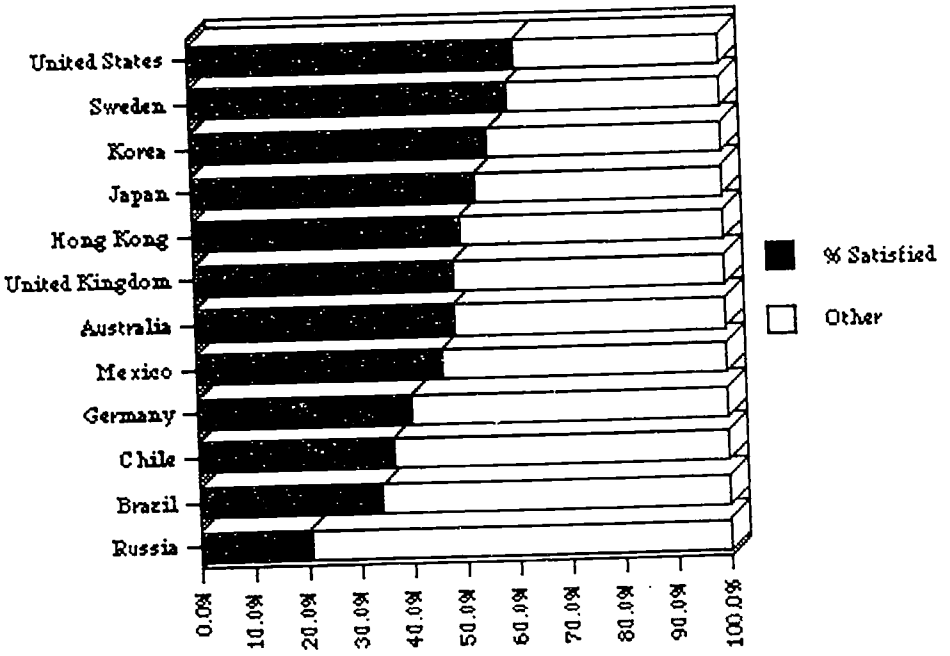


Table 1. **Proportion of Professoriate Oriented Toward RESEARCH by selected Characteristics**

	All Countries	W Germany	UK	Sweden	US	Australia	Israel	Japan	S Korea
Sex									
Male	.837	.951	.826	.766	.779	.716	.835	.945	.878
Female	.163	.049	.174	.234	.221	.284	.165	.055	.122
Academic Rank:									
Prof.	.383	.727	.175	.223	.470	.098	.273	.522	.320
Assoc Prof	.255	.097	.027	.371	.249	.337	.312	.371	.352
Ass't Prof.	.197	.005	.279	.137	.251	.282	.287	.103	.295
Lecturer	.077	.073	.106	.269	.014	.169	.092	.002	.033
Instructor	.088	.148	.414	—	.016	.133	.035	.022	—
Inst'l Size									
<2500	.073	.037	—	.396	.008	.044(24)	.063	.079	.092
2500-10000	.225	.891	—	.209	.203	.221(122)	.388	.479	.348
>10000	.523	.891	—	.396	.789	.735(405)	.529	.443	.559
Required to Do research	.952	.985	.972	.909	.963	.978	.943	.929	.921
Currently Researching	..887	.871	.959	.959	.993	.982	.996	.647	.737
N of cases	6641	660	897	700	1643	.673	282	1295	991

Table 2. **Proportion of Professoriate Oriented Toward TEACHING by Selected Characteristics**

	All Countries	W Germany	UK	Sweden	US	Australia	Israel	Japan	S Korea
Sex									
Male	.735	.896	.706	.707	.701	.602	.566	.869	.860
Female	.265	.104	.294	.293	.299	.398	.434	.131	.140
Academic Rank:									
Prof.	.094	.775	.035	.023	.350	.134	.082	.622	.416
Assoc Prof.	.061	.032	.106	.451	.277	.459	.153	.291	.350
Ass't Prof.	.625	—	.528	.471	.219	.287	.503	.081	.188
Lecturer	.262	.036	.025	.055	.091	.079	.180	.002	.046
Instructor	.318	.156	.306	—	.064	.042	.082	.004	—
Inst'l Size									
<2500	.084	.088	—	.455	.023	.079	.388	.067	.102
2500-10000	.225	.229	—	.269	.230	.263	.271	.497	.329
>10000	.488	.684	—	.275	.747	.658	.341	.437	.569
Required to Do research	.786	.939	.780	.603	.725	.852	.661	.868	.841
Currently Researching	.730	.531	.754	.767	.851	.839	.901	.504	.612
No of Cases	4827	525	962	348	1507	621	183	492	389

Table 3. **Regressing Job Satisfaction Scores on Selected Characteristics**

Variable	Model I	Model II
CONSTANT	2.568***	2.242***
	(.023)	(.071)
Japan	-0.333	0.009
	(.029)	(.036)
Sweden	-0.071	-0.248***
	(.032)	(.039)
Germany	0.237	-0.031 -
	(.027)	(.031)
Israel	-0.074	-0.035
	(.039)	(.043)
UK	0.067	0.164***
	(.028)	(.034)
Australia	0.117	-0.054
	(.030)	(.035)
USA	-0.200	-0.185***
	(.026)	(.030)
Korea	0.000	0.000
Total Courses		0.014***
		(.003)
Academic Rank		0.233***
		(.019)
Academic Field		-0.052**
		(.015)
Hours Spent on Teaching		N.S.
Hours Spent on Research		-0.002**
		(0.062)
Gender		-0.045*
		(.018)
Occupational Status		0.166***
		(.017)
Discipline Important		N.S.
Institution Important		-0.210***
		(.019)
Department Important		-0.228***
		(.016)
Doing Research		0.088***
		(.021)
Research Productivity		
R^2	.069	.177
Change in R^2		.107
F Ratio	146.48	94.35

p<.01* p<.001** p<.0001***

Table 4. **Regressing Job Satisfaction Scores on Selected Characteristics by Academic Orientation**

Variable	Teaching Orientation	Research Orientation
CONSTANT	2.131***	2.297***
	(.110)	(.096)
Japan	-0.065	0.021
	(.006)	(.047)
Sweden	-0.343	-0.253***
	(.070)	(.049)
Germany	0.009	-0.063
	(.050)	(.041)
Israel	-0.038	-0.059
	(.070)	(.054)
UK	0.016	-0.263***
	(.054)	(.044)
Australia	0.031	-0.113
	(.056)	(.046)
USA	-0.254	-0.040***
	(.056)	(.030)
Korea	0.000	0.000
Total Courses	0.015***	0.014***
	(.004)	(.004)
Academic Rank	0.250***	0.227***
	(.031)	(.024)
Academic Field	-0.059*	N.S.
	(.023)	
Hours Spent on Teaching		N.S.
Hours Spent on Research	N.S.	-0.002**
		(0.062)
Occupational status	0.180***	0.155***
	(.027)	(.023)
Discipline important	---	-0.050*
		(.021)
Institution important	-0.196***	-0.218***
	(.029)	(.025)
Department important	-0.271***	-0.203***
	(.027)	(.021)
Doing Research	0.085**	0.085**
	(.028)	(.033)
R^2	.202	.173
F Ratio	40.08	94.35
N	3025	5141
Mean	2.57	2.53
Standard deviation	.61	.64

p<.01* p<.001** p<.0001***

Table 5. **Proportions of Professoriate Indicating Competing & Complementary Aspects of Research & Teaching**

	Research Orientation	Teaching Orientation	No. of Cases	P<
Research Obligations on Teaching				
Complementary	43.0(2552)	29.7(1108)	3660	001
No Influence	30.7(1824)	48.2(1798)	3662	.001
Competitive	26.3(1558)	22.1(825)	2383	.050
Course Load on Research				
Complementary	15.3(903)	20.9(755)	1658	.010
No Influence	36.4(2140)	29.9(1079)	3219	.001
Competitive	48.3(2841)	49.3(1980)	4621	N.S.
Student Load on Research				
Complementary	10.9(619)	15.3(534)	1153	.050
No Influence	56.8(3233)	48.1(1678)	4911	.001
Competitive	32.4(1844)	36.6(1279)	3123	.050