Merit Pay Plans in Higher Education Institutions: Characteristics and Effects

By David E. Terpstra, PhD, and Andre L. Honoree, PhD

The purpose of this study was to provide some empirical data on the characteristics and effects of merit pay plans in higher education institutions. The sample consisted of approximately 500 faculty members from four-year colleges and universities in the U.S. The results of the study suggested that merit pay plans, in general, had a somewhat positive effect on faculty performance levels in the areas of teaching, research, and service. The merit pay plans used by the institutions were also examined and described in terms of their design and implementation characteristics. Analyses suggested that four characteristics may be especially critical to the success of merit pay plans in higher education institutions.

Merit Pay Plans in Higher Education Institutions: Characteristics and Effects

Little empirical data exists regarding the effectiveness and the nature of merit pay plans in higher education institutions. It is not known if merit pay plans, in general, have a positive impact on levels of faculty motivation and performance. Additionally, little is known about the typical characteristics of merit plans in higher education institutions. Some types of merit plans may be more effective than others because of the way they are designed and implemented. The general purpose of the current study was to address these informational needs.

Literature Review

The Link Between Merit Pay and Performance

A good deal of research has investigated the effects of merit pay plans on employee performance in private sector organizations. The empirical evidence indicates that merit pay plans generally lead to higher levels of employee and organizational performance.[1] A relatively recent meta-analysis of the research literature also suggested that the impact of financial incentives may be greater on performance quantity than quality.[2]

No research, to date, has empirically investigated the impact of merit pay plans upon the performance levels of faculty in university settings. However, some studies have surveyed the extent of use of merit plans in Canadian and in U.S. universities.[3] Some research in university settings has also investigated faculty perceptions of problems with merit pay plans, and faculty levels of dissatisfaction with such plans.[4]

Specific Characteristics of Merit Pay Plans

Some of the literature on merit plans has also dealt with and discussed specific characteristics or features that may be critical to the success of such plans. Nine potentially important characteristics are: 1) the size of the merit pay increase amount, 2) the size of the merit pay distinctions between varying levels of rated performance, 3) the type of performance appraisal method or format that is used, 4) the source of the appraisal (superior or peers), 5) whether formal feedback is provided, 6) whether pay increases are made public, 7) whether adjustments are made for past appraisal periods, 8) the general salary level of the institution, and 9) the presence or absence of a union or collective bargaining agreement.

Most compensation scholars believe that the size of the merit pay increase is important, and that large percentage increases are needed to motivate employees to perform at a higher level.[5] The size of pay distinctions between varying levels of performance is also thought to be important. A merit pay plan that makes larger pay distinctions between its low, average, and high performers should lead to greater motivation and performance.[6]

Scholars also believe that the accuracy of the performance appraisal rating (which is the basis of the distribution of merit pay) is critical to the success of merit pay plans.[7] The accuracy of the appraisal rating depends, in part, on the performance appraisal method or format that is used. For example, some of the more behaviorally specific, concrete appraisal methods are thought to be better than some of the more subjective appraisal methods or formats.[8] The accuracy of the rating may also be related to the source of the appraisal. Some feel that the supervisor constitutes the best source of valid appraisal ratings, while others believe that peers or coworkers are able to provide more reliable and valid appraisal ratings.[9]

Scholars also believe that formal feedback of the performance appraisal results is important to the success of merit pay plans.[10] If accurate, objective, and concrete behavioral feedback is provided in the appraisal meetings, employees' understanding and acceptance of their ratings should be greater, and motivation should be higher. Another feature of merit plans that may influence their effectiveness involves the degree to which the actual merit pay increases are made public. For example, it has been suggested that pay secrecy may suppress the potential effectiveness of a merit plan. For a merit plan to truly motivate an organization's employees, those employees must be made fully aware of the differing merit pay increases received by the low, average, and high performers in their rating groups.[11]

Whether a merit system makes adjustments for past appraisal periods when little or no merit money was available for distribution may also be related to its effectiveness. While the literature does not specifically address the aforementioned issue, the first

author has worked under and experienced both merit plans that did, and those that did not, make adjustments for past appraisal periods. Making adjustments for past appraisal periods further complicates the administration of merit systems; however, such adjustments may minimize the problem of the "lottery effect" that can plague organizations that have widely fluctuating annual budgets. For example, an employee with an excellent performance rating in a lean budget year may, unfortunately, not receive any merit pay increase that year. The following year, the budget might be significantly healthier (thus allowing for sizable merit pay rewards), but that same unfortunate employee may have a "bad" year, and receive a poor performance rating. Such problems are relatively common in academia under systems where faculty are rewarded primarily on the basis of the number of publications or "hits" per year.

Another characteristic that may make a difference in the effectiveness of a merit pay plan is the general salary level of the organization. Researchers have found that support for merit pay systems is greater in organizations with higher levels of base pay.[12] If a merit plan is generally supported and accepted by employees, it may be more effective at motivating those employees to perform at higher levels. A final organizational characteristic that may be important to the success of a merit pay plan is the presence or absence of a union or collective bargaining agreement. Some unions have traditionally opposed pay systems that give management more discretion in distributing pay to their employees. Instead, such unions have favored systems that base pay on more objective and "bargainable" criteria.[13] It could be argued that merit pay plans might have a greater chance of being successful at motivating employees in non-unionized environments.

Some of the aforementioned nine characteristics may, indeed, be linked to the success of merit pay plans. At the present time, however, more empirical research is needed before definite conclusions can be reached regarding the criticality of specific merit plan characteristics.

Research Objectives

The general aim of this study was to provide some much-needed empirical data regarding the effectiveness and nature of merit pay plans in higher education. One objective of our study was to assess the general impact of merit pay upon levels of faculty motivation and performance in four-year colleges and universities in the United States. At the present time, there is no empirical data regarding the influence of merit pay upon university faculty members' motivation and performance in the areas of teaching, research, and service. Previous research in non-academic settings has generally found that merit pay plans have a positive effect on employee performance;[14] however, some studies in academic settings have found that faculty have negative perceptions of merit pay plans.[15] Thus, directional hypotheses regarding the effects of merit pay plans upon faculty motivation and performance are not specified in this study. The current study will simply attempt to provide some general empirical data on the effects of merit pay upon faculty motivation and performance in the areas of teaching, research, and service.

A second objective of this study was to identify and describe the characteristics of existing merit pay plans in higher education institutions. More specifically, the current study sought to describe and summarize the standing of merit plans in academia along the nine characteristics discussed in the foregoing literature review. Those nine potentially important characteristics were: 1) the size of the merit pay increase amount, 2) the size of the merit pay distinctions between varying levels of rated performance, 3) the type of performance appraisal method or format that is used, 4) the source of the appraisal (superior or peers), 5) whether formal feedback is provided, 6) whether pay increases are made public, 7) whether adjustments are made for past appraisal periods, 8) the general salary level of the institution, and 9) the presence or absence of a union or collective bargaining agreement.

A third objective of this study was to investigate the influence of the nine characteristics upon the motivation and performance levels of faculty in higher education institutions. There is a lack of consensus among compensation experts regarding the importance of the above characteristics to the success of merit plans. Furthermore, there is no empirical data on the critical properties of effective merit plans in academic settings. As such, directional hypotheses for the effects of the aforementioned nine features upon merit plan success, once again, are not specified. It is hoped that the current exploratory study will provide some preliminary empirical data that will eventually lead to the development and use of more effective merit pay plans in academia that are capable of stimulating higher levels of faculty teaching, research, and service.

Method

Sample and Data Collection

A list of 1400 colleges and universities in the U.S. was initially developed, and then a random sample of 600 institutions was selected from the original list. The administrators of these selected organizations were contacted and asked if they would be willing to participate in our study, and 219 of the 600 agreed to participate (for a response rate of 37 percent at this stage). Of the 219 institutions, 135 (62 percent) employed merit or pay-for-performance systems for their faculty. Only the 135 institutions that used merit plans provided data for this study. The e-mail addresses of 20 faculty members were randomly selected from each of the 135 institutions, and e-mails (which included a web-link to our on-line survey) were then sent to these 2700 individuals. Two weeks after the initial contact, a follow-up e-mail was sent to encourage their participation and completion of the survey. The faculty were assured of the anonymity of their responses. Of the faculty contacted, 490 individuals eventually completed and returned our survey. While a web-based survey may lead to possible sampling bias in some situations, this is not a concern in this particular study because all academic faculty have access to personal computers with e-mail capabilities. Prior to administering the survey, the actual questionnaire was pilot-tested by sending it to 20

faculty members. Minor changes were made to the survey instrument, based upon comments from those participating in the pilot-test.

Measures

Faculty motivation and performance. Teaching motivation was measured by asking the respondents: "Does your current merit pay plan motivate you to be a better teacher?" Research motivation was measured by asking the respondents: "Does your current merit pay plan motivate you to engage in more/better research?" Service motivation was measured by asking the respondents: "Does your current merit pay plan motivate you to engage in more/better service?" For each of the three above-mentioned questions, a five-point Likert scale was employed where 1 = "strongly agree," 2 = "agree," 3 = "neutral," 4 = "disagree," and 5 = "strongly disagree."

In addition to rating their own individual levels of motivation, the respondents were also asked to rate the effects of their merit plans on the performance levels of the faculty, in general. These measures were more indirect and "other-oriented," and may be less prone to social desirability bias.[16] More specifically, the respondents were asked the following question: "Rate your merit pay plan as to the influence that it has on the following outcomes." The four performance outcomes were: 1) "the teaching effectiveness of our faculty," 2) "the quantity of research of our faculty," 3) "the quality of research of our faculty," and 4) "the level of service of our faculty." Questions were included for both the quantity and the quality of research to investigate the possibility that merit plans may have a greater influence on quantity than quality.[17] For each of the four above-mentioned performance outcomes, a five-point Likert scale was employed where 1 = "very positive influence," 2 = "somewhat positive influence," 3 = "no influence," 4 = "somewhat negative influence," and 5 = "very negative influence."

Specific characteristics of merit plans. Nine characteristics of merit pay plans that may be critical to their success were measured in the current study. The size of the merit pay increase amount was measured by asking the respondents the following question: "What size merit increase do faculty rated as average typically receive?" A seven point scale was employed for this question, where 1 = "0-1%," 2 = "2-3%," 3 = "4-5%," 4 = "6-7%," 5 = "8-9%," 6 = "10-11%," and 7 = "12% or greater." The size of the pay distinctions between varying levels of rated performance was measured by asking the respondents the following question: "What types of pay distinctions are typically made between low, average, and high performers in your merit pay system?" A three point scale was used for this question, where 1 = "large pay distinctions are made," 2 = "moderate pay distinctions are made," and 3 = "small pay distinctions are made."

The type of performance appraisal method or format used was measured by asking the respondents the following question: "What is the primary type of performance appraisal method used to determine your merit pay?" Their fixed choices were: "standard rating scale methods," "employee comparison or ranking methods," "behavioral rating scale methods," "objectives-based methods" (like MBO or goal-setting), "written essay methods," or "simple counts of publication scores and/or student evaluation scores." Brief descriptions of each of the above appraisal methods

were also provided to the respondents to help them accurately identify the methods in use at their institutions.

The source of the appraisal was measured by asking the respondents the question: "Who is primarily responsible for appraising your performance?" Their fixed choices were: "faculty committee of peers," "department chair," "dean of the college or division," or "academic vice president." Whether formal feedback was provided was measured by asking the respondents the question: "Do you receive any formal feedback of your performance appraisal results?" The fixed choice options were: "no feedback is provided," "verbal feedback, only, is provided," "written feedback, only, is provided," or "both verbal and written feedback is provided."

Whether pay increases were made public was measured by asking the question: "Are the ratings or merit pay decisions made public?" The response options were: "yes," "no," or "don't know." Whether adjustments were made for past appraisal periods was measured by asking the respondents the question: "Is your merit plan designed to allow for adjustments for past appraisal periods when little or no money was available?" The response options were: "yes," "no," or "don't know." The general salary level of the institution was measured by asking the respondents the question: "How would you characterize your college or university's overall salary level?" A five point scale was employed for this question, where 1 = "much above average," 2 = "above average," 3 = "average," 4 = "below average," and 5 = "much below average." The presence or absence of a union or collective bargaining agreement was measured by asking the respondents the question: "Are your faculty operating under any sort of union or collective bargaining agreement?" The response options for this question were: "yes," "no," or "don't know."

Results

Faculty Levels of Motivation and Performance

Table 1 presents the means, standard deviations, and intercorrelations of the seven measures of faculty motivation and performance.

Variables 1, 2, and 3 assessed the respondents' perceptions of the influence of their merit plans on their own individual levels of motivation related to teaching, research, and service. The obtained mean values indicated that the respondents, in general, perceived that their organizations' merit plans had no positive effect on their individual motivation to engage in better teaching ($M = 3.59$), more or better research ($M = 3.51$), or more or better service ($M = 3.69$).

Variables 4, 5, 6, and 7 assessed the respondents' perceptions of the influence of their organizations' merit plans on the performance levels of all of the faculty, in general. Because variables 4 through 7 are more indirect, other-oriented measures, they are less prone to social desirability bias;[18] as such, it is likely that variables 4 through 7 are more valid measures of the effects of merit plans than are variables 1 through 3. The obtained mean values for variables 4 through 7 indicated that the respondents perceived that their merit plans had a somewhat positive effect on the

Table 1: Means, SDs, and Intercorrelations of Performance Measures

Variable	M	SD	1	2	3	4	5	6	7
1. Individual teaching motivation	3.59	1.11	—						
2. Individual research motivation	3.51	1.13	.71	—					
3. Individual service motivation	3.69	1.07	.83	.65	—				
4. Overall faculty teaching effectiveness	2.88	.94	.49	.32	.44	—			
5. Overall faculty research quantity	2.47	.91	.32	.43	.30	.38	—		
6. Overall faculty research quality	2.64	.96	.32	.39	.34	.42	.70	—	
7. Overall faculty service level	2.79	.94	.35	.16	.42	.48	.28	.33	—

Note. Ns range from 452 to 477. All correlations are significant at $p < .01$.

overall teaching effectiveness of their faculty ($M = 2.88$), the overall quantity of research of their faculty ($M = 2.47$), the overall quality of research of their faculty ($M = 2.64$), and the overall level of service of their faculty ($M = 2.79$).

Specific Characteristics of Merit Plans

Summary of merit plan characteristics. Table 2 presents a descriptive summary of the characteristics of merit pay plans in academia.

Table 2: Summary of Characteristics of Merit Pay Plans in Higher Education Institutions

Characteristic	Frequency	Percentage
Size of Average Merit Pay Increase Amount		
0-1 percent pay increase	131	28
2-3 percent pay increase	266	57
4-5 percent pay increase	59	13
6-7 percent pay increase	4	1
8-9 percent pay increase	3	1
10-11 percent pay increase	1	0
12 percent or greater pay increase	0	0
Size of Merit Pay Distinctions		
Small merit pay distinctions are made	192	46
Moderate merit pay distinctions are made	164	40
Large merit pay distinctions are made	59	14
Type of Performance Appraisal Method/Format		
Standard rating scale methods	138	30
Employee comparison or ranking methods	132	29
Behavioral rating scale methods (e.g., BARS or BOS)	6	1
Objectives-based methods (e.g., MBO or goal-setting)	33	7
Written essay methods	21	5
Simple counts of publications and/or student evaluation scores	43	9
Other	83	18

Table 2: Summary of Characteristics of Merit Pay Plans in Higher Education Institutions (cont.)

Characteristic	Frequency	Percentage
Performance Appraisal Source		
Faculty committee of peers	96	20
Department chair	240	51
Dean of the college or division	83	17
Academic vice president	13	3
Other	43	9
Whether Formal Feedback is Provided		
No feedback is provided	103	23
Verbal feedback, only, is provided	40	9
Written feedback, only, is provided	103	23
Both verbal and written feedback is provided	207	46
Whether Pay Increases are Made Public		
Yes (made public)	110	23
No (not made public)	318	66
Unknown	55	11
Adjustments for Past Appraisal Periods		
Yes (adjustments are made)	121	25
No (no adjustments are made)	265	55
Unknown	97	20
General Salary Level at the Institution		
Much above average	4	1
Above average	58	12
Average	126	26
Below average	237	49
Much below average	55	11
Presence of Union/Collective Bargaining Agreement		
Yes	76	16
No	387	80
Unknown	19	4

As Table 2 indicates, most merit plans in higher education institutions are characterized by relatively modest merit increases paid to faculty rated as average performers. Twenty-eight percent of the institutions pay a 0-1% merit increase for average performers, and fifty-seven percent pay a 2-3% merit increase to average performers. Only fifteen percent of the institutions pay merit increases of 4% or more to average performers. The size of the merit pay distinctions between the low, average, and high performers are quite modest, as forty-six percent of the institutions make small distinctions, and forty percent make moderate distinctions. Only fourteen percent of institutions make large merit pay distinctions. In terms of the performance appraisal method, standard rating scales are employed by thirty percent of the institutions, and employee comparison/ranking methods are employed by twenty-nine percent of the institutions. Very few institutions employ either behavioral rating scales (1%) or objectives-based methods (7%). In terms of the appraisal source, the majority

of institutions (51%) use the department chair. Twenty percent of the institutions use peers as the appraisal source.

Among twenty-three percent of the institutions, no formal feedback of the performance appraisal results is provided. The rest of the institutions provide feedback of some sort (verbal feedback, written feedback, or a combination of verbal and written feedback). Sixty-six percent of the institutions do not make merit increases public, while twenty-three of the institutions do make them public. Only twenty-five percent of the institutions make merit pay adjustments for past appraisal periods when little or no merit money was available for distribution.

In terms of the general salary level of the institution, sixty percent of the respondents characterize their salary level as either below average or much below average. Twenty-six percent characterize their general salary level as average, and only thirteen percent characterize their general salary level as either above average or much above average. Finally, eighty percent of the institutions administer their merit plans in the absence of a union or collective bargaining agreement. Only sixteen percent of the institutions administer their merit plans in unionized environments.

Correlation analyses of merit plan characteristics. To investigate whether some specific features of merit pay plans are critical to their success, correlation analyses were conducted to assess the relationship between the nine potentially important characteristics and the seven measures of faculty motivation and performance. It should be noted that discrete categories were collapsed into a smaller set of more general classes for three of the nine characteristics (appraisal method, appraisal source, and formal feedback) in order to perform correlation analyses. Appraisal methods were grouped into two classes (behavioral rating scale methods and objectives-based methods versus all other types of appraisal methods). Appraisal sources were grouped into two classes (faculty committee of peers versus all other appraisal sources involving superiors). Formal feedback was grouped into two classes (verbal feedback, written feedback, or both verbal and written feedback versus no feedback). Collapsing a number of discrete categories into broader classes for correlation purposes for appraisal method, appraisal source, and type of feedback may present some analytical and interpretational problems; however, additional statistical tests involving analysis of variance and mean comparisons were also performed on the three above-mentioned characteristics, and they are reported later in this section. Table 3 presents the results of the correlation analyses between the nine merit plan characteristics and the seven measures of faculty motivation and performance.

The data presented in Table 3 indicate that both the size of the merit increase paid to average performers and the general salary level of the organization were significantly related to six of the seven measures of faculty motivation and performance. Larger average merit pay increases and higher general salary levels were associated with higher levels of individual motivation related to teaching, research, and service, and also with higher levels of overall faculty teaching effectiveness, overall faculty research quantity, and overall faculty research quality.

Table 3: Correlations Between Merit Plan Characteristics and Faculty Performance

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Size of increase	1.89	.73	—															
2. Size of distinctions	2.32	.71	-.14	—														
3. Appraisal method[a]	1.90	.31	-.01	-.03	—													
4. Appraisal source[b]	1.78	.42	.05	.03	-.06	—												
5. Formal feedback[c]	1.23	.42	-.14	-.01	.04	-.12	—											
6. Made public	1.74	.44	.04	.04	-.01	.22	-.08	—										
7. Adjustments for past	1.69	.46	-.08	.05	.09	-.07	-.04	-.01	—									
8. General salary level	3.59	.88	-.17	.10	-.02	.07	.04	-.01	.01	—								
9. Presence of union	1.84	.37	.15	.00	-.04	.13	-.19	.22	-.08	.05	—							
10. Teaching motivation	3.59	1.11	-.18	-.03	.09	.04	.14	-.03	.20	.10	-.06	—						
11. Research motivation	3.51	1.13	-.19	.07	.05	01	.15	.00	.19	.20	-.07	.71	—					
12. Service motivation	3.69	1.07	-.14	.02	.07	-.01	.14	-.03	.20	.13	-.04	.83	.65	—				
13. Faculty teaching effectiveness	2.88	.94	-.10	-.05	.09	.06	.10	-.08	.16	.20	-.01	.49	.32	.44	—			
14. Faculty research quantity	2.47	.91	-.15	.11	-.02	.07	.07	.03	.08	.24	-.04	.32	.43	.30	.38	—		
15. Faculty research quality	2.64	.96	-.15	.16	.04	.05	.08	-.07	.13	.25	-.02	.32	.39	.34	.42	.70	—	
16. Faculty service level	2.79	.94	-.01	-.08	.12	.09	.01	-.11	.07	.08	.00	.35	.16	.42	.48	.28	.33	—

[a]For correlation purposes, appraisal methods were grouped into two classes where "1" equaled "behavioral rating scale methods" and "objectives-based methods," and "2" equaled all other appraisal methods. [b]Appraisal sources were grouped into two classes, where "1" equaled "faculty committee of peers," and "2" equaled all other appraisal sources. [c]Formal feedback was grouped into two classes, where "1" equaled "verbal feedback," "written feedback," or "both verbal and written feedback," and "2" equaled "no feedback." All correlations from .10 through .11 are significant at $p < .05$, and all correlations of .12 and greater are significant at $p < .01$.

Whether merit plans made adjustments for past appraisal periods when little or no money was available was significantly related to five of the seven measures of motivation and performance. Making adjustments for past appraisal periods was associated with higher levels of individual motivation related to teaching, research, and service, and also with higher levels of overall faculty teaching effectiveness and overall faculty research quality.

Formal feedback of performance appraisal results was significantly related to four of the seven measures of motivation and performance. The provision of some form of feedback (as opposed to no feedback, whatsoever) was associated with higher levels of individual motivation related to teaching, research, and service, and also with higher levels of overall faculty teaching effectiveness.

The size of the pay distinctions between levels of rated performance was significantly related to two of the performance measures. Greater pay distinctions were associated with higher levels of overall faculty research quality and with higher levels of overall faculty research quantity.

The type of appraisal method was significantly related to only one performance measure. Merit plans that used behavioral rating scales or objectives-based methods to appraise performance were associated with higher levels of overall faculty service than merit plans that used other appraisal methods (standard rating scales, employee comparison methods, written essay methods, or simple counts of publications and/or student evaluation scores).

Whether actual merit pay increases are made public was significantly related to only one of the performance measures. Merit plans that did not make the actual pay increases public were associated with higher levels of overall faculty service than merit plans that did make the pay increases public.

The type of appraisal source was not significantly related to any of the seven measures of motivation and performance. Merit plans that used peers as appraisal sources did not differ from merit plans that used superiors (department chair, dean, or academic vice president) as appraisal sources. Finally, the presence of a union or collective bargaining agreement was not significantly related to any of the seven measures of faculty motivation and performance.

Analysis of variance tests of merit plan characteristics. Analysis of variance tests were also conducted to more closely examine the relationship between six of the nine merit plan characteristics and the measures of faculty motivation and performance. Analysis of variance tests were not performed for the size of the merit pay increase amount, the size of the merit pay distinctions between varying levels of rated performance, or the general salary level. Correlation analyses were deemed sufficient for the investigation of the influence of these three variables on faculty motivation and performance.

Whether merit pay adjustments were made for past appraisal periods when little or no money was available led to significant differences along five of the seven measures of motivation and performance. Adjustments for past appraisal periods were associated with significant differences in individual teaching motivation ($F = 16.02$, $p < .01$), individual research motivation ($F = 13.39$, $p < .01$), individual service

motivation ($F = 15.96$, $p < .01$), overall faculty teaching effectiveness ($F = 10.10$, $p < .01$), and overall faculty research quality ($F = 6.62$, $p < .01$). More specifically, merit plans that made adjustments for past periods ($M = 3.30$) had significantly higher levels of teaching motivation than merit plans that did not make such adjustments ($M = 3.77$). Merit plans that made adjustments for past periods ($M = 3.26$) had significantly higher levels of research motivation than merit plans that did not make such adjustments ($M = 3.70$). Merit plans that made adjustments for past periods ($M = 3.41$) had significantly higher levels of service motivation than merit plans that did not make such adjustments ($M = 3.87$). Merit plans that made adjustments for past periods ($M = 2.70$) had significantly higher levels of overall faculty teaching effectiveness than merit plans that did not make such adjustments ($M = 3.02$). Merit plans that made adjustments for past periods ($M = 2.47$) had significantly higher levels of overall faculty research quality than merit plans that did not make such adjustments ($M = 2.74$).

Whether actual merit pay increases are made public led to a significant difference along only one of the performance measures. Making merit pay increases public was associated with a significant difference in overall faculty service ($F = 4.95$, $p < .05$). Merit plans that did not make pay increases public ($M = 2.72$) had significantly higher levels of faculty service than merit plans that did make pay increases public ($M = 2.95$).

The presence of a union or collective bargaining agreement was not associated with any significant differences along the seven measures of faculty motivation and performance at the .05 level of significance.

A series of one-way analyses of variance were also conducted to more closely examine the influence of appraisal method, appraisal source, and type of feedback on the seven measures of motivation and performance. In the previous correlation analysis, several discrete categories were collapsed into two broad classes for appraisal method, appraisal source, and type of feedback. The analysis of variance tests were intended to provide more complete information regarding the influence of these three merit plan characteristics. Table 4 shows the means of the seven measures of motivation and performance by appraisal method, appraisal source, and type of feedback.

The type of appraisal method was not associated with any significant differences along the seven measures of faculty motivation and performance. None of the seven one-way analysis of variance tests was significant at the .05 level of significance. However, a perusal of the mean score data associated with the different types of appraisal methods reveals that the means associated with behavioral rating scale methods are generally lower (indicating higher levels of motivation and performance) than the means associated with the other types of appraisal methods. The sample size for behavioral rating scale methods was quite low ($n = 6$). If the sample size for behavioral rating scale methods had been greater, it is possible that significant findings might have emerged from the analyses.

The type of appraisal source was associated with only one significant difference along the seven measures of faculty motivation and performance. The type of appraisal source was associated with a significant difference in overall faculty service ($F = 3.33$,

Table 4: Means of Performance Measures by Appraisal Method, Appraisal Source, and Type of Feedback

Merit Plan Characteristic	Teaching Motivation	Research Motivation	Service Motivation	Faculty Teaching Effectiveness	Faculty Research Quantity	Faculty Research Quality	Faculty Service Level
Appraisal Method							
Standard rating scales	3.45	3.47	3.61	2.74	2.35	2.65	2.77
Employee comparison methods	3.63	3.52	3.74	2.86	2.49	2.57	2.82
Behavioral rating scales	3.17	2.83	3.50	2.50	2.33	2.83	2.40
Objectives-based methods	3.27	3.36	3.41	2.58	2.55	2.45	2.45
Written essay methods	3.38	3.33	3.76	2.95	2.47	2.53	2.83
Simple counts or scores	3.79	3.44	3.65	3.00	2.62	2.74	2.95
Appraisal Source							
Faculty committee of peers	3.67	3.49	3.73	2.77	2.34	2.53	2.64
Department chair	3.57	3.52	3.72	2.90	2.42	2.60	2.92
Dean of college	3.64	3.44	3.63	2.93	2.67	2.78	2.66
Academic vice president	3.42	3.85	3.58	2.62	2.62	2.62	2.46
Formal Feedback							
No feedback provided	3.83	3.79	3.95	3.03	2.57	2.74	2.79
Verbal feedback only	3.46	3.34	3.51	2.87	2.28	2.50	2.89
Written feedback only	3.73	3.72	3.81	2.86	2.59	2.78	2.78
Both verbal and written feedback	3.36	3.22	3.49	2.77	2.37	2.47	2.75

Note. Ns for type of method, type of source, and type of feedback are shown in Table 2. Teaching, research, and service motivation was measured by asking the respondents to rate whether their merit plan motivated them, where "1" equaled "strongly agree" and "5" equaled "strongly disagree." Faculty teaching, research, and service performance was measured by asking the respondents to rate the effects of their merit plan, where "1" equaled "very positive influence" and "5" equaled "very negative influence."

$p < .05$). A Duncan's multiple range test indicated that merit plans that used academic vice presidents as appraisal sources ($M = 2.46$) had significantly higher levels of overall faculty service than merit plans that used department chairs as appraisal sources ($M = 2.92$).

The type of feedback was associated with four significant differences along the seven measures of faculty motivation and performance. The type of feedback was associated with significant differences in individual teaching motivation ($F = 6.37$, $p < .01$), individual research motivation ($F = 8.21$, $p < .01$), individual service motivation ($F = 5.07, p < .01$), and overall faculty research quality ($F = 3.29, p < .05$).

Duncan's multiple range tests were conducted to clarify the nature of the aforementioned significant differences related to individual teaching motivation,

individual research motivation, individual service motivation, and overall faculty research quality. With regard to individual teaching motivation, merit plans that provided both verbal and written feedback ($M = 3.36$) had significantly higher levels of teaching motivation than those that provided no feedback ($M = 3.83$).

With regard to individual research motivation, merit plans that provided both verbal and written feedback ($M = 3.22$) had significantly higher levels of research motivation than both merit plans that provided only written feedback ($M = 3.72$) and merit plans that provided no feedback of any sort ($M = 3.79$). Also, merit plans that provided only verbal feedback ($M = 3.34$) had significantly higher levels of research motivation than those that provided no feedback of any sort ($M = 3.79$).

With regard to individual service motivation, the Duncan's multiple range test indicated that merit plans that provided both verbal and written feedback ($M = 3.49$) had significantly higher levels of service motivation than merit plans that provided no feedback of any sort ($M = 3.95$). Also, merit plans that provided only verbal feedback ($M = 3.51$) had significantly higher levels of service motivation than those that provided no feedback ($M = 3.95$).

With regard to overall faculty research quality, the Duncan's multiple range test did not detect any significant differences between the means at the .05 level of significance, even though the initial one-way analysis of variance test was significant. The Duncan's multiple range test is, however, a relatively conservative test.

Discussion

Faculty Levels of Motivation and Performance

One objective of this study was to assess the general impact of merit pay plans on faculty levels of motivation and performance in four-year colleges and universities in the U.S. Currently, there is little empirical data regarding the influence of merit pay upon university faculty members' motivation and performance in the areas of teaching, research, and service.

Our findings indicate that the faculty respondents generally perceived that their organizations' merit plans had no effect on their individual motivation to engage in better teaching, more or better research, or more or better service. There are, however, some potential methodological problems associated with the use of simple self-reports of one's own level of motivation. As such, our study also assessed the respondents' perceptions of the influence of their organizations' merit plans on the performance levels of all of their faculty, in general. These ratings of overall faculty performance are more indirect, "other-oriented" measures; thus, they may be less prone to social desirability response set bias than the self-report measures of one's own level of motivation.[19] Our findings with regard to these more indirect measures of overall faculty performance indicate that the respondents perceived that their merit plans had a somewhat positive effect on the overall teaching effectiveness of their faculty, the overall quantity of research of their faculty, the overall quality of research of their faculty,

and the overall level of service of their faculty. The results suggest that merit pay plans had the greatest positive influence on research quantity.

Our findings with regard to overall faculty performance in academia seem to fit with previous research conducted in the private sector that found that merit pay plans have a generally positive effect on employee performance.[20] Furthermore, our finding with regard to research quantity is consistent with the recent meta-analysis of the research literature that suggested that the impact of financial incentives in the private sector may be greater on performance quantity than quality.[21]

The current findings are somewhat encouraging in that they suggest that merit pay plans in higher education institutions can positively influence faculty performance. However, our study employed self-report measures, and dealt with respondents' perceptions of the efficacy of their merit pay plans. Future research investigating the impact of merit pay plans on faculty performance might attempt to use more concrete measures of teaching, research, and service. Longitudinal studies are also needed in order to more definitively gauge the impact of merit pay plans on faculty performance in higher education institutions.

Specific Characteristics of Merit Plans

Characteristics of existing merit plans in higher education institutions. A second objective of this study was to identify and describe the characteristics of existing pay plans in higher education institutions. No empirical research, to date, has attempted to describe existing merit pay plans in academia along the nine characteristics of interest in the current study.

Our findings indicate that most merit plans in higher education institutions are characterized by relatively modest merit increases paid to faculty rated as average performers. Nearly thirty percent of the institutions pay only a 0-1% merit increase for average performers. The majority of institutions (57%) pay a 2-3% merit increase to average performers. Only fifteen percent of the institutions pay merit increases of 4% or more to average performers. Our findings do not differ substantially from recent survey figures in the private sector. For example, a recent study found that for white-collar workers in the private sector in 2003 and 2004, the average merit pay increase was 3.5%.[22]

Our results also suggest that merit plans in higher education institutions typically make modest distinctions between the size of the merit pay increases distributed to faculty who are rated as low, average, and high performers. Forty-six percent of the institutions make small merit pay distinctions, and forty percent make moderate merit pay distinctions. Only fourteen percent of higher education institutions make large merit pay distinctions. Unfortunately, our study did not include actual percentage figures as rating anchors for the terms "small," "moderate," and "large." Perhaps future research could more precisely determine the actual percentage differences in merit pay that are perceived as constituting "small," "moderate," and "large" pay distinctions.

In terms of performance appraisal methods, our study found that most merit plans in higher education institutions employ either standard rating scales (30%) or employee comparison methods (29%). Very few higher education institutions employ

some of the more "modern" appraisal methods such as behavioral rating scales (1%) or objectives-based methods (7%). Surveys of organizations in the private sector generally indicate that the standard rating scale is the most frequently employed performance appraisal method. These surveys, however, do not agree as to the relative extent of use of other appraisal methods, such as employee comparison methods, behavioral rating scale methods, objectives-based methods, and written essays.[23]

In terms of the appraisal source, our study found that most merit plans in higher education institutions use superiors as the raters. Superiors employed as rating sources include the department chair (51%), the dean (17%), and the academic vice president (3%). Twenty percent of the institutions employ a faculty committee of peers as the appraisal source. Our findings are generally consistent with survey data reported in the private sector, which indicate that eighty percent of organizations employ a supervisor/superior as the source of appraisal ratings.[24]

As to the provision of feedback of the results of the performance appraisal, our findings indicate that an astonishing twenty-three percent of the higher education institutions provide no feedback of any sort to their faculty. The remaining institutions provide feedback of some sort (verbal feedback, written feedback, or a combination of verbal and written feedback). No other survey data is available regarding the extent to which formal feedback is provided to employees in either the private or the public sector.

Our study found that few institutions (23%) make merit pay increases public. The majority of institutions (66%) do not make merit increases public. Our study also found that few institutions (25%) make merit pay adjustments for past appraisal periods when little or no merit money was available for distribution. Once again, no other survey data is available in either the private or the public sector regarding the extent to which organizations make pay increases public or make adjustments for past appraisal periods.

In terms of the general salary level of the institution, sixty percent of the respondents perceive their institution's salary level to be either below average or much below average. Twenty-six percent perceive their institution's general salary level to be average, and only thirteen percent perceive their institution's general salary level to be either above average or much above average. Our study did not gather actual salary data from the institutions. Thus, we do not know if the respondents' perceptions approximate reality. Since over sixty percent of the respondents perceived their institution's general salary level to be below average, it is possible that some faculty may have incorrectly estimated their institutions' actual competitive pay position (based on market survey figures).

Finally, our study found that most of the higher education institutions (80%) administer their merit plans in the absence of a union or collective bargaining agreement. Only sixteen percent of the institutions administer their merit plans in unionized environments. While estimates of the extent of unionization in the private and the public sector exist, no other data is available regarding the percentage of organizations with merit plans that operate in unionized environments.

Influence of specific characteristics on faculty motivation and performance. A third objective of this study was to investigate the influence of the nine merit plan characteristics on the motivation and performance levels of faculty in higher education institutions. At the present time, there is very little empirical research data regarding the specific features of merit plans that contribute to their success. Our previous description of the nature of existing merit pay plans in academia revealed some major differences among the plans. Some merit plans may be more effective than others because of the way they are designed and implemented.

The results of our correlation analyses and analysis of variance tests suggested that four of the nine characteristics may be critical to the success of merit pay plans in higher education institutions. These four characteristics were: 1) the size of the merit increase paid to average performers, 2) the general salary level of the institution, 3) whether adjustments were made for past appraisal periods when little or no money was available for distribution, and 4) whether formal feedback of the performance appraisal results was provided to the faculty.

Larger average merit pay increases were significantly related to higher levels of individual teaching motivation, individual research motivation, individual service motivation, overall faculty teaching effectiveness, overall faculty research quantity, and overall research quality. These findings are consistent with the beliefs of compensation scholars who hold that merit plans will not be effective if the merit pay increases are perceived as trivial.[25] The pay increases should be "meaningful" in order to reinforce past good performance and motivate future high performance.[26] Some compensation texts, for example, recommend merit pay increases that range from 4-6% for performers rated as average or satisfactory.[27]

Higher general institutional salary levels were also found to be significantly related to higher levels of individual teaching motivation, individual research motivation, individual service motivation, overall faculty teaching effectiveness, overall faculty research quantity, and overall faculty research quality. These results fit with research reported in the private sector, where it was found that support for merit pay systems is greater in organizations with higher levels of base pay.[28] A merit plan that is generally accepted and supported is more likely to lead to increased motivation and performance. A faculty member who is generally satisfied with the institution's overall pay level may be more apt to respond positively to a merit pay plan than a faculty member who is dissatisfied with the general pay level (or with other negative aspects of the work context).

It might be noted that our findings suggest that some faculty may incorrectly underestimate their institutions' actual salary levels relative to the external market. Thus, some institutions may be able to increase the ability of their merit plans to foster higher performance by better educating the faculty of their institutions' actual competitive pay position. Communicating the results of relevant external market salary surveys may serve to correct faculty misperceptions regarding the general pay level, which may, in turn, enhance motivation and performance.

Merit plans that make adjustments for past appraisal periods when little or no money was available were found to lead to significantly higher levels of individual

teaching motivation, individual research motivation, individual service motivation, overall faculty teaching effectiveness, and overall faculty research quality. No previous surveys have estimated the number of organizations with merit plans that make adjustments for past appraisal periods. And no previous research has investigated the influence of such adjustments upon employee motivation and performance. Our findings seem to make sense, however. Merit systems that do not make adjustments for past appraisal periods may simply be perceived to be unfair. In academia, merit pay is typically based, at least partially, on the number of publications or "hits" per year. For most faculty, the number of publications varies from year to year. Merit pay plans that make adjustments for past appraisal periods when little or no money was available may minimize the problem of the "lottery effect" that can plague institutions that have widely fluctuating annual budgets. A merit pay plan that is based solely on performance is more likely to be effective than a merit plan that is based on a combination of performance and luck.

Our study also indicated that the provision of formal feedback of the results of performance appraisal was an important feature of a successful merit pay plan. The correlation analyses found that the provision of some form of feedback (verbal feedback only, written feedback only, or both verbal and written feedback) was significantly associated with higher levels of individual motivation related to teaching, research, and service, and also with a higher level of overall faculty teaching effectiveness. The analysis of variance tests also found that the type of feedback provided was associated with significant differences in individual teaching motivation, individual research motivation, individual service motivation, and overall faculty research quality. Follow-up tests comparing the means associated with the different forms of feedback generally suggested that the provision of both verbal and written feedback was associated with the highest levels of motivation and performance. These findings regarding the importance of feedback support the contentions of those who believe that formal feedback of the performance appraisal results is extremely important to the success of merit pay plans.[29] If accurate, objective, timely, and helpful feedback is provided in the appraisal meetings, then employees' understanding and acceptance of their ratings should be greater, and subsequent motivation and performance should be higher.

Given the obvious importance of performance feedback, it was surprising to discover that nearly one quarter of the higher education institutions that have merit pay plans do not provide feedback of any sort to their faculty. Some performance appraisal experts suggest that raters and supervisors may avoid giving feedback (especially negative feedback) to their employees because it can be an "unpleasant" experience.[30] Without feedback, however, it is difficult for employees to improve their performance over time. It might also be noted that employees who are terminated for poor performance could mount successful lawsuits against their employers if they had not been given formal feedback on their performance prior to termination.[31] Our study also found that four additional merit plan characteristics were significantly related to one or two of the measures of faculty motivation and performance. These characteristics were the size of the merit pay distinctions, the type of performance

appraisal method, the performance appraisal source, and whether pay increases were made public. These characteristics do not appear to be as critical to the success of merit pay plans as the previously discussed characteristics. These characteristics may, however, be worthy of future study.

With regard to the size of the pay distinctions between varying levels of rated performance, our study found that larger pay distinctions were associated with higher levels of overall faculty research quality and overall faculty research quantity. Large merit pay distinctions between performers rated as low, average, and high are thought, by some, to be critical to the success of merit plans.[32] The high performer should perceive his or her merit pay increase as a meaningful amount greater than the pay increase received by the average performer, and the average performer should perceive his or her pay increase as a meaningful amount greater than the low performer. The low performer should not receive any pay increase, thus signaling that individual that his or her performance needs to improve (or that his or her prospects for continued employment are poor). The current study was problematic because actual percentage figures were not used to operationally define the terms "small," "moderate," and "large" for the pay distinction variable. Future research using more concrete measures of the size of the pay distinctions might find that this characteristic has more influence on the success of merit pay plans than our study did.

In terms of the type of performance appraisal method employed, the results of our correlation analyses found that merit plans that used behavioral rating scales or objectives-based methods to appraise performance were associated with significantly higher levels of overall faculty service than merit plans that used other types of methods (standard rating scales, employee comparison methods, written essay methods, or simple counts of publications and/or student evaluation scores). Our analysis of variance tests of the influence of specific types of appraisal methods did not find any significant differences along the seven measures of faculty motivation and performance. Some performance appraisal experts feel that behavioral rating scales and objectives-based methods are more accurate and objective than other methods.[33] But empirical research in the private sector has not demonstrated the superiority of behavioral rating scales over more traditional methods such as standard rating scales.[34] Objectives-based methods also appear to have some significant problems that may limit their usefulness as valid performance appraisal tools.[35]

With regard to the appraisal source, correlation analyses were conducted to investigate whether peers or superiors were linked to more effective merit systems. The literature has been somewhat divided as to which source is superior in terms of reliability and validity. Some feel that the supervisor constitutes the best source of valid appraisal ratings, while others believe that peers or coworkers are able to provide more reliable and valid appraisal ratings.[36] Our correlation analyses (in which appraisal sources were grouped into two broad classes --- peers versus all other sources involving superiors) did not find any significant differences along the seven measures of faculty motivation and performance. Analysis of variance tests were also conducted to more closely investigate the influence of specific types of sources (committee of peers, department chair, dean, and academic vice president). These analyses found that the

type of source was associated with only one significant difference. The analysis of variance test and the follow-up Duncan's multiple range test indicated that merit plans that used academic vice presidents as appraisal sources had significantly higher levels of overall faculty service than merit plans that used department chairs as appraisal sources. In general, however, our study did not find the appraisal source to be a critical feature of successful merit pay plans.

As to whether or not merit pay increases were made public, our study found that this characteristic was significantly related to only one of the seven measures of motivation and performance. Merit plans that did not make the actual pay increases public were associated with higher levels of overall faculty service than merit plans that did make the pay increases public. This finding runs counter to the notion that pay secrecy may suppress the potential of a merit plan to increase performance, because employees need to be made fully aware of the differing merit pay increases received by the low, average, and high performers in their rating groups for maximum motivation to occur.[37] Making merit pay increases public may, indeed, stimulate greater motivation and performance if the merit pay plan is properly designed and implemented, and if all of the merit pay decisions are perceived to be perfectly fair and just. But few merit pay plans are perceived to be perfect.

Our study found that one final merit plan characteristic was not significantly related to any of the seven measures of faculty motivation and performance. The presence of a union or collective bargaining agreement seemed to have no apparent influence on the effectiveness of merit pay plans in higher education institutions. This finding is surprising, at first glance. Generally speaking, unions have been reluctant to give management the degree of discretion in distributing pay to employees that is thought to be required for the success of a merit plan. Furthermore, unions have traditionally preferred to base pay increases on more objective criteria, such as seniority, rather than on more subjective measures (i.e., the performance appraisal ratings on which the merit increases are based). Thus, it has generally been assumed that merit pay plans have a greater chance of being successful at motivating employees in non-unionized environments.[38] However, it is possible that any dampening effect that unionization may have upon the potential motivational impact of a merit plan could be counterbalanced by an increased emphasis upon fairness and justice for employees. Managers who appraise performance and recommend pay increase amounts for their employees may be "more careful" to ensure fairness and avoid bias when they operate in unionized environments. Unions typically have well-developed grievance procedures that employees can utilize if they feel that they have been treated unfairly.

General Conclusions

There is scant empirical data regarding the impact of merit pay plans upon levels of faculty motivation and performance in higher education institutions. Additionally, little information is available regarding the typical characteristics and features of merit pay plans in academia. Some merit plans in higher education institutions may be more

effective than others, because of the specific characteristics incorporated into the design and implementation of those plans. At the present time, we cannot definitively state which characteristics are essential to the success of merit plans in academia. The current study attempted to address the above-mentioned informational needs.

The measures of faculty motivation and performance that were employed in this study were subjective in nature. Future research investigating the impact of merit pay plans on faculty performance in academic settings might attempt to identify and use more concrete and objective measures of teaching, research, and service. Longitudinal studies of the influence of merit pay plans on faculty performance in higher education institutions would also be of great value.

It is hoped that this study has provided some potentially useful information regarding merit pay plans in higher education institutions. The empirical data provided by this study has yielded some insights as to which characteristics may be critical to the success of merit pay plans in academia. The accumulation of more research data, over time, should eventually lead to the development and use of more effective merit pay plans that are capable of stimulating higher levels of faculty performance in academic settings.

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Authors

David E. Terpstra, PhD
College of Business and Public Administration
Eastern Washington University
Cheney, WA 99004
(509) 359-4260
david.terpstra@ewu.edu

Andre L. Honoree, PhD
College of Business
Southeastern Louisiana University
Hammond, LA 70402
(985) 549-2367
ahonoree@selu.edu

Dr. David E. Terpstra received his PhD in industrial/organizational psychology from the University of Tennessee. He is currently a management professor at Eastern Washington University. He has conducted extensive research in the areas of compensation and human resource management, and he has published approximately 80 articles in management and psychological journals.

Dr. Andre L. Honoree received his PhD in business administration from the University of Mississippi, and he is currently an associate professor of management at Southeastern Louisiana University. His research interests are in the areas of compensation and discrimination litigation.