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ABSTRACT

A job evaluation system was designed and implemented by a college's personnel department using a "point dash factor" method for evaluating jobs. Employees made the major decision about which criteria should be used to rate job difficulty and how much weight each criterion should carry. Employee input was solicited through committees formed around occupations, a resolution committee comprised of representatives of the occupational committees, and a general mail survey of employees. After committees had formulated criteria, the criteria were further evaluated for bias, usefulness, and validity. The selected criteria were assigned to nine clusters and then submitted to the employees for weighting. Ratings assigned by the employees were then subjected to further reliability and validity tests including the measure of correlation to current salary grade. Results of the job evaluation procedure were then used to determine if pay inequities existed between female-dominated jobs and male-dominated jobs of similar difficulty. This was necessary in order to comply with state law. Although many female-dominated jobs were underpaid, others were not. Some male-dominated jobs were also not paid equitably. Salary adjustments will be made according to these guidelines with a supplementary procedure being used for documented recurring problems due to new lower salary ranges. The new point system will be used for classifying new jobs and reclassifying old ones. (ABL)

Designing a New Job Evaluation System Based on Employee Input

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I. HISTORY OF THE PROJECT

Job evaluation is a method for determining the difficulty of various classes of work based on the amount of skill, effort, and responsibility they each require. It provides a basis for assigning classes of work to different salary grades according to their relative difficulty. It also provides a basis for assigning jobs tc different classes of work according to the difficulty of the jobs.

Concerns about the adequacy of the University's existing job evaluation methods prompted the Personnel Department to initiate a research project that would evaluate alternative job evaluation systems and either choose or design one that would better meet the needs of the University. A review of the relevant literature indicated that the University should replace its three existing systems with a single one based on the "point-factor" method of evaluating jobs. This method rates jobs and classes of work according to fixed and explicit criteria of difficulty. Since deciding which criteria should be used is ultimately a value judgment, the project focused on designing a new point-factor job evaluation system that incorporated the criteria of University employees whose jobs would be affected. The process of developing, validating, and implementing this job evaluation system is described below.

II. DEVELOPMENT OF THE JOB EVALUATION SYSTEM

Employees made the major decisions about which criteria should be used to rate job difficulty and how much weight each criterion should carry. A test phase suggested modifications that would improve the technical quality of the system. The final job evaluation system that emerged from the test phase proved to be very reliable for rating individual jobs. It also rated the relative difficulty of classifications in a way that was consistent with their current salary relationships, with the judgments of experts in the University's Personnel Department, and with the standards of job difficulty included in two job evaluation systems that are widely used throughout the country.

Employee input. The criteria were chosen by two types of employee committees: (a) 18 committees with seven to eight members each that were formed along occupational lines, and (b) a resolution committee composed of one member from each of the occupational committees. A general survey mailed to 8,000 non-hospital employees determined how the final criteria should be weighted.

The occupational committees were formed by 138 employees who were randomly selected to be representative of the diversity, size, and sex composition of approximately 450 non-hospital classes of work at the University. As a result of this procedure, 36% of the committee members represented clerical and secretarial classes, 18% represented scientific classes, and the remaining 46% represented classes that dealt with administration, support services, physical operations, financial services, data processing, social and health services, art, information, and student personnel services. Overall, 73% of the committee members were female.

Defining the criteria of job difficulty. Each of the occupational committees recommended an initial set of criteria for rating job difficulty. The resolution committee integrated their suggestions into a single list which they referred back to the occupational committees. Committee members then rated each proposed criterion on a scale of 1-7 according to how important they thought it was to include the criterion in the new job evaluation system. The resolution committee used the average rating of each criterion's importance as a guide in deciding which ones to retain for further consideration. The retained criteria were referred back to the occupational committees so that levels of difficulty could be defined for each one (e.g., what kinds of skill at working with people should be measured and how difficult are those skills compared to each other?). The recommendations were integrated by Dr. Beuhring and Mr. Erickson and reviewed by the resolution committee for completeness. Members of the occupational committees then rank ordered the proposed levels of difficulty from low to high (e.g., they rank ordered activities such as "exchanging clear-cut information", "explaining policies and procedures", "mediating disputes", and "negotiating contracts" according to how much skill at working with people each one required). Since this ranking procedure is an interval scaling

technique, it was appropriate to use the average rank assigned to each level of difficulty as its initial point value. These point values were later standardized to control for differences in the number of levels that had been defined for each criterion. The standardized points were then weighted according to the results of the employee surveys described below.

Refinement of the criteria. Each preliminary criterion, and the levels of difficulty that were defined for it, was turned into a multiple choice question. A random sample of employees in 65 different classes of work were then asked to use the questions to rate the difficulty of their own jobs (e.g., "Which of the following skills at working with people does your job require most often? Give an example."). The employees' supervisors were asked to review the answers and any disagreements of opinion between an employee and his or her supervisor were resolved with the help of the Personnel Department.

Statistical analyses of the answers indicated which questions were useful for measuring differences among related classes of work (e.g., Secretary, Senior Secretary, and Principal Secretary) and which questions did so in a relatively unbiased manner (e.g., did the question measure differences among typically male classes of work better than it measured differences among typically female classes of work, or did it measure differences about equally well in both cases even when one group scored higher than the other on the average?). Only questions that were both useful and relatively unbiased were retained.

A subsample of employees were asked to complete the questionnaire a second time. Statistical analyses indicated how consistently employees could interpret and answer each question from one time to the next. Only questions that could be answered with some consistency were retained. Examples that had been given to support each answer were reviewed to see what modifications in wording might be made to further improve the reliability and validity of the questionnaire.

The final job evaluation questionnaire. The final questionnaire covers 37 specific criteria of job difficulty (in order to simplify the format, some criteria are measured by more than one question). These criteria are organized into clusters that represent nine major aspects of a job's responsibilities and requirements: the amount of Knowledge, Skill, Mental Effort, Physical Effort, Independent Judgment, and Supervisory Responsibility the job requires, the amount of Risk it involves, and the Effect of Error and Impact of carrying out the job's duties (see Appendix I for details).

Weighting the criteria. A general survey returned by 1,600 employees determined the weight that should be assigned to each of the final nine clusters of criteria. A survey returned by 120 committee members determined the weight that was assigned to each criterion within a cluster. The weights reflected employee judgments about the relative importance each cluster should have in determining salaries (or the relative importance of the criteria within in each cluster). The surveys asked for "ratio" judgments of relative importance instead of a simple rating of each cluster's or criterion's importance on its own. While this made the surveys somewhat more difficult to complete, it ensured that we could state with accuracy that employees believed a particular cluster was twice as important as another cluster, and so on.

Two sets of analyses were conducted to determine whether the weights assigned by the surveys truly reflected employee opinions. The weights determined from the surveys that were returned by 1,600 of the University's 8,000 employees turned out to be nearly identical to the weights that were assigned by an independent sample of employees who were randomly chosen to be representative of the entire employee population. When the 1,600 surveys were divided into nine major occupational groups according to the jobs held by the employees who filled them out, it was clear there was consensus across the groups about the relative importance of each cluster of criteria (e.g., physical operations employees agreed with clerical employees that Knowledge should be nearly three times as important as Physical Effort in determining the salary for a class of work). These analyses indicated that the general survey results fairly represented employee opinions throughout the workforce. This was critical since the weights ultimately influenced the points a job could receive when it was rated (see Appendix I).

Rating the difficulty of individual jobs. As described earlier, the final job evaluation questionnaire can be used by an employee to rate the difficulty of his or her own job. To do this, the employee marks the one answer to each question that best describes the job's requirements and gives an example to support that answer. The employee then gives the completed questionnaire to his or her supervisor to review. For the study that determined the difficulty of each class of work, the employee and supervisor were asked to resolve disagreements among themselves before sending the questionnaire in to be scored. For ongoing classification purposes, only the supervisor's answers will be scored since the employee has the option of the grieving the classification outcome if s/he disagreed with the supervisor's answers.

Rating the difficulty of classes of work. To determine the average difficulty of each class of work, a group of employees who were randomly selected from each class were asked to fill out the job evaluation questionnaire. The questionnaires were scored and the scores for the jobs within a particular class were averaged to determine the difficulty of the class as a whole. The range of scores for those jobs was also used as an indication of how much the jobs within a class usually vary in difficulty (this information will be used later as a guide for classifying individual jobs). Appendix II provides further details on how and why this procedure was used to determine the difficulty of each class of work.

Reliability and validity of the ratings. The confidence you can have in a questionnaire is determined by (1) the reliability of its results (how likely the job is to get the same rating again) and (2) its validity (whether the ratings really measure job difficulty). It was critical to assess the questionnaire's reliability because the less consistently it rated job difficulty the less valid those ratings would be. It was even more important to assess the questionnaire's validity since it was always possible that it would consistently measure something other than job difficulty.

Reliability was assessed by asking 100 randomly selected employees to fill out the final questionnaire twice, a month-and-a-half apart. They were not warned that the second rating would be requested so there was no incentive to save a copy of their first rating or to memorize their answers. Their supervisors reviewed the answers each time and resolved any disagreements of

opinion. A statistical comparison of the two ratings for each job indicated that, while the ratings were never identical, the total score for the job usually remained much the same (r = .96 out of 1.00 possible). This very high level of reliability is due partly to the fact that the questionnaire measured so many specific aspects of a job's responsibilities. Although changes in judgments were possible on any one question, the changes that alone would raise the job's score were usually offset by other changes that lowered the job's score. The net result was that the total score remained approximately the same.

The test-retest reliability of .96 compares very favorable with the interrater reliablities of .60 to .85 that have been reported in the literature for other methods of job evaluation.

Determining the validity of the new job evaluation system was particularly important because the criteria of job difficulty had been chosen and weighted by employees rather than by management. Validity was therefore assessed in a variety of ways. Each test of the system's validity involved comparing the new system's rating of the difficulty of a class of work with a more conventional rating of its difficulty.

The most conventional standard of difficulty is the current salary grade for a class of work. There was a very strong relationship between current salary grades and the average ratings of difficulty for 125 classes of work (r = .88). The relationship was also strong when the classes were divided into three groups based on the predominant sex of their employees (r = .90 for male-dominated classes, r = .90 for mixed classes, and r = .84 for female-dominated classes; the latter correlation was probably lower because the salary structure for those classes has been distorted in recent years by selective adjustments that were tied to the implementation of comparable worth at the State). The strength and pattern of these correlations indicate that the new job evaluation system measures differences in job difficulty as adequately as the current salary structure does for a wide variety of different types of work. The correlations compare favorably to the correlations with salary of .80 to .88 that have been reported for widely accepted consultant-designed systems such as the Arthur Young Decision-Band method and the Hay Associates Guide Chart method.

Experts in job evaluation within the Personnel Department were involved in establishing another standard of job difficulty. Fifteen employees with considerable experience in job analysis and evaluation were asked to rate general descriptions of 60 classes of work on five different dimensions: the amount of Knowledge, Skill, Mental Effort, Independent Judgment, and Supervisory Responsibility they each required. Their ratings on each dimension were then integrated by a statistical technique called multi-dimensional scaling. The single scaled rating for each class was then compared to the average difficulty ratings that had been obtained using the new job evaluation questionnaire. There was a strong relationship between the two ratings (r = .88). It was particularly strong given how very different the two rating methods had been. The strength of this relationship indicated that the employee criteria of job difficulty were compatible with the criteria that the Personnel Department has used in the past.

Two additional estimates of validity were obtained by taking advantage of ratings that were made by two widely accepted consultant systems for reasons unrelated to this project. The Hay Associates Guide Chart system has been used to rate several hundred classes of work at the State of Minnesota: 68 of those classes are similar to ones at the University. There was a moderately strong relationship (r = .83) between Hay ratings of the State's classes and the questionnaire-based ratings of similar classes at the University, even though the job matches were not always good (in ten cases it took two State classes to match one at the University, or vice versa).

The Arthur Young Decision-Band method has been used to rate nearly 200 health-related classifications at the University Hospital. In a joint study with the Hospital, 22 of their classes and 21 University classes were rated by both the Decision-Band method and the University's new questionnaire approach. The relationship between the two sets of ratings for the 43 classes was strong (r = .87) even though the sample of classes was not representative of the general workforce in either location.

The outcome of the new system's comparison to these two consultant-designed systems is consistent with the correlations of .85 to .95 that have been reported in the literature when different consultant-designed systems are compared to each other on an identical set of jobs.

All of the above tests are consistent in indicating that the employee standards of job difficulty are at least as valid as other, more conventional, standards. It is important to note, however, that high correlations do not mean identical results. Some changes will be necessitated by the new system and every effort has been made to ensure that each change is valid in its own right.

III. ADJUSTING SALARY GRADES FOR CLASSES OF WORK

The primary purpose of this study was to determine how salary grades should be adjusted in order to pay each class of work according to its rated difficulty, regardless of the predominant sex of its incumbents. This would produce an internally equitable salary structure that could be maintained by the University through periodic re-evaluations in future years. A second purpose was to comply with a State statute that required the University to conduct an analysis of its current salary practices for primarily male versus primarily female classes of comparable difficulty.

Method for including classes in the study. The study was conducted in two phases for practical reasons. A total of 125 out of more than 450 non-hospital classes of work were tested in the first phase to determine the average level of their difficulty. These classes included all those with twenty or more incumbents plus a random sample of smaller classes to ensure representative results. Of these classes, 52 were female-dominated (70% or more female incumbents in the class), 42 were male-dominated (80% or more male incumbents), and 31 were mixed or "balanced" (21% to 69% female incumbents). The definitions of sex-dominance were dictated by the State statute. Together, the 125 classes cover three quarters of the University's non-hospital employees. The remaining 325 or so classes that cover the remaining one-quarter of the employees were tested later in Phase II.

Determining pay inequities. To comply with the State statute, a statistical technique called regression was used to determine whether female-dominated classes are currently being paid the same as male-dominated classes of similar difficulty. In keeping with the outcomes of similar such studies,

the results indicated they are not. On the average, male-dominated classes are being paid $2.37 per point of rated job difficulty while female-dominated classes are being paid only $1.81 per point.[1] In addition, the amount of underpayment increases as the rated difficulty of the female-dominated class increases.[2] The following is an example of the discrepancies:

	Rated Job Difficulty		
	1200 points	1600 points	2000 points
male-dominated class	$1199/mo.	$2147/mo.	$3095/mo.
female-dominated class	$1147/mo.	$1871/mo.	$2595/mo.
dollar underpayment	$ 52/mo.	$ 276/mo.	$ 500/mo.
percentage underpayment	4%	13%	16%

The results for all 125 classes are illustrated in the first graph of Appendix III. Female-dominated classes are plotted as "F", male-dominated classes as "M", and balanced classes as "B". The average point total for a class can be determined by reading straight down from the plotted letter to the bottom of the graph; the midpoint of the current salary range for the class can be determined by reading straight across from the plotted letter to the left margin of the graph.

The male and female pay lines on the graph were computed according to the formulas indicated in footnote 1 below. The lines themselves show the average current midpoint salary for male-dominated classes at each point value, compared to the average current midpoint salary for female-dominated classes with the same point rating. The female pay line ranges from 4% to 16% lower than the male pay line, depending on the difficulty of the class (the greater the difficulty, the more the class is underpaid).[2]

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1 The formula for male-dominated classes is actually $2.37 minus $1,645; for female classes it is $1.81 per point minus $1,025.

2 This is probably due to the fact that pay equity adjustments made by the State in 1983-84 have already been passed on to 20 matching female-dominated classes at the University, most of which are lower rated classes of work.

Remedying pay inequities. The principle of pay equity is that classes of similar rated difficulty should be paid similarly. In order to resolve pay inequities, it is necessary to determine the appropriate salary range for each class according to a common formula. Then existing salary ranges are adjusted up or down to the level indicated by that formula. In practice, this means raising or lowering the existing salary ranges for all classes in such a way that the midpoints of their salary ranges fall on the same pay line.

The University's general counsel indicates that the University will be vulnerable to legal suits unless this principle is applied to all classes regardless of the sex of their incumbents. In addition to being legally appropriate, consistent application of the principle ensures that the structural relationship among related classes will be equitable regardless of whether the classes are female-dominated, balanced, or male-dominated.

The male pay line formula was used as the common formula for all classes primarily because the salary ranges for overpaid classes can usually be lowered to the male pay line without making them uncompetetive in the marketplace. In the few cases when the new lower salary range is uncompetitive and produces documented recruiting problems, a market-related adjustment will be made (such adjustments will be reviewed annually to determine whether they continue to be appropriate).

The result of bringing all 125 classes in Phase I to the male pay line is illustrated in the second graph of Appendix III. Note that despite the average results, not every female-dominated class is underpaid compared to male-dominated classes of similar difficulty. Conversely, male-dominated classes of similar difficulty are not always paid the same. As a result, some male-dominated classes will receive pay equity increases while a few female-dominated classes will not.

Effect on individual salaries. The salaries for individuals in an underpaid class will be raised by the same percentage that the midpoint of the salary range for the class is raised. Employees in an overpaid class who are paid within the new lower salary range for the class will continue to receive regular salary adjustments until they reach the new range maximum.

The salaries for individuals in an overpaid class who are at or above the new range maximum already will be frozen until their salary falls within the new range (lump sum payments that don't affect an individual's base salary may be possible in the meantime, however). Individuals in classes that receive market adjustments will be paid within the market-adjusted salary range. New employees will be hired at a salary that is within the new higher or lower range for their class (unless it is market-adjusted).

Implementation. The total cost for raising the salaries of employees in underpaid classes is $12.7 million. This is approximately 6% of base payroll for all non-hospital civil service employees at the University. The cost is $8.7 million for the female-dominated classes alone, which is approximately 4% of base payroll.

Implementation of the pay equity adjustments will take place over a minimum of six years, although the maximum timetable could be considerably longer if the State chooses not to help fund the solution and civil service pay plans are at or below the cost-of-living for several years.

IV. USING THE SYSTEM TO CLASSIFY JOBS

Beginning July 1, 1986 the system will be installed as a more objective method for classifying new jobs and for reclassifying existing ones. The information obtained during the pay equity study will serve as a guide.

Defining a point range for each class of work. Since a large number of jobs in each class have already been rated, it's possible to use the range of their scores as an indication of how much the jobs in a class usually vary in difficulty. In order to make the range useful for classifying jobs in the future, the ranges of scores that were typical for related classes (e.g., Secretary, Senior Secretary, Principal Secretary, Executive Secretary) were restricted in a way that eliminated any overlap between them. For example, the range for Senior Secretary is 1251 - 1400 points and the range for Principal Secretary is 1401 - 1525 points. If the actual ranges of points

overlapped almost entirely, the classes will be combined instead (e.g., Secretary and Senior Secretary will eventually be combined into a single class with a range of 1251 - 1400 points).

This method of defining point ranges recognizes that jobs within a class will always vary somewhat in difficulty, while keeping the amount of that variation within reasonable limits.

Classifying jobs. In order to classify a job, it is first necessary to review its duties to see which set of related classes is most appropriate (e.g., the secretarial set of classes, the word processing set, the account clerk set, etc.). The job is then assigned to a particular class within the set according to its rated difficulty.

If it's a new job, the supervisor fills out the questionnaire that is used to rate its difficulty. If it's a request for reclassification into a higher class, or a departmental survey of an existing job, then both the supervisor and the employee fill out the questionnaire (although only the supervisor's answers are scored). The Personnel Department then reviews the answers and supporting examples, resolves with the supervisor any apparent errors in interpretation, and sends the questionnaire to be scored.

The score for the job is then compared to the range of scores that has been defined for each class in the appropriate set of classes. The job is assigned to the class that includes other jobs of similar difficulty. For example, if the Senior Secretary class has a range of 1251 - 1400 points, the Principal Secretary class has a range of 1401 - 1525 points, and a new secretarial job has a score of 1478 points, then the new job will be assigned to the Principal Secretary class.

This method provides a more objective basis for making difficult classification decisions and for resolving grievances about such decisions.

University of Minnesota
Civil Service Job Evaluation System

ITEMS AND CLUSTERS

I. KNOWLEDGE (16% of points)

1. General knowledge
2. Project-specific knowledge
3. Knowledge of non-University organizations
4. Continuing education
5. On-the-job experience and training

II. SKILL (15% of points)

6. Skill at working with data
7. Skill at working with machines, plants, or animals
8. Skill at working with people
9. Skill at working with people using technical terms (or foreign language)
10. Skill at writing standard English
11. Skill at writing with technical terms (or foreign language)

III. MENTAL EFFORT (13% of points)

12. Complexity of duties
13. Initiating or planning
14. Problem solving

IV. INDEPENDENT JUDGMENT (13% of points)

15. Non-supervisory guidelines
16. Supervisory guidelines

V. SUPERVISORY RESPONSIBILITY (10% of points)

17. Formal supervisory responsibility
18. Lead worker responsibility
19. Responsibility for training, evaluating, reviewing, or directing work
20. Number supervised (in ways described above)
21. Time spent supervising (in ways described above)

VI. EFFECT OF ERROR (10% of points)

22. in working with people
23. in working with data
24. in working with machines, plants, or animals
25. in solving problems
26. in supervising (in ways described above)

VII. IMPACT OF DUTIES (10% of points)

27. Impact of working with people
28. Impact of working with data
29. Impact of working with machines, plants, or animals
30. Impact of problem solving
31. Impact of supervisory responsibility

VIII. RISK (6½% of points)

32. Risk to employee (health or accident)
33. Time exposed to risk
34. Responsibility for protecting others
35. Risk to those protected
36. Number protected (directly vs. indirectly)

IX. PHYSICAL EFFORT (6½% of points)

37. Straining the body or senses

University of Minnesota
Civil Service Job Evaluation System

THE RATING OF JOBS AND CLASSIFICATIONS

The new job evaluation system will be used to determine which classes with different duties are of equal difficulty and so should be paid equally, and which classes are of greater or lesser difficulty by comparison.

Many people argue this is like trying to compare apples and oranges. They're right. Apples and oranges can be compared, however, on some basic criteria that are common to them both: number of calories, number of vitamins, amount of fiber content. Rating apples and oranges on these common criteria permits you to compare these fruits based on their overall nutritional value. The greater the nutritional value, the higher the price you should be willing to pay.

In a similar way, rating classifications on a common set of criteria permits you to compare the classes on the basis of their overall difficulty. In this case, the greater their difficulty, the more the University should be willing to pay. University employees made the value judgments about which criteria should be used to rate job difficulty and how heavily those criteria should be weighted. The next step was to use these criteria to rate the difficulty of the University's job classifications. That process is described below.

Rating individual jobs

The 37 factors in the final job evaluation system were turned into a multiple-choice questionnaire. Employees used this questionnaire to rate the difficulty of their own jobs. To do this, they marked the one answer to each question that best described their job's requirements.[1] The employee then reviewed the answers with his or her supervisor before returning the questionnaire for scoring. The scoring system assigned points to each answer according to its level of difficulty.[2] The points for each answer were then added together. This point total indicated the overall difficulty of the job.

Job evaluation vs. performance evaluation

The point total for a job rates only the difficulty of the job's duties. It does not rate how well those duties are performed. Although both types of rating are important, they must be handled by different systems because they

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[1] A test of the questionnaire indicated that this approach measured differences in job difficulty better than the method of allowing employees to mark every answer that applied or the method of allowing them to check the most difficult level that was ever done on their job.

[2] Over 120 committee members rank ordered the answers for each question according to their level of difficulty. The average rank order of each answer was used as its initial point value. This initial point value was then standardized and multiplied by the weight assigned to the question in the employee weighting surveys.

serve different purposes. Job evaluation rates the job: it's used to set salary ranges according to the difficulty of the job's duties, regardless of who does them. Performance evaluation rates the person: it's used to determine merit raises for individuals based on how well they perform their duties. Job evaluation is important in a more general sense because it sets the salary range within which those merit raises can be given.

Rating classifications

The main purpose of job evaluation is to assign classifications to salary ranges according to the average difficulty of their duties and responsibilities. Since individual jobs within a class are seldom equally difficult, and since generic descriptions of class responsibilities are difficult to write accurately and don't reflect this variation among jobs, we decided to rate several randomly selected jobs in each class and average their ratings to get the point total for the class as a whole.[3]

An example

The following is an example of how some real jobs in two different classes were rated. Although only a few ratings are shown in these examples, we actually rated 10-25 jobs in every class with more than twenty employees and most or all of the jobs in smaller classes.

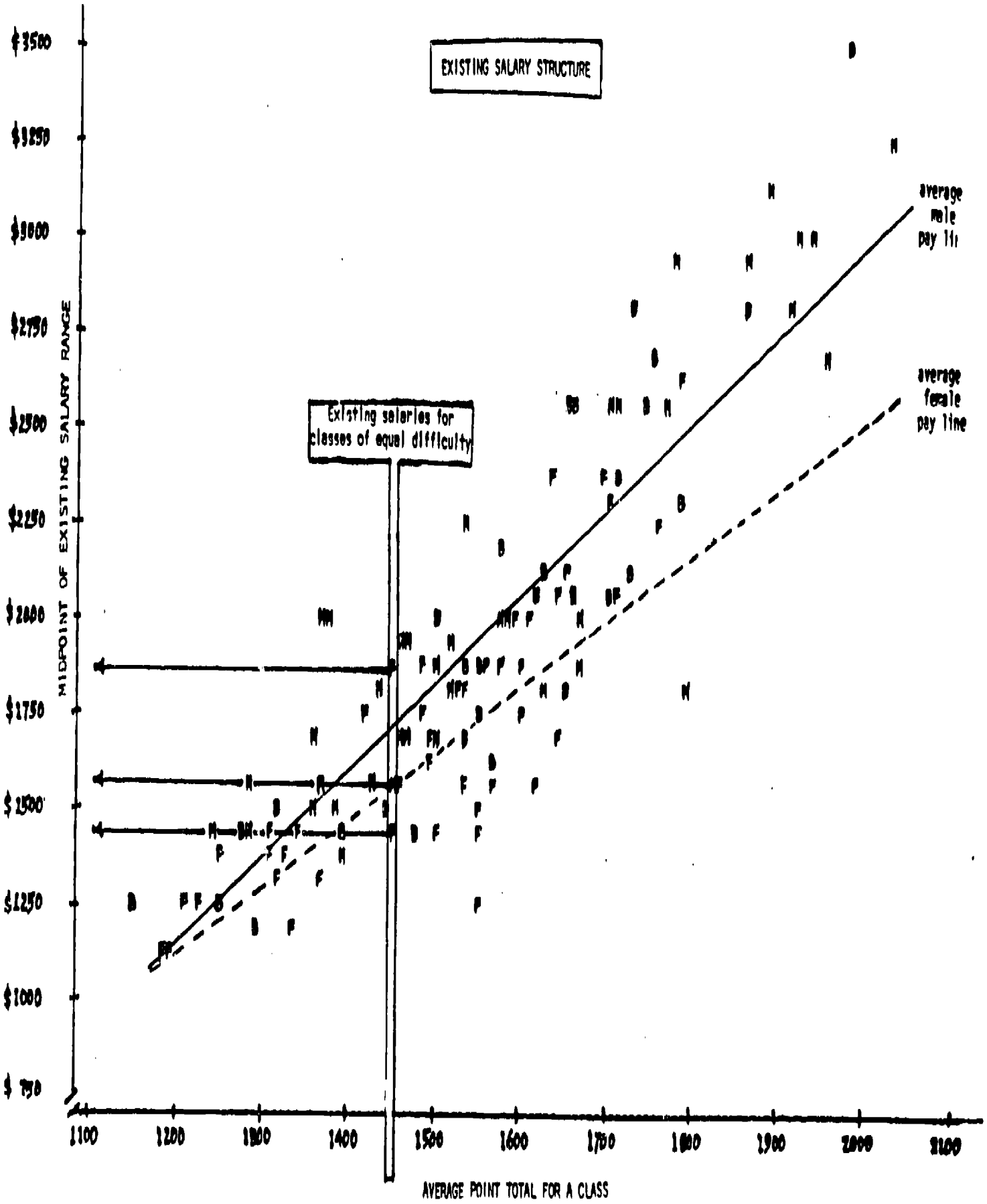
Job Evaluation Clusters	One Class			Another Class		
	Job A	Job B	Job C	Job A	Job B	Job C
Knowledge	201	201	214	168	189	195
Skill	206	220	233	156	140	189
Mental Effort	141	179	182	133	181	189
Indep. Judgment	146	173	184	186	224	237
Supervision	112	112	122	112	112	112
Error	106	109	131	94	94	96
Impact	125	122	143	103	108	121
Physical Effort	87	99	94	126	120	130
Risk	84	85	88	125	132	128
Job point total:	1208	1300	1391	1203	1300	1397
Class average:	1300 total points			1300 total points		

3 The median, rather than the arithmetic mean, was used as the average score. The median is the middle score in a set of scores that have been arranged from low to high. For example, the scores 1000, 1020, 1040, 1060 and 1880 have a median of 1040 versus an arithmetic average of 1200 points. As can be seen, the median is much less vulnerable to the very extreme scores that are likely to occur here due to the misclassification of jobs and the tendency of some employees to underrate or exaggerate their job's requirements.

This example shows two important things. First, individual jobs within a class may get somewhat different point totals even though they score high and low on the same clusters of items. In other words, even though jobs within a class have the same pattern of responsibilities, some jobs may be more difficult overall because they require a bit more of each type of responsibility.

Second, two classes may get the same average point total even though their jobs score high on different clusters of items. That is, although each class gets credit for its unique pattern of responsibilities, their average point totals may show that the classes are equally difficult overall and so should be paid equally. Some classes, of course, will be rated as more difficult than others because they score high on more clusters. Just how much more difficult they are, and consequently how much more they should be paid, will be shown by the size of their average point totals.

The main thing to remember is that the average point total for a class is determined by ratings of individual jobs that were made by employees who do the work. Thus it is employee judgments that ultimately determine how difficult each class is and how much it deserves to be paid.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$2000
$1750
$1500
$1250
$1000
$ 750
MIDPOINT OF EXISTING SALARY RANGE
Existing salaries for classes of equal difficulty
average male pay line
average female pay line
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1300
1400
1500
1600
1700
1800
1900
2000
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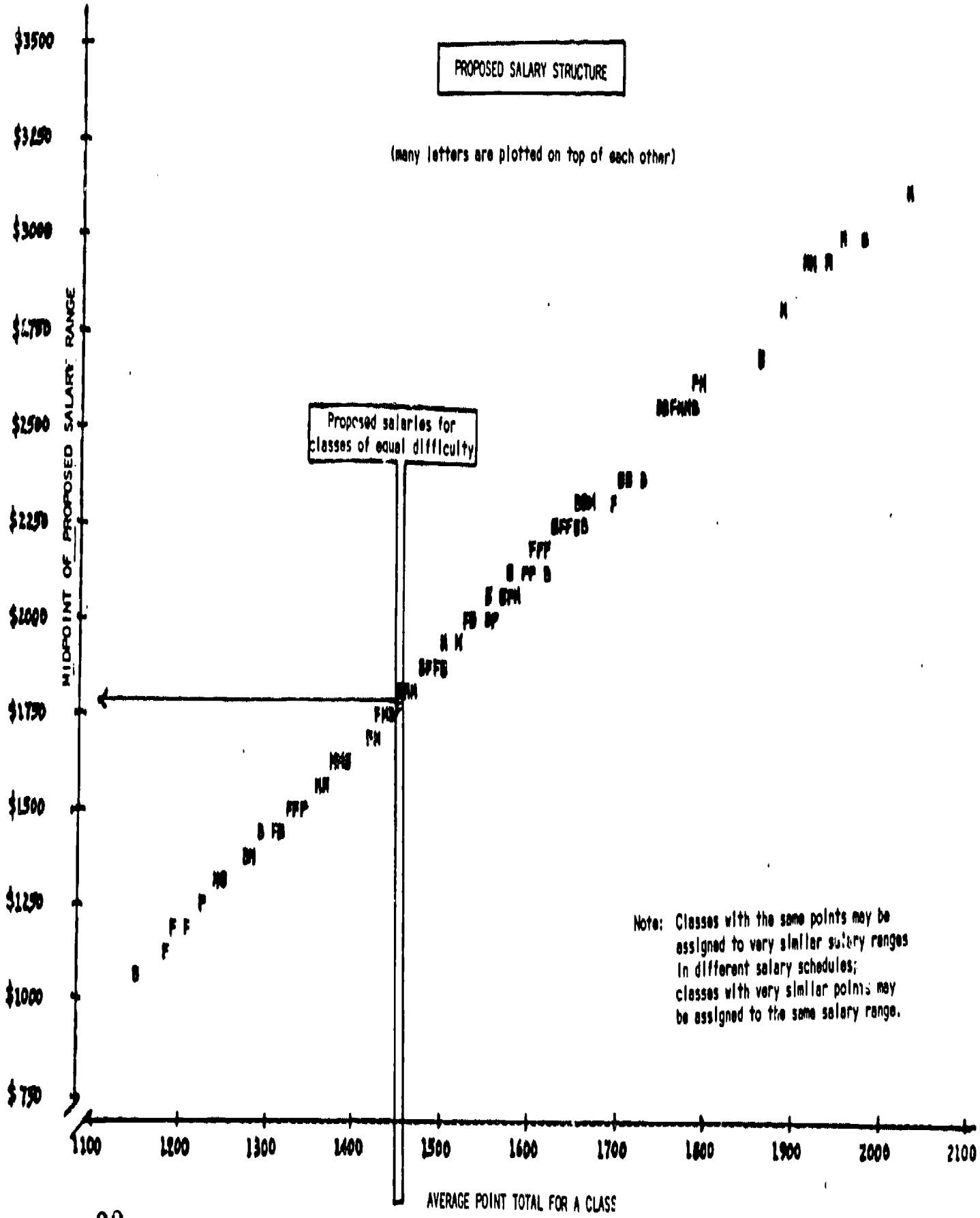
AVERAGE POINT TOTAL FOR A CLASS



APPENDIX III