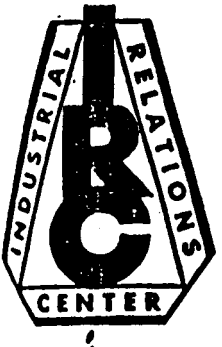

UNIVERSITY OF MINNESOTA

minnesota studies in vocational rehabilitation: xxvii

Manual for the Minnesota Satisfactoriness Scales

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The Minnesota Studies in Vocational Rehabilitation

The Minnesota Studies in Vocational Rehabilitation are a series of monographs published by the Work Adjustment Project, concerning research studies being conducted on the general problem of adjustment to work. These studies, begun in 1957, have two objectives: (1) development of tools for predicting an individual's work adjustment; and (2) exploration of the process of adjustment to work. These primary goals are embodied in a conceptual framework for research, entitled *A Theory of Work Adjustment* (Dawis, England and Lofquist, 1964; Dawis, Lofquist and Weiss, 1968). This theory focuses on interaction between the work personality and the work environment as a way of conceptualizing the process by which an individual adjusts to work.

The *Theory of Work Adjustment* states that vocational abilities and vocational needs are the significant aspects of the work personality, while ability requirements and reinforcer systems are the significant aspects of the work environment. Work adjustment is predicted by matching an individual's work personality with work environments. How well an individual's abilities correspond to the ability requirements of the job will predict the satisfactoriness of his work, and how well his needs correspond to the reinforcers available in the work environment will predict his satisfaction with his work.

Measurement devices are required to make the *Theory of Work Adjustment* operational. A worker's abilities can be measured with the General Aptitude Test Battery (U. S. Department of Labor, 1967b). His needs may be assessed using the Minnesota Importance Questionnaire (Weiss, Dawis, England, and Lofquist, 1964; Weiss, Dawis, Lofquist, and England, 1966a,b; Gay, Weiss, Dawis and Lofquist, 1970). Ability requirements for jobs are described by Occupational Aptitude Patterns (U. S. Department of Labor, 1967a), while job reinforcer systems have been described by Occupational Reinforcer Patterns (Borgen, Weiss, Tinsley, Dawis, and Lofquist, 1968a,b). The worker's satisfaction can be measured with the Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, and Lofquist, 1967), and his satisfactoriness with the Minnesota Satisfactoriness Scales.

Summary

The present monograph describes the development of the Minnesota Satisfactoriness Scales (MSS), and is intended to serve as a manual for use of the

MSS. It includes norms on several occupational groups, and discusses the use and interpretation of the MSS with respect to these norms. Technical data are also presented concerning the reliability and validity of the MSS.

The MSS is a 28-item questionnaire designed to be completed by a worker's supervisor. It takes about five minutes to complete, which makes it feasible to administer by mail.

A completed MSS is scored on five scales. The General Satisfactoriness score is an overall score derived from all the items on the MSS. The other four scales represent different aspects of satisfactoriness and are: Performance, Conformance, Dependability, and Personal Adjustment. They are based on different sets of items in the MSS.

The MSS was developed from supervisor ratings of 2,373 workers. Norms are available for the following occupational groups: Professional, Managerial and Technical; Clerical and Sales; Service; Machine Trades and Bench Work; and Workers-in-General.

The five MSS scales showed a median internal consistency reliability of .87. Median test-retest reliability for several job groups over a two-year interval was .50. The two-year study also provided evidence for validity of the MSS. Among satisfied workers, those with satisfactory scores on the Performance scale of the MSS were less likely to leave their jobs during the two years than were workers with unsatisfactory scores. More detailed information on the reliability and validity of the MSS may be found in the Technical Section.

Implications for Vocational Rehabilitation Practice

The MSS can be used by an agency or a counselor in follow-up studies which evaluate the quality of counseling outcomes. It can be used to evaluate the effectiveness of job placement, or the success of specific training programs. It can be used as an aid in counseling, as for example in determining a counselee's misperceptions of himself as a worker by comparing his own rating of his satisfactoriness with that given by his supervisor.

In interpreting an individual's MSS scores, care should be taken to refer to the most appropriate norm group. Section IV of this manual contains percentile tables for each of six occupational norm groups, showing percentile scores corresponding to the raw scores an individual might obtain on each of the five scales of the MSS. In general, percentile scores of 75 or above indicate highly satisfactory ratings on the scale concerned. Percentile scores of 25 or below indicate poor satisfactoriness. Percentile scores between 26 and 74 represent average satisfactoriness.

Copies of the MSS and authorization to use it may be obtained by writing to:

Vocational Psychology Research
406 Elliott Hall
University of Minnesota
Minneapolis, Minnesota 55455

Requests should include a description of how the instrument is to be used, and the professional qualifications of the persons who will use it.

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Manual for the Minnesota Satisfactoriness Scales

Section I. Description and Use

Description of the Minnesota Satisfactoriness Scales

The Minnesota Satisfactoriness Scales (MSS) comprise a 28-item rating questionnaire designed to assess the satisfactoriness of an individual as an employee. A copy of the MSS appears in Section III, pages 31-35. A sample item is "Compared to others in his work group, how well does he follow company policies and practices?" Three response alternatives are provided for rating an individual as being better than, about the same as, or not as good as his fellow employees. The last item, however, provides for indicating an individual's standing in his work group.

The MSS yields scores on a General Satisfactoriness scale and on four other scales. The General Satisfactoriness scale is comprised of all 28 items. The other scales — Performance, Conformance, Dependability, and Personal Adjustment — are made up of different sets of items from the questionnaire. The Performance scale concerns the employee's promotability, and the quantity and quality of his work. The Conformance scale reflects how well the worker gets along with supervisors and co-workers, and observes regulations. The Dependability scale refers to the frequency of disciplinary problems created by the employee. The Personal Adjustment scale pertains to the worker's emotional health.

Administration

The MSS is designed to be completed by a worker's immediate supervisor. It may also be filled out by a fellow worker, or the employee himself.

The rater need only follow the directions printed on the form. He must be familiar with the worker whom he is rating, and the workers with whom he is comparing the ratee.

No time limit is imposed, but most raters complete the MSS in about five minutes.

In case the employee being rated is the only one in his job category, the rater should be instructed to compare the employee with others who have done the job in the past.

The rater should be careful to answer all items, and to choose only one response alternative for each of the 28 items. Each completed form should be checked to be sure that no item has been inadvertently overlooked.

Scoring

The first 27 items are scored 1, 2, or 3, depending on the response alternative chosen, such that a higher score indicates greater satisfactoriness. The last item is scored 4, 3, 2, or 1, with 4 corresponding to the most favorable response. Thus, a person rated most favorably by his supervisor on each item would get a General Satisfactoriness score of 85. If rated as low as possible, he would score 28.

Table 1 lists the scoring weights assigned to each response alternative on the MSS for the items comprising each of the five scales. An individual's score on any scale is the sum of the weights for the responses to each of the items constituting that scale. For example, a check in the right-hand box ("better") for item 1 is given a weight of "3" on the Conformance scale. A check in the middle box ("about the same") for item 2 is given a weight of "2" on that scale.

Each item, except item 9, appears on the General Satisfactoriness scale and on one other scale. Item 9 is scored only on the General Satisfactoriness scale. The number of items and the range of possible raw scores for each scale are shown in Table 2.

The hand-scoring form shown on page 35 is designed to facilitate hand scoring of the MSS. Complete scoring of the MSS should include the conversion of raw scores to percentile scores and the computations of the "confidence band" for percentile scores as provided for on the hand-scoring form.

Norms

The norm tables in Section IV correspond to five occupational groups described in the Dictionary of Occupational Titles (DOT; U. S. Department of Labor, 1965). Separate tables are presented for male and female clerical and sales employees, since significant sex differences in MSS scores were found for this occupational group (see page 28).

Table 1. Item weights for scoring the Minnesota Satisfactoriness Scales

Item Number	Performance			Conformance			Dependability			Personal Adjust.			General Satisfactoriness		
	Left	Mid.	Right	Left	Mid.	Right	Left	Mid.	Right	Left	Mid.	Right	Left	Mid.	Right
1				1	2	3							1	2	3
2				1	2	3							1	2	3
3				1	2	3							1	2	3
4	1	2	3										1	2	3
5	1	2	3										1	2	3
6				1	2	3							1	2	3
7				1	2	3							1	2	3
8				1	2	3							1	2	3
9													1	2	3
10				1	2	3							1	2	3
11	1	2	3										1	2	3
12	1	2	3										1	2	3
13	1	2	3										1	2	3
14	3	2	1										3	2	1
15	3	2	1										3	2	1
16	3	2	1										3	2	1
17							3	2	1				3	2	1
18										3	2	1	3	2	1
19										3	2	1	3	2	1
20							3	2	1				3	2	1
21							3	2	1				3	2	1
22										3	2	1	3	2	1
23										3	2	1	3	2	1
24										3	2	1	3	2	1
25										3	2	1	3	2	1
26							3	2	1				3	2	1
27										3	2	1	3	2	1
	Top	2nd	3rd	Bot.									Top	2nd	3rd Bot.
28	4	3	2	1									4	3	2 1

Table 2. Number of items and possible range of scores on the Minnesota Satisfactoriness Scales

Scale	Number of Items	Possible Score Range	
		Minimum	Maximum
Performance	9	9	28
Conformance	7	7	21
Dependability	4	4	12
Personal Adjustment	7	7	21
General Satisfactoriness	28	28	85

Not all the DOT occupational groups were represented in the MSS development group; therefore, one norm table was prepared for a Workers-in-General group. Individuals within each of the five other norm groups were randomly selected and combined into this Workers-in-General norm group in proportion to their frequency in the total labor force in the United States (U. S. Department of Labor, 1968). See page 48 for a description of the composition of the Workers-in-General group.

Interpretation

Percentile scores. Raw scores for each MSS scale should be converted to percentile scores, using the appropriate norm table in Section IV. An individual's percentile score on any scale indicates the percentage of workers in that norm group whose raw scores are equal to or lower than that of the individual.

The use of the Workers-in-General norm table may be illustrated by the example of a man who is employed as a farmhand. Since no MSS data are available on agricultural occupations, the Workers-in-General norm table is the best one to use to convert this worker's MSS raw scores to percentiles. The presumption is that, lacking more appropriate norms, the "best" group to use as a comparison group for the satisfactoriness ratings of this individual is the average for those workers on whom MSS data are available.

In interpreting percentile scores, percentile scores of 25 and below may be considered as unsatisfactory, 26 through 49 as somewhat satisfactory, 50 through 74 as satisfactory, and 75 and above as very satisfactory.

Confidence bands. If it were possible to have 100 immediate supervisors each fill out an MSS on a particular worker, not all of them would be likely to answer the questions in the same way. The

raw score totals for any given scale would be likely to show some variation. They would form a distribution for which a mean and standard deviation could be calculated. About two-thirds of these 100 raw score totals could be expected to fall within one standard deviation from the mean. This range of scores could then be used to define a "confidence band" around the mean score. The confidence band would delineate a range within which one could be "confident" that the mean score would be found.

For any actual worker, however, there is normally only one supervisor, hence one MSS, and one score for each scale. However, a confidence band around each scale score can be determined. The standard error of measurement (S.E.M.) for a scale, added to and subtracted from the obtained score, defines the upper and lower limit, respectively, of the band within which the true score should be found in two-thirds of situations similar to a single rating. These "confidence bands" therefore should result in a more accurate interpretation of an individual's scores on the MSS scales, both in the comparison of different scale scores for the same individual, and in the comparison of several individuals on a given scale.

Illustration of Scoring and Interpretation

On the following pages are two completed MSS forms for hypothetical workers. For each worker, there is also a completed hand-scoring form for the MSS.

Carla Carlson. Carla Carlson's MSS, as completed by her immediate supervisor, is shown on pages 7-8. On item #1, the left-hand response alternative "not as well" is checked. As indicated in Table 1, this response is given a scoring weight of 1. Using the hand-scoring form for Carla's MSS (see p. 9), a "1" is placed in the two outlined boxes for item #1 (for the "Conformance" and "General" scales). Similarly, weights are entered in the boxes for items 2 through 12. A "3" is written for item 20, even if the first (i.e., left-hand) response was marked. The box for item 20 shows an "r," which means to *reverse* the scoring weights for item 20 (see Table 1, page 3). Scoring weights for items 21 through 27 are similarly reversed, as indicated on the hand-scoring form. For item 28, Carla's score is 2, since the second alternative from the bottom was marked. This item (28) has four alternatives (see Table 1, page 3, for scoring weights).

After all the boxes on the hand-scoring form have been filled in, the score for each satisfactoriness scale is obtained by summing up the item scores in each column. These scale scores are then converted to percentile scores by reference to the appropriate norm table in Section IV. The percentile scores for each scale are then written onto the hand-scoring form in the boxes labeled "Percentiles of Scale Score Totals."

For example, Carla Carlson's job as a sewing machine operator seems best referred to the Machine Trades and Bench Work norm table. On the Performance scale, Carla obtained a score of 13, which corresponds to a percentile score of about 12 (midway between the percentile scores for scale scores of 12 and 14). So, 12 is written into the box in the column for the Performance scale in the row labeled "Percentiles of Scale Score Totals."

In addition to showing the percentile score corresponding to any score on a given scale, each norm table also shows the amount of error associated with the scale scores. This is the standard error of measurement (S.E.M.) printed at the bottom of each scale. The S.E.M. value for each scale is added to the worker's score to give the upper limit of his confidence band, and is subtracted from his score to give the lower limit of his confidence band. These upper and lower scale score values are then converted to their corresponding percentile scores by reference to the norm table. The percentile scores are then written onto the hand-scoring form in the boxes indicated.

Carla's score for Performance was 13. The standard error of measurement for that scale is 1.56 (which is rounded to 1.6). Adding 1.6 to 13 gives an upper value (scale score plus 1 standard error of measurement) of 14.6, and subtracting 1.6 from 13 gives a lower value of 11.4, for the confidence band. Rounding these values to the nearest whole number gives an upper value of 15 and a lower value of 11, for the confidence band around a scale score of 13. These upper and lower values are converted to percentile scores by reference to the Machine Trades and Bench Work norm table, yielding percentile scores of 20 and 5 respectively. These percentile scores are then entered in the appropriate boxes at the bottom of Carla's MSS hand-scoring form. A similar process is followed for the four other scales.

All of Carla Carlson's scale scores, except for Dependability, fall in the unsatisfactory range (i.e., percentile scores of 25 or below).

MINNESOTA SATISFACTORINESS SCALES

Employee Name Carla Carlson Job: Sewing Machine Operator

Rated by Alice Allison, Supervisor Date 9/14/69

Please check the best answer for each question
Be sure to answer all questions

Compared to others in his work group, how well does he . . .	*not as well*	*about the same*	*better*
1. Follow company policies and practices?	☒	☐	☐
2. Accept the direction of his supervisor?	☒	☐	☐
3. Follow standard work rules and procedures?	☒	☐	☐
4. Accept the responsibility of his job?	☒	☐	☐
5. Adapt to changes in procedures or methods?	☐	☒	☐
6. Respect the authority of his supervisor?	☒	☐	☐
7. Work as a member of a team?	☐	☒	☐
8. Get along with his supervisors?	☒	☐	☐
9. Perform repetitive tasks?	☐	☒	☐
10. Get along with his co-workers?	☐	☒	☐
11. Perform tasks requiring variety and change in methods?	☐	☒	☐

Compared to others in his work group . . .	*not as good*	*about the same*	*better*
12. How good is the quality of his work?	☐	☒	☐
13. How good is the quantity of his work?	☒	☐	☐

If you could make the decision, would you . . .	*yes*	*not sure*	*no*
14. Give him a pay raise?	☐	☐	☒
15. Transfer him to a job at a higher level?	☐	☐	☒
16. Promote him to a position of more responsibility?	☐	☐	☒

— Please continue on the other side —

Carla Carlson — Sewing Machine Operator — 9/14/69

Please check the best answer for each question

Be sure to answer all questions

Compared to others in his work group, how often does he . . .	*less*	*about the same*	*more*
17. Come late for work?	☒	☐	☐
18. Become overexcited?	☐	☒	☐
19. Become upset and unhappy?	☐	☒	☐
20. Need disciplinary action?	☒	☐	☐
21. Stay absent from work?	☒	☐	☐
22. Seem bothered by something?	☐	☐	☒
23. Complain about physical ailments?	☐	☐	☒
24. Say 'odd' things?	☐	☐	☒
25. Seem to tire easily?	☐	☐	☒
26. Act as if he is not listening when spoken to?	☐	☒	☐
27. Wander from subject to subject when talking?	☐	☒	☐

28. Now will you please consider this worker with respect to his overall competence, the effectiveness with which he performs his job, his proficiency, his general overall value. Take into account all the elements of successful job performance, such as knowledge of the job and functions performed, quantity and quality of output, relations with other people (subordinates, equals, superiors), ability to get the work done, intelligence, interest, response to training, and the like. In other words, how closely does he approximate the ideal, the kind of worker you want more of? With all these factors in mind, where would you rank this worker as compared with the other people whom you now have doing the same work? (or, if he is the only one, how does he compare with those who have done the same work in the past?)

In the top ¼ ☐

In the top half but not among the top ¼ ☐

In the bottom half but not among the lowest ¼ ☒

In the lowest ¼ ☐

MINNESOTA SATISFACTORINESS SCALES
HAND-SCORING FORM

Name Carla Carlson Date 9/14/69

Item	Perf	Conf	Dep	Pers Adj	Gen
1. Follow company policies and practices?		1			1
2. Accept the direction of his supervisor?		1			1
3. Follow standard work rules and procedures?		1			1
4. Accept the responsibility of his job?	1				1
5. Adapt to changes in procedures or methods?	2				2
6. Respect the authority of his supervisor?		1			1
7. Work as a member of a team?		2			2
8. Get along with his supervisors?		1			1
9. Perform repetitive tasks?					2
10. Get along with his co-workers?		2			2
11. Perform tasks requiring variety and change?	2				2
12. How good is the quality of his work?	2				2
13. How good is the quantity of his work?	1				1
14. Give him a pay raise?	1r				1r
15. Transfer him to a job at a higher level?	1r				1r
16. Promote him to a position of more responsibility?	1r				1r
17. Come late for work?			3r		3r
18. Become overexcited?				2r	2r
19. Become upset and unhappy?				2r	2r
20. Need disciplinary action?			3r		3r
21. Stay absent from work?			3r		3r
22. Seem bothered by something?				1r	1r
23. Complain about physical ailments?				1r	1r
24. Say 'odd' things?				1r	1r
25. Seem to tire easily?				1r	1r
26. Act as if he is not listening when spoken to?			2r		2r
27. Wander from subject to subject when talking?				2r	2r
28. Now will you please consider this worker with respect to his overall competence	2				2
Scale Score Totals	13	9	11	10	45

Scoring

Norm Group Machine Trades and Bench Work

	Perf	Conf	Dep	Pers Adj	Gen
Raw Scores					
Scale Score Totals	13	9	11	10	45
Standard Error of Measurement (S.E.M.)	1.6	1.0	.9	1.2	2.7
Scale Scores + 1 S.E.M.	14.6	10.0	11.9	11.2	47.7
Scale Scores − 1 S.E.M.	11.4	8.0	10.1	8.8	42.3
Percentiles					
Percentiles of Scale Score Totals	12	2	70	5	5
Percentiles of Scale Scores + 1 S.E.M.	20	3	99	10	8
Percentiles of Scale Scores − 1 S.E.M.	5	1	50	3	3

She is seen by her supervisor as being unworthy of promotion, not producing work of good quality or quantity, having considerably more difficulty in personal adjustment than the average employee, being relatively uncooperative, and not following work rules and company practices.

The one bright spot on Carla's MSS is her satisfactory Dependability score. Carla does show reliable behavior with respect to regular and prompt appearance for work, and avoids behavior that would require disciplinary actions.

The preponderance of low ratings, especially on Performance, is reflected in Carla's low General Satisfactoriness score. In the overall judgment of her supervisor, she is not meeting his expectations as well as her co-workers are.

David Davis. The completed MSS for David Davis, a salesman, is shown on pages 12-13. David was rated by his sales manager. The hand-scoring form is shown on page 14.

On question 1, David was rated "better" by his supervisor. This rating was entered as a "3" on the hand-scoring form for both the Conformance and General Satisfactoriness scales. Similarly, entries are made on the hand-scoring form for items 2 through 13. The supervisor's checking of the center box for item 14 yields a "2" for that item. On item 15, the supervisor checked "no." Since the hand-scoring form indicates "reversal" for this item, David receives a "1" in the boxes for the Performance and General Satisfactoriness scales. Similarly, entries are made for items 16 through 28 on the hand-scoring form.

The General Satisfactoriness scale for David shows a score of 69. Referring to the Clerical and Sales (male) norm table (David is a salesman) a General Satisfactoriness score of 69 falls between the percentile scores of 55 and 60 (corresponding to scale scores of 68 and 70). Thus David is given a percentile score of 58.

Referring back to David's General Satisfactoriness scale score (the last column of the hand-scoring form), his scale score upper limit is 69 + 2.80 (the S.E.M. from the bottom of the Clerical and Sales male norm table). His scale score lower limit is 69 — 2.8. Thus, his confidence band is from 66.2 to 71.8, or 66 to 72. These scale scores (66 and 72) are converted to percentile scores (45 and 65) by reference to the norm table. The percentile scores are then entered on the appropriate lines.

David is rated satisfactory to very satisfactory on three aspects of satisfactoriness: Personal Adjustment, Conformance, and Dependability. However, he is only barely satisfactory on Performance. His overall assessment is "satisfactory," based on his 45-65 percentile score on the General Satisfactoriness scale. This score is lower because of its high correlation with Performance.

The picture of David given by his supervisor is of a well-adjusted, agreeable, cooperative, and trustworthy worker, but one who just does not appear to be competent enough to warrant increased rewards or responsibility.

David's score on the Dependability scale illustrates the importance of including the S.E.M. His Dependability score could fall anywhere from the 50th to the 99th percentile, 2 times out of 3 on repeated ratings. In other words, one time in three his score could fall outside this range. Thus, one time in six his Dependability score could be below 50 (it could not get any higher than the 99th percentile ceiling).

This allowance for the standard error of measurement shows the need to interpret MSS scale scores in ranges rather than exact percentiles. Certainly not much difference should be claimed between two individuals whose scores on a scale are only 5 to 10 percentile points apart.

Applications of the MSS

Use in follow-up studies. A counselor or counseling agency may want to use the MSS in a follow-up of counselees with their employers. In such a study, the counselor might want to know how long a terminated employee has worked, the circumstances of termination (quit, fired, accepted better job), and possibly forwarding information. The data obtained from such a study could be used as a quantitative indication of the counselor's effectiveness with different counselees. The counselor may decide to concentrate his counseling more heavily on the type of counselees with whom he is most effective in terms of satisfactory job placement. Or, he may want to sharpen his skills in dealing with the type of counselees whom he has not been able to help to obtain satisfactory employment. In either case, the MSS can provide "feedback" information that can be used to improve counseling.

A counselor or counseling agency may also use the MSS in follow-up studies designed to study the labor market. MSS scores

MINNESOTA SATISFACTORINESS SCALES

Employee Name David Davis Job: Salesman

Rated by John Johnson, Sales Manager Date 4/23/69

Please check the best answer for each question
Be sure to answer all questions

Compared to others in his work group, how well does he . . .	*not as well*	*about the same*	*better*
1. Follow company policies and practices?	☐	☐	☒
2. Accept the direction of his supervisor?	☐	☐	☒
3. Follow standard work rules and procedures?	☐	☒	☐
4. Accept the responsibility of his job?	☐	☒	☐
5. Adapt to changes in procedures or methods?	☒	☐	☐
6. Respect the authority of his supervisor?	☐	☐	☒
7. Work as a member of a team?	☐	☐	☒
8. Get along with his supervisors?	☐	☐	☒
9. Perform repetitive tasks?	☐	☐	☒
10. Get along with his co-workers?	☐	☒	☐
11. Perform tasks requiring variety and change in methods?	☐	☒	☐

Compared to others in his work group . . .	*not as good*	*about the same*	*better*
12. How good is the quality of his work?	☐	☐	☒
13. How good is the quantity of his work?	☐	☒	☐

If you could make the decision, would you . . .	*yes*	*not sure*	*no*
14. Give him a pay raise?	☐	☒	☐
15. Transfer him to a job at a higher level?	☐	☐	☒
16. Promote him to a position of more responsibility?	☐	☒	☐

— Please continue on the other side —

David Davis — Salesman — 4/23/69

Please check the best answer for each question
Be sure to answer all questions

Compared to others in his work group, how often does he . . .	*less*	*about the same*	*more*
17. Come late for work?	☒	☐	☐
18. Become overexcited?	☒	☐	☐
19. Become upset and unhappy?	☒	☐	☐
20. Need disciplinary action?	☒	☐	☐
21. Stay absent from work?	☒	☐	☐
22. Seem bothered by something?	☐	☒	☐
23. Complain about physical ailments?	☐	☒	☐
24. Say 'odd' things?	☒	☐	☐
25. Seem to tire easily?	☒	☐	☐
26. Act as if he is not listening when spoken to?	☐	☒	☐
27. Wander from subject to subject when talking?	☒	☐	☐

28. Now will you please consider this worker with respect to his overall competence, the effectiveness with which he performs his job, his proficiency, his general overall value. Take into account all the elements of successful job performance, such as knowledge of the job and functions performed, quantity and quality of output, relations with other people (subordinates, equals, superiors), ability to get the work done, intelligence, interest, response to training, and the like. In other words, how closely does he approximate the ideal, the kind of worker you want more of? With all these factors in mind, where would you rank this worker as compared with the other people whom you now have doing the same work? (or, if he is the only one, how does he compare with those who have done this same work in the past?)

In the top ¼ ☐

In the top half but not among the top ¼ ☐

In the bottom half but not among the lowest ¼ ☒

In the lowest ¼ ☐

Vocational Psychology Research
University of Minnesota

MINNESOTA SATISFACTORINESS SCALES
HAND-SCORING FORM

Name David Davis Date 4/23/69

Item	Perf	Conf	Dep	Pers Adj	Gen
1. Follow company policies and practices?		3			3
2. Accept the direction of his supervisor?		3			3
3. Follow standard work rules and procedures?		2			2
4. Accept the responsibility of his job?	2				2
5. Adapt to changes in procedures or methods?	1				1
6. Respect the authority of his supervisor?		3			3
7. Work as a member of a team?		3			3
8. Get along with his supervisors?		3			3
9. Perform repetitive tasks?					3
10. Get along with his co-workers?		2			2
11. Perform tasks requiring variety and change?	2				2
12. How good is the quality of his work?	3				3
13. How good is the quantity of his work?	2				2
14. Give him a pay raise?	2r				2r
15. Transfer him to a job at a higher level?	1r				1r
16. Promote him to a position of more responsibility?	2r				2r
17. Come late for work?			3r		3r
18. Become overexcited?				3r	3r
19. Become upset and unhappy?				3r	3r
20. Need disciplinary action?			3r		3r
21. Stay absent from work?			3r		3r
22. Seem bothered by something?				2r	2r
23. Complain about physical ailments?				2r	2r
24. Say 'odd' things?				3r	3r
25. Seem to tire easily?				3r	3r
26. Act as if he is not listening when spoken to?			2r		2r
27. Wander from subject to subject when talking?				3r	3r
28. Now will you please consider this worker with respect to his overall competence?	2				2
Scale Score Totals	17	19	11	19	69

Scoring

Norm Group Clerical and Sales (male)

	Perf	Conf	Dep	Pers Adj	Gen
Raw Scores					
Scale Score Totals	17	19	11	19	69
Standard Error of Measurement (S.E.M.)	1.6	1.1	0.9	1.3	2.8
Scale Scores + 1 S.E.M.	18.6	20.1	11.9	20.3	71.8
Scale Scores − 1 S.E.M.	15.4	17.9	10.1	17.7	66.2
Percentiles					
Percentiles of Scale Score Totals	25	80	70	75	58
Percentiles of Scale Scores + 1 S.E.M.	35	85	99	85	65
Percentiles of Scale Scores − 1 S.E.M.	15	70	50	70	45

can be compared for counselees placed in different firms or in different jobs. Such information may provide clues about the receptiveness of different firms to counselees of a particular type (e.g., of a specific disability group), or the appropriateness of different jobs for counselees of a particular type, or of the effectiveness of different vocational training programs. The two kinds of follow-up studies described could also be combined so that a counselor learns which types of counselees show greatest satisfactoriness in which types of jobs.

Use in vocational counseling. A counselor may find an MSS from a former employer useful in counseling with an individual. Such information can be compared with counselee perceptions of his satisfactoriness. The counselee may simply not know what specific deficiencies his former employer found in him, or he may be completely unrealistic in his perceptions of himself. The counselee could be asked to rate himself on the MSS. Discrepancies between his own ratings and those by his supervisor may be fruitful to discuss in counseling sessions.

Simply going over some of the items on an uncompleted MSS may help to structure the vocational counseling interview in a helpful way. This structuring might help an individual discover the kinds of behaviors employers see as important to satisfactory employment.

Some employees may be rated low on the Dependability scale because they are frequently late for work or absent. Such behaviors might suggest to the counselor a dissatisfied worker. The possibility of dissatisfaction and the nature of it could be evaluated by the employee's responses to the Minnesota Satisfaction Questionnaire (Weiss *et al.*, 1967).

Unsatisfactory performance scores might be obtained for employees whose abilities do not match the ability requirements of their jobs. One way that this match could be studied would be by administering to the employee a multifactor ability test, such as the General Aptitude Test Battery (U. S. Department of Labor, 1967b). The worker's ability profile could then be compared with a profile of the ability requirements of his job, such as is provided by the Occupational Aptitude Patterns (U. S. Department of Labor, 1967a).

In summary, the MSS is a tool developed within the framework of the *Theory of Work Adjustment* to measure one aspect of a worker's adjustment to a particular job. Indications of poor adjustment,

as reflected in low scores on the MSS, suggest that the worker may need counseling that will lead him to an occupation whose ability requirements and reinforcers provide an optimal fit to his abilities and needs.

Section II. Technical Data

Development

The present 28-item MSS is a revision of two previous forms. The first form is discussed in Monograph XIV of this series (Carlson *et al.*, 1963). The second, 29-item, form is described in Monograph XXI (Weiss, Dawis, England and Lofquist, 1966a). The 28-item form is essentially the 29-item MSS with one redundant item dropped, a new factor extracted, scoring weights revised, and norm groups expanded.

Item number 4 on the 29-item MSS ("perform tasks requiring repetitive movements") was dropped because of its similarity with item number 10 ("perform repetitive tasks"). These two items correlated .80, and in a subsequent factor analysis emerged together to define a trivial, two-item factor. The remaining items, 1 through 3 and 5 through 29, renumbered 1 through 28, constitute the present form of the MSS.

The groups of employees whose MSS's were used to develop factors and scoring weights are described in Table 3. Demographic

Table 3. Development group for Minnesota Satisfactoriness Scales

Occupational Group	N
Assemblers	110
Clerks, Male[a]	284
Clerks, Female	775
Engineers	384
Janitors and Maintenancemen	321
Machinists	305
Salesmen	227
Total	2,406

[a] Includes general office clerks, accounting clerks, bookkeepers, and business machine operators.

characteristics of these groups are shown in Section IV. Except for the Female Clerks group, these employees are those whose supervisors completed copies of the MSS which were mailed by the Work Adjustment Project.[1] The total of 2,406 in the MSS development group included 1,631 returns used to develop the 29-item form, plus an additional group consisting of 775 female clerical workers (for whom data were not obtained by mail). Only returns with less than

[1] Details of the data collection procedure are in Weiss, *et al.* (1966a), pages 5-7.

two unanswered items were used in the development sample. Some of the results reported in this section, such as the factor analyses, were based only on the 2,373 MSS returns containing *no* missing data.

Scale Construction

Table 4 shows the mean and standard deviation (prior to reversal) for each of the 28 items of the MSS. The item means (except for items 15 and 16) were generally above the midpoint of the score range. Standard deviations ranged from .53 to .86 for the 3-point items (1 through 27).

Table 4. Item means and standard deviations (N = 2373)

Item Number	Mean	Standard Deviation
1	2.26	.53
2	2.34	.58
3	2.23	.53
4	2.42	.63
5	2.15	.66
6	2.36	.56
7	2.23	.60
8	2.33	.54
9	2.22	.54
10	2.24	.56
11	2.18	.67
12	2.39	.62
13	2.26	.67
14	1.61	.81
15	2.04	.86
16	2.04	.86
17	1.48	.60
18	1.71	.69
19	1.77	.67
20	1.52	.61
21	1.49	.60
22	1.76	.65
23	1.58	.60
24	1.60	.59
25	1.67	.58
26	1.61	.58
27	1.61	.58
28	1.76	.85

The 28-item intercorrelation matrix is shown in Table 5. Correlations ranged from .10 (for item 9, "how well does he perform repetitive tasks?" with item 18, "how often does he become overexcited?") to .86 (for item 15, "would you transfer him to a job at a higher level?" with item 16, "would you promote him to a position of more responsibility?"). The average correlation was .35.

Table 5. Item intercorrelations for total group

(N = 2373)

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1																											
2	51																										
3	61	49																									
4	45	48	42																								
5	37	43	36	50																							
6	46	64	44	43	38																						
7	42	48	42	46	45	47																					
8	44	57	41	44	40	64	57																				
9	29	24	33	26	22	22	27	25																			
10	33	39	32	34	36	39	56	53	22																		
11	35	42	35	53	69	32	46	37	20	35																	
12	38	36	38	53	39	31	34	31	27	26	47																
13	34	38	34	51	41	30	38	32	31	29	48	52															
14	-32	-37	-33	-44	-41	-28	-35	-27	-19	-27	-45	-41	-47														
15	-30	-35	-31	-45	-46	-28	-36	-30	-17	-30	-49	-42	-44	60													
16	-33	-37	-32	-48	-45	-30	-38	-33	-18	-32	-48	-41	-44	58	86												
17	-31	-25	-30	-28	-14	-29	-22	-25	-19	-18	-13	-21	-22	15	12	14											
18	-21	-26	-23	-21	-29	-24	-26	-29	-10	-32	-27	-20	-15	20	24	26	17										
19	-29	-33	-27	-29	-36	-32	-37	-39	-16	-42	-31	-23	-24	25	27	31	23	63									
20	-48	-47	-43	-47	-37	-44	-44	-47	-24	-37	-34	-38	-37	35	33	34	43	33	46								
21	-31	-27	-29	-33	-21	-28	-28	-30	-17	-21	-22	-26	-28	22	21	23	50	21	30	46							
22	-29	-31	-29	-31	-34	-28	-34	-35	-18	-37	-32	-25	-28	24	28	30	26	53	65	43	36						
23	-26	-27	-27	-29	-26	-29	-30	-32	-15	-30	-27	-25	-25	24	26	28	30	37	44	42	48	49					
24	-34	-34	-34	-31	-33	-32	-36	-38	-17	-36	-31	-28	-27	26	30	32	28	40	43	49	33	48	49				
25	-27	-31	-28	-34	-31	-28	-34	-33	-23	-33	-33	-30	-38	26	31	33	27	29	40	40	40	43	55	47			
26	-37	-41	-35	-43	-38	-37	-41	-41	-24	-35	-39	-36	-37	30	33	34	30	29	39	49	34	39	39	53	49		
27	-31	-34	-34	-36	-38	-31	-36	-36	-19	-33	-38	-34	-35	28	33	33	26	36	38	45	32	42	42	59	46	63	
28	-44	-45	-41	-61	-53	-37	-46	-40	-29	-35	-58	-60	-59	57	56	57	24	27	35	49	32	35	33	38	38	44	40

Note — Decimal points omitted.

The item intercorrelation matrix was factor analyzed, using a principal factor solution with squared multiple correlations in the diagonal. Four factors were extracted when a minimum criterion eigenvalue of .55 was set, in order to account for total estimated common variance. The smallest eigenvalue obtained was .84. The four factors accounted for 50% of total variance. This factor matrix was rotated to the varimax solution shown in Table 6.

Table 6. Varimax factor matrix for total group (N = 2373)

Item	Factor I	Factor II	Factor III	Factor IV	Communality	SMC*
1	26	54	09	33	48	48
2	29	64	17	18	56	54
3	26	52	10	33	45	47
4	52	40	10	31	54	53
5	53	37	26	04	49	55
6	17	68	18	18	55	54
7	32	56	27	12	51	50
8	19	67	30	13	60	56
9	19	27	04	24	17	18
10	22	47	39	03	42	42
11	61	31	22	08	53	58
12	53	25	06	31	44	45
13	56	23	07	32	47	47
14	64	17	12	14	48	47
15	81	08	21	03	71	76
16	80	11	23	04	70	76
17	02	21	15	53	34	33
18	13	16	65	02	46	45
19	15	24	72	09	61	58
20	24	39	35	46	54	52
21	11	15	26	57	43	42
22	16	17	67	21	55	52
23	14	09	53	42	48	47
24	19	19	54	36	50	50
25	25	11	45	42	45	45
26	28	26	39	42	47	52
27	27	18	47	38	46	52
28	67	29	17	30	65	63
Contribution of factor	4.55	3.62	3.41	2.45	14.04	
Proportion of common variance	.32	.26	.24	.17	.99	
Proportion of total variance	.16	.13	.12	.09	.50	

Note — Decimal points omitted for factor loadings.
* SMC = Squared multiple correlation coefficient; an estimate of communality.

No item was assigned to more than one factor, nor was any factor loading below .40 considered meaningful. Thus item 9 ("how well does he perform repetitive tasks?") was not assigned to any factor.

Factor I has its major loadings, in descending order of importance, on items 15, 16, 28, 14, 11, 13, 5, 12, and 4. Its content therefore is highly saturated with promotability and competence. Also involved is adaptability, and quality and quantity of work output. Since it concerns how well the employee handles his work, an appropriate name for Factor I may be "Performance."

Factor II is defined by items 6, 8, 2, 7, 1, 3, and 10. The content of these items is "Conformance," i.e., the willingness of the employee to accept limitations imposed on him by the job and by his employer. Especially emphasized is the degree of cooperativeness the worker shows toward his supervisor and co-workers.

The major Factor III loadings are on items 19, 22, 18, 24, 23, 27, and 25. The items in this scale appear to represent a "Personal Adjustment" factor, in an emotional or mental health sense. The severity of maladjustment covered could range from being often "upset and unhappy," all the way to relatively bizarre behaviors like "saying 'odd' things." An employee rated low on this factor may be so preoccupied by personal problems that his satisfactoriness on the job suffers.

Factor IV is defined by four items: 21, 17, 20, and 26. These items imply disciplinary problems or poor work habits, such as absenteeism or tardiness. The picture of a worker scoring low on Factor IV is one of poor motivation, inconsistency, and inattentiveness. This factor has been called "Dependability."

All 28 items taken together define a scale of overall or "General" satisfactoriness. Each completed MSS is thus scored on five scales. These factors expand upon the "performance" and "conformance" dimensions identified in the earliest Work Adjustment Project studies on satisfactoriness (Carlson *et al.*, 1963).

Scoring weights. Different integer response weights for each item were developed to maximize the Hoyt reliability coefficient (Hoyt, 1941) for each scale. The Method of Reciprocal Averages was used to accomplish this (Hoyt and Collier, 1953). The resulting Hoyt coefficients were not appreciably different from those obtained with simple weights of 1, 2, 3, or 4 corresponding respectively to more satisfactory responses to each item. Therefore, these simpler weights have been retained in scoring the 28-item MSS, as shown in Table 1 (page 3).

Reliability

Internal consistency. Previous work with the MSS showed that integer scoring weights assigned to each item gave higher internal consistency reliabilities than did the exact factor score weights resulting from the factor analysis (Weiss *et al.*, 1966a). Therefore, integer weights were used in scoring the MSS scales.

Hoyt reliability coefficients (Hoyt, 1941) for the five scales on the 28-item questionnaire are presented in the tables of norms in Section IV. These values range from .69 to .95, with a median of .87. For each occupational group, the General Satisfactoriness scale had the highest internal consistency and the Dependability scale the lowest. The generally high coefficients reflect the homogeneity of content within each scale.

Stability. Stability of MSS scores was evaluated by obtaining ratings in 1967 on some of the same persons rated originally in 1965 (Anderson, 1969). These data were obtained only on individuals still on the same job in 1967 as in 1965. Since names of supervisors were not recorded on the rating form (to encourage frank ratings and to protect confidentiality), it was not known how many of the supervisors making the ratings were the same in both years. Table 7 shows these two-year test-retest correlations by occupation. The lowest was .40 for the Conformance scale with engineers. The highest was .68 for the Performance scale with salesmen. The median of all 20 correlations was .50.

Table 7. Two-year test-retest correlations for four occupational groups

Group	N	Perform-ance	Conform-ance	Depend-ability	Personal Adjust-ment	General Satisfac-toriness
Assemblers, janitors, maintenancemen, machinists	338	.58	.51	.49	.46	.58
Clerks (male)	108	.56	.54	.47	.50	.60
Engineers	182	.60	.40	.48	.43	.56
Salesmen	97	.68	.59	.53	.42	.65
Total Group	725	.59	.50	.49	.45	.59

Scale Intercorrelations

Table 8 shows the intercorrelations of scores on the five satisfactoriness scales. Intercorrelations are shown for the entire development sample, and for five separate occupational groups. Assemblers, janitors, maintenancemen and machinists were combined into one

group for this correlational analysis because their mean scores on the five satisfactoriness scales did not differ significantly across occupations. Scale intercorrelations for this blue-collar worker group were highest in comparison with the other groups. This finding suggests that individuals in this type of work tend to be rated more nearly the same on all aspects of satisfactoriness than is true for individuals in the other job groups.

Table 8. Intercorrelations of MSS scale scores for total group and five occupational groups

	Occupational Group					
Scales	Total Group (N = 2406)	Assemblers, janitors, maintenancemen, and machinists (N = 736)	Clerks (male) (N = 284)	Clerks (female) (N = 775)	Engineers (N = 384)	Salesmen (N = 227)
Performance vs. Personal Adjustment	53	59	55	49	51	52
Performance vs. Conformance	64	69	67	60	59	65
Performance vs. Dependability	52	58	45	52	53	51
Personal Adjustment vs. Conformance	57	59	59	57	52	51
Personal Adjustment vs. Dependability	65	70	62	66	60	56
Conformance vs. Dependability	60	62	57	63	55	60
Performance vs. General	88	90	89	86	88	89
Personal Adjustment vs. General	80	82	81	80	78	77
Conformance vs. General	84	85	85	82	80	84
Dependability vs. General	76	79	70	79	75	74

Note — Decimal points omitted.

Correlations of specific scales with general satisfactoriness ranged from .74 to .90, due to part-whole correlations. The four specific scales intercorrelated with each other less highly, from .45 to .70, with a median of .58. The generally high level of these intercorrelations suggests the possibility of a "halo effect" in the way raters use the MSS. This would indicate that a worker rated high on one MSS scale tends to be rated high on the other scales, and vice-versa.

Validity

Relationship with job tenure. The MSS is one possible way to measure a worker's satisfactoriness. According to the *Theory of Work Adjustment* (Dawis *et al.*, 1964, 1968), some criteria of satisfactoriness include: (1) progression by promotion, (2) salary increases, and (3) achievement indicators, such as sales volume in the case of a salesman. Studies using these criteria to validate the MSS are planned as part of ongoing research by the Work Adjustment Project.

The ultimate criterion of satisfactoriness is job tenure. Unsatisfactory employees will presumably be terminated sooner than will satisfactory employees. The obstacle to research using termination as a criterion is the difficulty of locating workers identified as having been fired. Anderson (1969) contacted 1,508 workers on whom an MSS had been completed 2 years earlier. Of these 1,508, 29% (N = 439) had left the jobs they had held 2 years earlier. Only 10 of these 439 indicated their reason for leaving as having been "fired." With such a small number of individuals, it was not possible to draw reliable conclusions about the relationship of MSS scores to the likelihood of being fired.

The use of tenure as a criterion for satisfactoriness, without information about the circumstances of job termination, is complicated by employee satisfaction. That is, a dissatisfied employee will voluntarily terminate his job sooner than will a satisfied employee. Evidence for validity of the MSS could therefore come from longitudinal studies of the satisfactoriness-tenure relationship, with the effects of satisfaction held constant.

Anderson (1969) dichotomized all 1,508 workers into a satisfied and an unsatisfied group on each of the three scales of the short-form Minnesota Satisfaction Questionnaire (MSQ; Weiss, *et al.*, 1967). Within each of these six categories, workers were dichotomized at the median on each of the four scales of the 29-item MSS. Chi-square tests were computed to compare the frequencies of stayers and leavers over the two-year period, in each of the two satisfactoriness groups.

Of the 24 chi-square calculations, two reached statistical significance at the 10% probability level, and none were significant beyond the 5% level. These two results were obtained for the Performance scale of the MSS. One was for satisfied workers on the Extrinsic scale of the MSQ, and the other for satisfied workers on

the General Satisfaction scale. As Table 9 shows, in both cases, satisfactory workers were less likely to leave their jobs over the two-year interval than were unsatisfactory workers. These findings are consistent with implications drawn from the *Theory of Work Adjustment.*

Table 9. Number of high satisfaction individuals who "stayed" and "left" their jobs, as a function of satisfactoriness level

Satisfactoriness Scale and Level	Stayed	Left	Chi-Square	p*
Employees Satisfied on Extrinsic Satisfaction				
Performance				
Low Satisfactoriness	146	66	3.84	.05
High Satisfactoriness	146	41	.....	.....
Employees Satisfied on General Satisfaction				
General Satisfactoriness				
Low Satisfactoriness	147	66	3.60	.06
High Satisfactoriness	145	41	.....	.....

* Probability of error in rejecting the null hypothesis of independence based on the value of the chi-square statistic with 1 degree of freedom.

Relationship with age. Since the MSS is designed to measure relevant aspects of an individual's job behavior, satisfactoriness might show a relationship with age. Such a relationship could result from the maturation of the individual's abilities, ability level stabilization resulting from continued job performance, and the normal adjustments an individual might make in his job behavior related to conformance, dependability and personal adjustment, as a result of continued interaction with the work environment. One therefore might expect peak satisfactoriness to occur in the "golden thirties" (Lehman, 1953).

Two-way analyses of variance were computed on the MSS scale scores of the 2,202 workers rated in 1965 who had complete data on all three variables: satisfactoriness and the two independent variables of age and tenure. The categories used for age were 18-29 years, 30-39, 40-49, and 50 and above. Tenure intervals were 0-1 year, 2-3, 4-5, and 6 and above. Results of these ANOVAs are shown in Table 10.

As Table 10 shows, the only significant effect was for age. Tenure effects were not significant, and the interaction of age and tenure was not significant. Table 11 shows the mean satisfactoriness scores for the age groups. As Table 11 shows, young workers were rated as more satisfactory, with the differences greatest on the Performance scale. Workers in their 30's were judged most satisfactory on the

Table 10. F-ratios and probability levels for two-way ANOVAs for age and tenure with five satisfactoriness scales as dependent variables

MSS scale and source of variation	Degrees of Freedom	Mean Square	F	p*
General Satisfactoriness				
Age	3	441.29	3.68	.01
Tenure	3	149.73	1.25	
Age × Tenure	9	92.02	.77	
Error	2044	119.95		
Performance				
Age	3	337.69	14.01	.001
Tenure	3	31.58	1.31	
Age × Tenure	9	24.02	1.00	
Error	2186	24.10		
Conformance				
Age	3	28.11	3.37	.02
Tenure	3	13.12	1.57	
Age × Tenure	9	4.15	.50	
Error	2186	8.34		
Dependability				
Age	3	20.99	6.63	.001
Tenure	3	2.37	.75	
Age × Tenure	9	1.81	.57	
Error	2186	3.17		
Personal Adjustment				
Age	3	6.59	.64	
Tenure	3	5.41	.53	
Age × Tenure	9	4.55	.44	
Error	2186	10.24		

* Probability of error in rejecting null hypothesis of no mean differences based on F-ratio, if $p \leq .05$.

General Satisfactoriness, Performance and Conformance scales. The Dependability scale showed significant increases with age, with the highest mean score being for the 50 and above group.

Relationship of satisfactoriness to satisfaction. According to the *Theory of Work Adjustment*, satisfactoriness and satisfaction meas-

Table 11. Mean satisfactoriness scores by age group, for significant effects from ANOVAs

	Age Group							
	18-29		30-39		40-49		50 and above	
MSS Scale	N	Mean	N	Mean	N	Mean	N	Mean
General Satisfactoriness	592	65.4	430	67.1	456	65.3	582	64.7
Performance	717	21.5	438	21.9	460	20.7	587	20.0
Conformance	717	15.7	438	16.4	460	16.2	587	16.0
Dependability	717	9.6	438	10.0	460	10.0	587	10.2
Personal Adjustment	717	16.3	438	16.5	460	16.3	587	16.2

ures should consist of independent sets of variables. Such a finding could be considered to be evidence of divergent validity for the MSS scales.

In Monograph XXI of this series, Weiss *et al.* (1966a) showed that the three scales of the short-form Minnesota Satisfaction Questionnaire (MSQ) had low correlations with the four scales of the 29-item MSS. The maximum proportion of variance found in common between any satisfaction scale and any satisfactoriness scale was only about 5%.

Taken as a total set of variables, a weighted linear composite of the MSS shared only about 2% of its variance with a similar composite of MSQ variables, as calculated by canonical correlation on a total group of 1,177 workers. When these workers were separated into occupational groups, the maximum canonical correlation was still only .31, corresponding to less than 10% of the variance being common to composites of the two sets of variables. Each composite, in turn, accounted for only a fraction of the total variance of the two sets of variables.

In the Manual for the MSQ (Weiss *et al.*, 1967), the lack of relationship between measured satisfaction and measured satisfactoriness is cited as support for the *Theory of Work Adjustment*, and as evidence supporting the construct validity of the MSQ as a measure of job satisfaction. Similar reasoning can be applied to the MSS as a measure of satisfactoriness.

Summary. There is some evidence that the MSS is a valid measure of satisfactoriness. Among satisfied workers, those who were rated above the median on Performance were more likely to continue on the job over a two-year interval than were those rated below the median. MSS scores were also related to age of employees in meaningful ways. Conformance and Dependability scores increased with age. General Satisfactoriness and Performance scores were highest for those between the age extremes of very young, and hence inexperienced, or old, and hence past their prime. Furthermore, MSS scores were independent of measured satisfaction, in accordance with the assertions of the *Theory of Work Adjustment.*

Occupational Group Differences

Satisfactoriness scale scores were available for employees in seven different occupational groups. Mean scores on each of the five scales are shown for these seven groups in Table 12. One-way

Table 12. MSS scale score means for seven occupational groups

Group	N	MSS Scale: Performance	Conformance	Dependability	Personal Adjustment	General Satisfactoriness
Assemblers	110	19.89	15.81	10.23	16.26	64.39
Clerks (male)	284	21.86	16.80	10.39	16.65	68.03
Clerks (female)	775	21.16	15.54	9.55	15.91	64.35
Engineers	384	21.60	16.29	9.84	16.50	66.30
Janitors and maintenancemen	321	19.95	15.78	9.98	16.21	64.13
Machinists	305	19.92	15.87	10.07	16.46	64.64
Salesmen	227	20.70	16.37	10.00	16.54	65.86
F (6,2399)		8.11	8.67	9.91	3.09	5.45
p[a]		.01	.01	.01	.01	.01

[a] Probability of error in rejecting null hypothesis of no difference between group means.

analysis of variance showed that, over all seven groups, differences were significant well beyond the .01 probability level, for all five scales. A significant sex difference was noted for clerks, the only group where both sexes were represented in significant numbers. Male clerks were rated higher than were female clerks on all five scales. This difference may reflect rating biases against female workers. In particular, on the Dependability scale male clerks were rated highest and female clerks lowest of the seven groups.

Differences among the seven groups in within-group variability

Table 13. MSS scale score variances for seven occupational groups

Group	N	MSS Scale: Performance	Conformance	Dependability	Personal Adjustment	General Satisfactoriness
Assemblers	110	27.22	8.14	2.27	10.69	115.74
Clerks (male)	284	27.51	9.36	2.59	9.86	125.28
Clerks (female)	775	23.11	7.04	3.60	10.28	111.87
Engineers	384	24.73	7.21	3.05	9.40	106.70
Janitors and maintenancemen	321	25.25	10.75	3.27	11.04	141.12
Machinists	305	25.71	9.48	3.25	11.45	135.00
Salesmen	227	24.54	8.26	2.92	9.24	113.66
Chi-square[a]		4.21	30.18	18.54	5.72	11.68
p[b]		.....	.01	.01	.....	.....

[a] Chi-square value of Bartlett's test of homogeneity of variance, with 6 degrees of freedom.

[b] Probability of error in rejecting null hypothesis of no difference between group variances, if $p \leq .05$.

are shown in Table 13. Bartlett's test for homogeneity of variance showed significant differences for the Conformance and Dependability scales. On Conformance, female clerks were rated the most uniformly (i.e., received the least variability in ratings), while janitors and maintenancemen obtained the most variable ratings. On Dependability, assemblers had least variance, and female clerks, the most.

Since occupational group differences were observed in mean scale scores, a separate table for each of five occupational norm groups is presented in Section IV, showing the percentiles corresponding to various scale scores. Differences among occupations do not imply that some occupations have more satisfactory workers than others. Supervisors of one group may simply tend to rate their employees higher than do supervisors of another group. Reference to the appropriate norm table is especially important when the MSS is being used to evaluate the work adjustment of an individual who has moved from one occupation group to another.

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Section III.
Copy of the MSS and MSS Hand-Scoring Form

MINNESOTA SATISFACTORINESS SCALES

Employee Name_____ Job:_____

Rated by_____ Date_____

Please check the best answer for each question
Be sure to answer all questions

Compared to others in his work group, how well does he . . .	*not as well*	*about the same*	*better*
1. Follow company policies and practices?	☐	☐	☐
2. Accept the direction of his supervisor?	☐	☐	☐
3. Follow standard work rules and procedures?	☐	☐	☐
4. Accept the responsibility of his job?	☐	☐	☐
5. Adapt to changes in procedures or methods?	☐	☐	☐
6. Respect the authority of his supervisor?	☐	☐	☐
7. Work as a member of a team?	☐	☐	☐
8. Get along with his supervisors?	☐	☐	☐
9. Perform repetitive tasks?	☐	☐	☐
10. Get along with his co-workers?	☐	☐	☐
11. Perform tasks requiring variety and change in methods?	☐	☐	☐

Compared to others in his work group . . .	*not as good*	*about the same*	*better*
12. How good is the quality of his work?	☐	☐	☐
13. How good is the quantity of his work?	☐	☐	☐

If you could make the decision, would you . . .	*yes*	*not sure*	*no*
14. Give him a pay raise?	☐	☐	☐
15. Transfer him to a job at a higher level?	☐	☐	☐
16. Promote him to a position of more responsibility?	☐	☐	☐

— Please continue on the other side —

Please check the best answer for each question

Be sure to answer all questions

Compared to others in his work group, how often does he . . .	*less*	*about the same*	*more*
17. Come late for work?	☐	☐	☐
18. Become overexcited?	☐	☐	☐
19. Become upset and unhappy?	☐	☐	☐
20. Need disciplinary action?	☐	☐	☐
21. Stay absent from work?	☐	☐	☐
22. Seem bothered by something?	☐	☐	☐
23. Complain about physical ailments?	☐	☐	☐
24. Say 'odd' things?	☐	☐	☐
25. Seem to tire easily?	☐	☐	☐
26. Act as if he is not listening when spoken to?	☐	☐	☐
27. Wander from subject to subject when talking?	☐	☐	☐

28. Now will you please consider this worker with respect to his overall competence, the effectiveness with which he performs his job, his proficiency, his general overall value. Take into account all the elements of successful job performance, such as knowledge of the job and functions performed, quantity and quality of output, relations with other people (subordinates, equals, superiors), ability to get the work done, intelligence, interest, response to training, and the like. In other words, how closely does he approximate the ideal, the kind of worker you want more of? With all these factors in mind, where would you rank this worker as compared with the other people whom you now have doing the same work? (or, if he is the only one, how does he compare with those who have done the same work in the past?)

In the top ¼ ☐

In the top half but not among the top ¼ ☐

In the bottom half but not among the lowest ¼ ☐

In the lowest ¼ ☐

MINNESOTA SATISFACTORINESS SCALES
HAND-SCORING FORM

Name_____ Date_____

Item	Perf	Conf	Dep	Pers Adj	Gen
1. Follow company policies and practices?					
2. Accept the direction of his supervisor?					
3. Follow standard work rules and procedures?					
4. Accept the responsibility of his job?					
5. Adapt to changes in procedures or methods?					
6. Respect the authority of his supervisor?					
7. Work as a member of a team?					
8. Get along with his supervisors?					
9. Perform repetitive tasks?					
10. Get along with his co-workers?					
11. Perform tasks requiring variety and change?					
12. How good is the quality of his work?					
13. How good is the quantity of his work?					
14. Give him a pay raise?	r				r
15. Transfer him to a job at a higher level?	r				r
16. Promote him to a position of more responsibility?	r				r
17. Come late for work?			r		r
18. Become overexcited?				r	r
19. Become upset and unhappy?				r	r
20. Need disciplinary action?			r		r
21. Stay absent from work?			r		r
22. Seem bothered by something?				r	r
23. Complain about physical ailments?				r	r
24. Say 'odd' things?				r	r
25. Seem to tire easily?				r	r
26. Act as if he is not listening when spoken to?			r		r
27. Wander from subject to subject when talking?				r	r
28. Now will you please consider this worker with respect to his overall competence					
Scale Score Totals					

Scoring

Norm Group_____

Raw Scores

	Perf	Conf	Dep	Pers Adj	Gen
Scale Score Totals					
Standard Error of Measurement (S.E.M.)					
Scale Scores + 1 S.E.M.					
Scale Scores — 1 S.E.M.					

Percentiles

	Perf	Conf	Dep	Pers Adj	Gen
Percentiles of Scale Score Totals					
Percentiles of Scale Scores + 1 S.E.M.					
Percentiles of Scale Scores — 1 S.E.M.					

Section IV.
MSS Normative Data

Professional, Technical, and Managerial
(N = 384)

Group Characteristics	N	%
Occupation		
Engineers	384	100
Age		
18 to 25	12	3
26 to 35	124	32
36 to 45	40	10
46 to 55	77	20
56 to 65	37	10
66 and over	0	0
Number of Previous Jobs		
0	263	69
1 or 2	87	22
3 to 5	25	6
6 to 10	9	2
11 and over	0	0
Tenure in Present Occupation		
1 year or less	4	1
2 to 5 years	80	21
6 to 10 years	81	21
11 to 20 years	32	8
21 to 30 years	69	18
31 and over	21	5
Training for Present Occupation		
On-the-job	62	16
Company program	84	22
Apprenticeship	15	4
Trade, technical or business school	49	13
College degree	376	97
Disabling Condition		
None	350	91
Single condition	30	8
Multiple conditions	4	1
Years of Full-time Experience		
1 or less	3	1
2 to 5	68	18
6 to 10	65	17
11 to 20	129	33
21 to 30	84	22
31 and over	38	10

Note — Where data from some of the subjects were missing, frequencies may total to less than N.

Professional, Technical, and Managerial
(N = 384)

Percentile Equivalents of Raw Scores

Percentile	Performance	Conformance	Dependability	Personal Adjustment	General
99	28	21	12	21	84
95	.....	.....	.....	.....	82
90	27	20	.....	.....	79
85	.....	19	.....	20	78
80	26	18	11	.....	76
75	.....	.....	.....	19	75
70	25	.....	.....	18	74
65	24	17	.....	17	72
60	23	.....	.....	.....	69
55	.....	16	10	.....	68
50	22	.....	.....	16	66
45	21	.....	.....	.....	65
40	20	15	9	15	63
35	.....	.....	.....	.....	62
30	19	14	.....	.....	61
25	17	.....	8	14	59
20	16	.....	.....	.....	57
15	15	.....	.....	13	54
10	14	13	7	12	51
5	12	12	6	11	47
1	10	10	5	9	43

Summary Statistics

	Performance	Conformance	Dependability	Personal Adjustment	General
Mean	21.60	16.29	9.84	16.50	66.30
Standard Deviation	4.97	2.68	1.75	3.07	10.33
Hoyt Reliability Coefficient	.90	.80	.69	.83	.92
Standard Error of Measurement	1.56	1.21	.98	1.28	2.87

Clerical and Sales (male)
(N = 511)

Group Characteristics	N	%
Occupation		
Accounting clerks	57	11
Bookkeepers	16	3
Business machine operators	15	3
Office clerks	196	20
Salesmen	227	44
Age		
18 through 25	36	8
26 through 35	128	27
36 through 45	120	25
46 through 55	107	23
56 through 65	82	17
66 and over	3	1
Tenure on Present Job		
1 year or less	63	13
2 through 5 years	153	32
6 through 10 years	105	22
11 through 20 years	100	21
21 through 30 years	40	8
31 and more years	15	3
Training for Present Occupation		
On-the-job	138	29
Company program	60	13
Apprenticeship	9	2
Trade, technical, or business school	207	44
College	51	11
Disabling Condition		
None	401	84
Single condition	70	15
Multiple conditions	5	1

Note — Where data from some of the subjects were missing, frequencies may total to less than N.

Clerical and Sales (male)
(N = 511)

Percentile Equivalents of Raw Scores

Percentile	Performance	Conformance	Dependability	Personal Adjustment	General
99	28	21	12	21	85
95	.....	.....	.....	.....	83
90	.....	.....	.....	.....	81
85	27	20	.....	20	79
80	26	19	.....	.....	77
75	25	.....	.....	19	75
70	.....	18	11	18	73
65	24	.....	.....	.....	72
60	23	17	.....	17	70
55	.....	.....	.....	.....	68
50	22	16	10	16	67
45	21	.....	.....	.....	66
40	20	15	.....	15	64
35	19	.....	9	.....	63
30	18	14	.....	14	61
25	17	.....	.....	.....	59
20	16	.....	8	.....	57
15	15	13	.....	13	55
10	13	.....	.....	12	51
5	11	12	7	11	47
1	9	9	5	9	42

Summary Statistics

	Performance	Conformance	Dependability	Personal Adjustment	General
Mean	21.34	16.61	10.22	16.60	67.06
Standard Deviation	5.14	2.98	1.66	3.09	11.00
Hoyt Reliability Coefficient	.91	.87	.69	.82	.94
Standard Error of Measurement	1.56	1.08	.92	1.31	2.80

Clerical and Sales (female)
(N = 775)

Group Characteristics	N	%
Occupation		
Cross-sectional sample from one large midwestern industrial firm, including: stenographers, typists, general file clerks, accounting clerks	775	100
Age		
17 through 19	188	24
20 through 25	329	43
26 through 35	116	15
36 through 45	63	8
46 through 55	56	7
56 through 64	23	3
Highest Level of Formal Education		
Less than high school	20	3
High school only	464	60
Business or trade school	147	19
College (1-3 years)	130	17
College (4 or more years)	14	2
Number of Years in Present Line of Work		
1 or less	185	27
2 through 5	289	42
6 through 10	122	18
11 through 20	70	10
21 through 30	17	3
31 and more	2	1
Number of Years with Present Company		
1 or less	239	33
2 through 5	273	37
6 through 10	117	16
11 through 20	82	11
21 through 30	9	2
31 and more	2	1
Number of Years in Present Job		
1 or less	310	51
2 through 5	237	38
6 through 10	38	6
11 through 20	24	4
21 through 30	4	1
31 and more	0	0

Note — Where data from some of the subjects were missing, frequencies may total to less than N.

Clerical and Sales (female)
(N = 775)

Percentile Equivalents of Raw Scores

Percentiles	Performance	Conformance	Dependability	Personal Adjustment	General
99	28	21	12	21	85
95	.....	20	.....	.....	81
90	27	19	.....	.....	78
85	26	18	.....	20	76
80	.....	.....	11	19	74
75	25	17	.....	18	71
70	24	16	.....	17	70
65	23	.....	10	.....	68
60	.....	15	.....	16	67
55	22	.....	.....	15	65
50	.....	.....	9	.....	64
45	21	14	.....	14	62
40	20	.....	.....	.....	61
35	19	.....	8	.....	59
30	18	.....	.....	.....	58
25	17	.....	.....	.....	56
20	16	.....	.....	13	55
15	15	.....	7	.....	53
10	13	13	.....	12	50
5	12	11	6	10	45
1	10	9	5	9	41

Summary Statistics

	Performance	Conformance	Dependability	Personal Adjustment	General
Mean	21.16	15.54	9.55	15.91	64.35
Standard Deviation	4.81	2.65	1.90	3.21	10.58
Hoyt Reliability Coefficient	.89	.86	.78	.88	.94
Standard error of measurement	1.57	1.01	.89	1.11	2.68

Service
(N = 566)

Group Characteristics	N	%
Occupation		
Cosmetologists	29	5
Janitors	105	19
Maintenancemen	216	38
Practical nurses	109	19
Social worker aides (New Careers Program)	54	10
Teacher aides (New Careers Program)	54	10
Age		
18 through 25	131	23
26 through 35	74	13
36 through 45	93	14
46 through 55	111	20
56 through 65	74	13
66 and over	11	2
Tenure on Present Job		
1 year or less	156	28
2 through 5 years	86	15
6 through 10 years	64	11
11 through 20 years	77	14
21 through 30 years	18	3
31 and more years	7	1
Training for Present Occupation		
On-the-job	59	10
Company program	18	3
Apprenticeship	19	3
Trade, technical, or business school	199	35
Some college	23	4
Disabling Condition		
None	217	38
Single	38	7
Multiple conditions	15	3

Note — Where data from some of the subjects were missing, frequencies may total to less than N.

Service
(N = 566)

Percentile Equivalents of Raw Scores

Percentiles	Performance	Conformance	Dependability	Personal Adjustment	General
99	28	21	12	21	85
95	...	.	.....	.....	83
90	27	...	.....	.....	80
85	26	20	.....	.....	79
80	25	19	.....	20	77
75	24	18	....	19	75
70	...	.....	11	.....	73
65	23	17	.....	18	71
60	22	.....	.....	.....	69
55	21	16	.....	17	68
50	20	.....	10	16	66
45	.....	15	...	.....	65
40	19	14	.....	15	63
35	18	.....	9	....	61
30	17	.....	.....	14	58
25	16	.....	8	.....	56
20	..	.....	.....	.....	54
15	15	13	....	13	52
10	13	12	7	12	49
5	11	10	6	10	45
1	9	8	5	8	37

Summary Statistics

	Performance	Conformance	Dependability	Personal Adjustment	General
Mean	20.59	16.16	10.00	16.70	65.67
Standard Deviation	5.00	3.19	1.90	3.31	11.94
Hoyt Reliability Coefficient	.90	.90	.77	.87	.95
Standard Error of Measurement	1.61	1.04	.92	1.21	2.70

Machine Trades and Bench Work
(N = 415)

Group Characteristics	N	%
Occupation		
Assemblers	305	73
Machinists	110	27
Age		
18 through 25	22	6
26 through 35	66	18
36 through 45	93	25
46 through 55	121	32
56 through 65	69	18
66 and over	4	1
Tenure on Present Job		
1 year or less	26	7
2 through 5 years	89	24
6 through 10 years	65	17
11 through 20 years	130	35
21 through 30 years	61	16
31 and more years	4	1
Training for Present Occupation		
On-the-job	90	24
Company program	26	7
Apprenticeship	66	18
Trade, technical or business school	121	32
College	4	1
Disabling Condition		
None	316	84
Single condition	50	13
Multiple conditions	9	2

Note — Where data from some of the subjects were missing, frequencies may total to less than N.

Machine Trades and Bench Work
(N = 415)

Percentile Equivalents of Raw Scores

Percentiles	Performance	Conformance	Dependability	Personal Adjustment	General
99	28	21	12	21	85
95	27	.....	.....	.....	84
90	26	20	.....	.....	79
85	.....	19	.....	20	77
80	25	18	.....	.....	75
75	24	.....	.....	19	73
70	23	17	11	.....	71
65	22	.....	.....	18	69
60	21	16	.....	17	68
55	20	.....	.....	.....	66
50	.....	15	10	16	65
45	19	...	.....	.....	63
40	18	14	.....	15	61
35	17	.....	9	14	59
30	16	.....	.....	.....	57
25	.....	.....	.....	.....	56
20	15	.....	8	13	53
15	14	13	.....	12	52
10	12	12	7	11	49
5	11	11	6	10	45
1	9	8	5	8	39

Summary Statistics

	Performance	Conformance	Dependability	Personal Adjustment	General
Mean	19.91	15.85	10.11	16.41	64.57
Standard Deviation	5.10	3.02	1.73	3.35	11.38
Hoyt Reliability Coefficient	.91	.88	.74	.87	.94
Standard Error of Measurement	1.56	1.05	.88	1.23	2.74

Workers-in-General
(N = 1000)

Group Characteristics	N	%
Occupation		
Professional, technical, and managerial engineers	380	38.0
Clerical and Sales (male)	145	14.5
Accounting clerks, bookkeepers, business machine operators, and office clerks	80	
Salesmen	65	
Clerical and Sales (female)	230	23.0
Service	145	14.5
Cosmetologists	6	
Janitors	23	
Maintenancemen	51	
Practical nurses	27	
Aides, New Careers Program	38	
Machine Trades and Bench Work	100	10.0
Assemblers	50	
Machinists	50	
Age		
18 through 25	117	12
26 through 35	297	30
36 through 45	157	16
46 through 55	189	19
56 through 65	109	11
66 and over	19	2
Tenure on Present Job		
1 year or less	177	18
2 through 5 years	260	26
6 through 10 years	160	16
11 through 20 years	128	13
21 through 30 years	104	10
31 and more years	28	3
Training for Present Occupation		
On-the-job	213	21
Company program	174	17
Apprenticeship	40	4
Trade, technical, or business school	242	24
College	444	44
Disabling Condition		
None	616	62
Single condition	74	7
Multiple conditions	11	1

Note — Where data from some of the subjects were missing, frequencies may total to less than N.

Workers-in-General
(N = 1000)

Percentile Equivalents of Raw Scores

Percentiles	Performance	Conformance	Dependability	Personal Adjustment	General
99	28	21	12	21	85
95	.....	.....	.....	.....	83
90	27	20	.....	.....	80
85	26	19	.....	20	78
80	.....	18	.....	.....	76
75	25	.....	11	19	74
70	24	17	.....	18	72
65	.....	.....	.....	.....	70
60	23	16	.....	17	69
55	22	.....	10	.....	67
50	21	.....	.....	16	66
45	20	15	.....	.....	64
40	.....	.....	9	15	62
35	19	14	.....	.....	61
30	18	.....	.....	14	59
25	17	.....	8	.....	57
20	16	.....	.....	.....	55
15	15	.....	.....	13	53
10	13	13	7	12	50
5	11	11	6	10	46
1	9	9	5	9	42

Summary Statistics

	Performance	Conformance	Dependability	Personal Adjustment	General
Mean	21.10	16.12	9.91	16.45	65.75
Standard Deviation	5.05	2.81	1.82	3.23	10.96
Hoyt Reliability Coefficient	.90	.85	.74	.85	.94
Standard Error of Measurement	1.58	1.10	.93	1.23	2.79