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ABSTRACT

Studies of social comparison choice have utilized a paradigm which fails to distinguish comparison motives from more general information search motives. In the present study subjects were either exposed to the standard social comparison manipulation or asked to determine the distribution of a set of unknown random variables arranged in rank order. In each case, subjects were run under either range or nonrange conditions. It was found that the social comparison nonrange choice pattern was indistinguishable from the number nonrange choice pattern. The social comparison range choice pattern, however, was quite distinct from the number range choice pattern. It appears that knowledge of the range of scores is crucial to the emergence of the social comparison process. (Author)

SOCIALLY AND NON-SOCIALLY MOTIVATED INFORMATION SEARCH IN THE CHOICE OF COMPARISON OTHERS FROM A RANK ORDERING OF SCORES

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Studies of social comparison choice have utilized a paradigm which fails to distinguish comparison motives from more general information search motives. In the present study subjects were either exposed to the standard social comparison manipulation or asked to determine the distribution of a set of unknown random variables arranged in rank order. In each case, subjects were run under either range or nonrange conditions. It was found that the social comparison nonrange choice pattern was indistinguishable from the number nonrange choice pattern. The social comparison range choice pattern, however, was quite distinct from the number range choice pattern. It appears that knowledge of the range of scores is crucial to the emergence of the social comparison process.

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In his theory of social comparison processes, Festinger (1954) postulated the existence of a drive to evaluate one's personal opinions and abilities. Since then, several attempts have been made to test two hypothesized properties of the drive which are central to the theory: (a) that subjects will tend to compare with others who are similar in opinion and ability; and (b) that, because of achievement motivation, subjects evaluating their abilities will tend to compare with someone of higher ability than their own (Latané, 1966).

Many studies in the area have utilized a research paradigm which involves experimentation with groups of from 6 to 17 subjects. A quick-scoring test is administered to the subjects. The subjects complete the test, wait for it to be scored, and receive feedback all in one session. During the scoring interval, the experimenter introduces any experimental manipulation. The feedback given to the subject consists of his alleged score and rank position in the group. The subject is then asked to indicate what other score in the rank ordering he would most like to see in order that he might best be able to evaluate his own performance. In some studies, subjects are offered a second choice on the basis that more information than originally planned will be given if time permits. Also, in some studies, subjects have been informed of the approximate scores of the people at the extreme ranks before choosing comparison others. In all but one study (Hakmiller, 1966) the subject was alleged to be exactly in the middle of the rank ordering of test scores.

Analysis of the data from such studies has focused on the rank positions which subjects "overchoose" when picking their comparison others. Whether a rank is "overchosen" is determined in relation to the likelihood that the rank will be chosen by chance alone. By this criterion, previous research (Cafferty, 1971; Gruder, 1971, Wheeler, et al., 1969) has shown a strong tendency for the extreme rank positions and the rank positions most similar to the subject's score to be overchosen. Investigators have hypothesized numerous psychological bases for the overchoice of these particular rank positions (i.e. Social comparison, range seeking, self-enhancement, goal valence, uncertainty, etc.).

In discussing the results of social comparison experiments, investigators have tacitly assumed that the choice pattern of disinterested subjects is a random one. That is, it has been assumed that disinterested subjects would be equally likely to choose to see one rank position as another. There is, however, no ad hoc reason to assume that disinterested subjects' choices would be random in nature. Further, there is no experimental evidence bearing upon this assumption. It is possible that disinterested subjects might exhibit the same choice pattern as subjects actually exposed to the social comparison manipulation. If the subject is simply interested in assessing the characteristics of the score distribution, choosing the extreme ranks will supply the range of scores; a crude measure of dispersion. In addition, choosing the ranks most similar to the subjects' score (that is, those positions directly above and below the middle rank position) forms a reasonable basis for estimating central tendency. Thus, subjects may well overchoose these rank positions on the basis of estimation strategies alone.

In the present experiment, the choice process will be submitted both to subjects with social comparison motives and to subjects with no social comparison motives. It is hypothesized that when subjects are given 4 choices from among 8 unknown scores, there will be no differences in choice patterns between the social comparison and the non-social comparison subjects. Specifically, it is hypothesized that: The distributions of choice patterns made by subjects in a social comparison setting and by subjects in a corresponding non-comparison setting will be indistinguishable from one another, as determined by the Kolmogorov-Smirnoff test. Support for this hypothesis would indicate that the social comparison motive cannot be adequately assessed by the paradigm under consideration.

In addition to the above primary hypothesis of the paper, six predictions which have derived from Festinger's (1954) theoretical paper and/or from previous research will be examined. Testing these six hypothesis individually should provide collaborative evidence for the support or nonsupport of the primary hypothesis. The six social comparison hypotheses to be investigated are as follows:

(1) Subjects will expend all four choices in seeking the range and the scores of the rank positions immediately above and below the middle (known) rank position. (Past research has shown these four positions to be most consistently overchosen. See Latené, 1966).

(2) When the approximate range of scores are not presented, subjects will expend the first two choices seeking the range (Wheeler, et al., 1969).

(3) If the approximate range of scores is presented, subjects will expend the first two choices on the rank positions adjacent to the middle rank position (Wheeler, et al., 1969).

(4) In general, more choices will be expended on the extreme and most similar rank positions than on those which are neither extreme nor similar to the known score (This more general restatement of hypotheses 1 through 3 focuses upon group data rather than upon the response pattern of each individual subject).

(5) More choices will be expended on the top half of the rank ordering than on the bottom half (Implied by Festinger's postulation of a unidirectional drive to compare upward in the case of abilities).

(6) Subjects' first choices will be above the middle rank position. (A less rigid statement of hypothesis 5. If the unidirectional drive to compare upward is present, but satisfied by the subject's first choice, this prediction will be supported while prediction 5 may not be).

METHOD

Subjects

Subjects were 56 males and 44 females at a large midwestern university. Subjects agreed to participate in partial fulfillment of a laboratory requirement of the introductory psychology course.

Procedure

Subjects were assigned at randome to one of four experimental conditions:

(1) Social Comparison Range condition. Subjects in this condition were recruited in groups of 9. Upon arrival at the laboratory, each subject was given a file folder. The folder contained an identification letter which the subject was to use in place of his name, and a test entitled "Stanford Scale of Cognitive Flexibility". The test was bogus, consisting of pictorial multiple choice items with purposefully ambiguous answers in order that the subjects would have little idea of how well they performed. The experimenter informed the subjects that the test correlated well with IQ and was being considered for use in Stanford's battery of entrance examinations. After the subjects completed the test, the experimenter collected the answer forms and left the room, ostensibly to score them. During this time, an assistant administered a personality test that was said to correlate with cognitive flexibility. In reality, the personality test served only to fill the time presumably being used to score the first test. About 15 minutes after leaving, the experimenter returned with the subjects' folders. Included in each folder was a FEEDBACK SHEET with a column of nine horizontal lines drawn upon it. These lines supposedly represented the rank positions of the scores obtained by the group members. From the information of the feedback sheet, the subject could see that the lowest score was between 25 and 75 and that the highest was between 550 and 600.

In addition, each subject found that he had scored 310 and was fifth out of nine in the rank ordering.[2]

Also included in each subject's folder was a four page booklet which offered subjects an opportunity to observe some additional scores from other members of the group. The first page of the booklet informed the subject that only one other person's score would be made available to him. It asked him to choose the one other person's score he most wished to see. On the second page, the subjects were informed that it might be possible to see a second person's score and were asked to make an additional choice. This format was followed on succeeding pages until four alternatives had been offered to the subjects.

As soon as all subjects in the group had made their choices, the experiment was completed and subjects were debriefed and dismissed.

(2) Social Comparison Nonrange condition. Groups of 9 subjects were employed in this condition. The subjects received the same manipulations and istructions as did social comparison range subjects. The sole difference between the two groups is that the nonrange subjects were not provided with the approximate scores of the highest and lowest scoring individuals in the group.

(3) Number Range condition. Subjects were run in small groups ranging in size from 5 to 10 individuals. Since the experimental procedure did not demand groups of 9 subjects to be "rank ordered" in this condition, it was considered unnecessary to run the experiment in exactly groups of 9.

The FEEDBACK SHEET provided the previous two groups was relabled a RANK ORDER SHEET. Subjects were told that the 9 lines on the rank order sheet represented a rank ordering of nine randomly generated numbers. The largest number was said to have a value getween 550 and 600; the smallest, a value between 25 and 75. Finally, the subjects were told that the 5th number in the rank ordering had a value of 310. The subjects were informed that their task was to learn as much as possible about the characteristics of the distribution of numbers involved in the rank ordering. Subjects were told that they could choose to see any number in the rank ordering, but that choices must be made in accordance with certain written instructions. At this point, the experimenter called the subjects' attention to a four page instruction booklet and asked the subjects to use this booklet as a guide in making thier choices. The booklet was the same as that employed with the social comparison groups, except that it referred to "numbers" rather than "scores" and to the RANK ORDER SHEET instead of the FEEDBACK SHEET. At no time were these subjects asked to associate the rank ordering with a group of test scores.

(4) Number Nonrange condition. This condition is exactly the same as the one just described, with the exception that the approximate values of the highest and lowest numbers in the rank ordering were not given to the subjects.

RESULTS

To test the hypothesis that the distribution of subjects' choices varied across experimental conditions, the Kolmogorov-Smirnoff test was employed (see Siegel, 1956). This test is sensitive to differences between whole distributions in any of the three moments of central tendency, dispersion, or skewness. The test is specifically concerned with the largest observed difference, D, between the cumulative distributions of two independent samples. To calculate D, the two distributions are divided into discrete intervals. The cumulative proportion of observations at each interval is calculated, and the largest difference between the cumulative proportions of the two distributions is found. This difference, D_{obs}, is compared against a critical value, D_{crit}, to determine whether the distributions depart from one another to a significantly greater extent than would be expected by chance. If D_{obs} exceeds D_{crit}, the indication is that the two samples were not drawn from a common population.

The Kolmogorov-Smirnoff test was first utilized to compare the choice distributions of the social comparison nonrange condition with the number nonrange condition. Tests were made at both the $\alpha=.05$ and the $\alpha=.25$ levels to guard against Type I as well as Type II error. It was found that the two nonrange choice distributions did not differ from one another, either at the $\alpha=.05$ level ($D_{obs}=.0721 < D_{crit}=.1922$) or the $\alpha=.25$ level ($D_{obs}=.0721 < D_{crit}=.1438$).

The Kolmogorov-Smirnoff test was next utilized to compare the choice distributions of the social comparison range condition and the number range condition. The two range choice distributions do differ from one another, both at the $\alpha=.05$ level ($D_{obs}=.2164 > D_{crit}=.2106$) and, of course at the $\alpha=.25$ level ($D_{obs}=.2164 > D_{crit}=.1579$).

It is possible to argue that the question of importance is not whether the overall distributions of choice patterns differ from one another. Rather, we may wish to consider whether specific social comparison hypotheses are confirmed under comparison conditions but not under the corresponding number conditions. To directly address this latter question, a second set of analyses were performed upon the six social comparison hypothesis listed in the introduction of this paper. Table 1 shows the percentage of choices made under each experimental condition which were consistent with each of these hypotheses. Asterisks indicate cells in which statistical tests significantly confirmed the hypothesis under consideration. Predictions 1,2, and 3 were tested by a Z statistic given by Walker & Lev (1953, p.424) and employed in a similar situation by Gruder (1971). Calculation of this test involves an arcsin transformation which tends to normalize discrete data distributions.[3] Hypotheses 4,5, and 6 were tested with a chi-square corrected for discontinuity.

The results in Table 1 further substantiate the findings of the Kolmogorov-Smirnoff tests. Under the nonrange conditions, significant tests resulted for the same hypotheses regardless of whether the data was collected under social comparison or number conditions. A minor exception to this finding occurs for hypothesis 6. Here a significant test under the social comparison condition is matched by a strong trend ($\chi^2_{.05} = 3.80 > \chi^2_{.05} = 3.38 > \chi^2_{.10} = 2.70$) under the number condition.

In contrast to the nonrange results, the data of the range conditions yielded significant tests for three hypotheses under the social comparison condition while no significant tests occured under number conditions.

TABLE 1

Percentage of choices consistent with the various hypotheses. Asterisks indicate percentages which differ significantly from chance.

Hypothesis	NONRANGE Comparison	NONRANGE Number	RANGE Comparison	RANGE Number	Test
1) S chooses range and similar ranks	50.0%**	31.0%**	6.6%	5.9%	z
2) S chooses range first	50.0**	48.3**	6.6	5.9	z
3) S chooses similar ranks first	0.0	0.0	46.6**	0.0	z
4) Most choices for range & similar ranks	79.5**	68.1**	61.7	44.1	$\chi^2_{(1)}$
5) Most choices for top half	55.6	53.4	70.0**	50.7	$\chi^2_{(1)}$
6) First choice in top half	95.4**	75.8*	93.3**	44.1	$\chi^2_{(1)}$

*$p < .10$

**$p < .05$

DISCUSSION

It is first of all important to note that the results of both social comparison conditions closely parallel the results observen in past social comparison studies. There is therefore confidence that the present social comparison data is representative of that obtained in past studies. Specifically, under nonrange conditions, subjects in this study first seek the range and only later choose to see the scores of their similar others. This is indicated by acceptance of hypotheses 1 and 2. Subjects' first choices are also significantly more often above the middle score than below it.

Under range conditions, subjects no longer choose the extreme scores, but do choose their similar others and, in general, tend to compare upward instead of downward (hypotheses 3, 5, and 6).

Finally, the differences in significance patterns across the two comparison conditons are to be expected (e.g. Wheeler, et al., 1969; Cafferty, 1971; Gruder, 1971).

Of primary interest, of course, are the similarities among the choice distributions. It is first of all clear that under nonrange conditions the social comparison and number choice patterns do not differ. The Kolmogorov-Smirnoff test between these two distributions does not reach significance even at the .25 level. In addition, under these two conditions, the significance patterns for the social comparison hypotheses are nearly identical. Acceptance of a social comparison prediction under one nonrange condition is always paired with acceptance of (or a strong trend toward) the same hypothesis under the other nonrange condition. Conversely, rejection of a prediction under one nonrange condtion is always paired with rejection under the other. These findings indicate that, at least under nonrange conditions, the paradigm being considered here cannot separate social comparison motives from motives which operate when no obvious social comparison motive is present.

Under range conditions, the paradigm appears to be a good deal stronger. The social comparison range choice distribution differs significantly from the choice pattern of the number range condition, as indicated by the Kolmogorov-Smirnoff tests. This finding is strengthened by the tests of the six social comparison hypotheses. Three hypotheses are supported under the social comparison range condition, while none are supported under the number range conditon. These hypotheses are: (a) Subjects chose to expend their first two ch[illegible]ng the scores of similar others. It is interesting that t[illegible]pe[illegible]ntal condition is the o[illegible]y one in which even a single su[illegible]t utilized his first two choices in this manner. (b) Subjects chose to see scores above the median significantly more often than scores below the median. (c) Subjects expended their first choice on a rank position above the median significantly more often than on one below the median.

In conclusion, the similarity of results under the two nonrange conditions indicates that the experimenter who does not provide his subjects with an approximate value of the range of scores cannot hope to separate social comparison motives from those which occur under disinterested information search. If the approximate range of scores is provided, however, the results are quite different as a function of social comparison and number conditions. As a result, the paradigm under consideration appears to be a viable approach for the study of comparison motives, provided that subjects are supplied with the approximate range of scores.

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FOOTNOTES

[1]This research was conducted while the author was at Purdue University.

[2]All numerical values employed are taken from Wheeler, et al., 1969.

[3]Hypotheses 1,2, and 3 could have been tested by chi-square, but the tests would ha' volved cells in which expected value of the observations was 'ery w. For example, the test of hypothesis 1 involves 8!/4!4!-/c combinations of eight things taken four at a time. Since all combinations of four are equally likely, the proportion of subjects expected to choose the combination of interest is 1/70. The expected value for this combination is then 1/70 times the number of subjects in the experimental condition. Expected values for each of the four conditions are then as follows: (1) social comparison nonrange =(1/70)X 22 = .314 (2) number nonrange = (1/70)X 29 = .414 (3) social comparison range = (1/70)X 15 = .214 (4) number range = (1/70)X 34 = .486.

The same line of reasoning leads to similar results for hypotheses 2 and 3, each of which involve the choice of eight things taken two at a time, or 28 equally likely combinations.

Numerous statistics texts note the reduced power of chi-square when the expected number of observations is less than 5 in any single cell (e.g. Hays, 1963), hence the data were transformed and submitted to the Z test of Walker & Lev.