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Self-Assessments Produce Anchoring Effects in Promotion Decisions

Zhe Chen (ZHE.CHEN@Canterbury.Ac.Nz)
Department of Psychology, University of Canterbury, Private Bag 4800
Christchurch, 8140, New Zealand

Simon Kemp (SIMON.KEMP@ Canterbury.Ac.Nz)
Department of Psychology, University of Canterbury, Private Bag 4800
Christchurch, 8140, New Zealand

Abstract

Four experiments investigated the possibility that including self-assessments in applications for a promotion might produce an anchoring effect. Anchoring effects occur when information known to be unreliable or unrelated to a target variable still affect estimates of the target variable. Overall, the self-assessments produced a robust anchoring effect for both good and bad applications, when the applications were judged by novices and experts, regardless of whether the applicant was likely to receive feedback, and independently of the rater's views of what constituted good performance. The effect survived when a second application was available for comparison, and it was reduced but not eliminated if a second set of assessments was available. These results suggest that promotion processes that use self-assessments are likely to be biased by them, and there does not appear to be a simple way to guard against them. On the other hand, for those who seek promotion, modesty is unlikely to serve them well.

Keywords: Anchoring effect; cognitive bias; performance appraisal; self-assessment.

This paper uses experimental methods to explore whether the cognitive bias of anchoring might be significant in personnel decisions, such as that to promote.

As Tversky and Kahneman (1974) point out, it is common for people to make estimates, particularly quantitative estimates, by first selecting an approximate value and then adjusting this value up or down. However, when this is done there is a general tendency for people not to adjust enough, so that the value finally selected is too close, and thus anchored, to the initial, approximate estimate (Slovic & Lichtenstein, 1971). Not only is there often insufficient adjustment away from the initial value, but the effect of anchoring occurs even when the initial value is obviously unrelated to the true value. Tversky and Kahneman's demonstration entailed first spinning a wheel of fortune with numbers between 0 and 100 in the presence of respondents, and then asking them to estimate percentages of different kinds, for example, the percentage of countries in the United Nations that were African. The basic finding was that the percentage responses were biased towards the numbers produced by the wheel of fortune.

The anchoring effect has been replicated over and over again in laboratory situations where the initial value and estimate, as in Tverskey and Kahneman's (1974) example, is clearly random (e.g., Mussweiler & Strack, 1999). Anchoring effects occur when the initial value is implausible (e.g., Strack & Musssweiler, 1997). They are not necessarily eliminated by rewarding greater accuracy (e.g., Wilson, Houston, Etling, & Brekke, 1996).

The anchoring effect is not restricted to experimental, laboratory settings. On the contrary, it has been found in a variety of different real-world settings, and often in people who are experts at the kinds of estimations that are asked for. For example, Northcroft and Neale (1987) found that when experienced real estate agents were asked to value a house their estimates were inappropriately anchored to a given listing price. This occurred even though they also had access to relevant information about the property. Anchoring effects have been found in students when they evaluate their course instructor's performance (e.g., Thorsteinson, Brieier, Atwell, Hamilton, & Privette, 2008) and in stock market experts and novices in the estimation of stock prices and stock market indices (e.g., Marsat & Williams, 2009; Stephan & Keill, 2000). Bowman and Bastedo (2010) found evidence for anchoring in *Times Higher Educational Supplement* world university rankings. Citizen's willingness to pay estimates of the value of services provided by governments can be heavily biased by misleading information about what is currently spent on the services (Kemp, 2003). A frequently used sales technique is based on anchoring. In this technique, the customer is originally confronted by an item that has a very high, even outrageous price. A salesman then explains that there is now a special deal whereby the item is now available at a much reduced price. The idea underlying the technique is that the initial high price provides an anchor for the customer's estimate of the value of the item, even if the customer would not buy at that price (cf. Mussweiler, Strack, & Pfeiffer, 2000).

The experiments in this paper test whether anchoring effects arise from the information given to people making decisions about another's promotion. There are a number of possible pieces of information that might give rise to anchoring effects. We concentrate on information given by the applicant him- or herself.

It is fairly common for one component of a performance appraisal to be an individual's own assessment of how well he or she is doing (Arvey & Murphy, 1998). Self-assessment is often part of 360 degree feedback in performance appraisal although there has been controversy as to its value (e.g., Brett & Atwater, 2001; Harris & Schaubroek, 1988). However, despite the controversy, self-assessments are frequently used for administrative purposes, such as promotion decisions. For example, our own

institution at present includes self ratings of research, teaching, and administrative performance on promotion applications.

The experiments reported in this paper all explore anchoring effects arising from self-assessments in promotion scenarios that were modified from the process used by the University of Canterbury for academic promotions. Experiment 1 tests whether the phenomenon exists and whether its magnitude is affected by whether the promotion application itself is based on a relatively good or bad record. Experiment 2 tested whether the basic anchoring effect would also hold when the participants were University of Canterbury faculty with much more knowledge about actual promotion criteria used by the institution. Experiment 3 investigated the consequences of examining more than one application, and, finally, in Experiment 4 the rater was confronted with an independent assessment as well as the self-assessment.

Experiment 1

Experiment 1 tested whether anchoring effects could be observed in the evaluation of academic promotion application with our experiment paradigm. Four groups of participants rated a promotion application that varied in the quality of performance record and an applicant's self rating scores. Of specific interest was whether participants' evaluation of the promotion application would be influenced by the applicant's self ratings, thereby demonstrating an anchoring effect.

Method

Participants. Eighty University of Canterbury undergraduate students who were enrolled in an introductory psychology course volunteered for the study. They were randomly and evenly assigned to 4 groups. Each received a chocolate bar valued between NZ$1.50 to 1.90.

Design and Procedure. The experiment was conducted in a group setting at the beginning of a psychology lab. Participants were informed that the study focused on the process of performance appraisal. Each of them received a package that consisted of a title page of instruction, and a two- or three-page promotion application (depending on the quality of record) presumably completed by an anonymous applicant. The applicant was described as a male university lecturer who was applying for promotion to Senior Lecturer. (Note. In the system used in New Zealand, this is the first substantive academic promotion.) Participants' task was to read the application, and to rate the performance afterwards. They were instructed to think of themselves as the head of the department where the applicant worked, and their ratings would affect the outcome of his promotion application.

The promotion application consisted of three sections. The first section, *Applicant Details*, contained some basic information about the applicant (e.g., name, department, current position, and position applied for). The second section was *Categories of Academic Activity*, where the applicant described his activities in teaching (e.g., the number of courses taught and teaching effectiveness indicated by a table of student evaluation ratings), research (e.g., amount of funding and publications), and service (e.g., membership at various departmental and university committees). The last section, *Evaluation*, was in the form of two tables. One table, called Self Ratings, contained the applicant's self ratings (see Table 1). The other table, called Head of Department Ratings, was identical in format to that of the self ratings table except that it contained no Xs. Participants completed the table by making a cross in the appropriate cell for each of the three categories. The ratings ranged from E (lowest) to A+ (highest).

Table 1: The Applicant's Self-Ratings in the High Anchor Condition of Experiment 1.

Category	A+	A	A-	B+	B	B-	C+	C	D	E
Teaching			X							
Research		X								
Service	X									

The experiment was a 2 x 2 between-subjects design, with the principal manipulations being the quality of performance (good vs. bad record) and the applicant's self rating scores (high vs. low anchor). Relative to a good record application, a bad record one had lower teaching ratings, fewer publications, and fewer service activities. Likewise, self rating scores were higher in the high anchor condition (A- for teaching, A for research, and A+ for service) than in the low anchor condition (B- for teaching, B for research, and B+ for service). The four experimental conditions were: good-high, good-low, bad-high, and bad-low, with the first word (i.e., "good" or "bad") denoting the quality of performance, and the second word (i.e., "high" or "low") denoting the value of self rating scores (i.e., the type of anchor).

Results and Discussion

The data from one participant, who ticked "E" in all the three categories, were not included in the analyses. To quantify the results, we converted the participants' raw data from alphabetical letters to numbers, with an A+ equal to 10, an A to 9, through to E, which was equivalent to 1. We derived a composite score for each participant by averaging their scores across the three categories. The results are shown in Table 2. Not surprisingly, the average rating score was higher when the performance record was good (8.3) rather than when it was bad (7.6), $F(1, 75) = 10.53$, $p = .002$, $\eta_p^2 = .12$. More importantly, there was a strong anchoring effect. The average rating score was higher in the high anchor condition (8.6) than in the low anchor condition (7.3), $F(1, 75) = 36.36$, $p < .001$, $\eta_p^2 = .33$, suggesting that the participants' evaluation was influenced by the applicant's self ratings. Although the magnitude of the anchoring effect was not modulated by performance record, $F(1, 75) < 1$, *ns*, a Tukey's Honestly Significant Differences

(HSD) test, as shown in the subscripts of Table 2, indicated that the absolute value of the rating produced by the participants in the bad-high condition (8.3) was not significantly different from the values in the two good record conditions (7.7 and 8.8 in the good-low and good-high conditions, respectively).

Table 2: Average Rating Scores, With Standard Deviations, in Experiment 1.

	Good Record		Bad Record	
	Low	High	Low	High
Score	7.7_a	8.8_b	6.8_c	8.3_{ab}
SD	1.1	0.6	1.1	0.9

Note: Subscripts denote statistical significance, with identical letters referring to no significant difference ($p > .05$) and different letters significant differences ($p < .05$). This pertains to both Tables 2 and 4.

The results of Experiment 1 indicate that anchoring effects can be generalized to academic application evaluation. Those who received an application with low self ratings rated the performance of the applicant lower than those who received an application with high self ratings. Furthermore, an application with a bad record could receive the same rating as an application with a good record if the former contained high self ratings while the latter contained low ones, or if both contained high self ratings. In other words, the difference in participants' rating scores as a function of performance record could be modulated or even eliminated by an applicant's self ratings.

Experiment 2

In Experiment 2 ($N = 30$), we explored the role of expertise in anchoring. The method was identical to the bad record version of Experiment 1 with the exception that the participants were academic faculty recruited from about a dozen departments (excluding psychology) at the University of Canterbury. As in Experiment 1, each of them was offered a chocolate bar. The number of participants in the low and high anchor conditions was 16 and 14, respectively.

Results and Discussion

Table 3 shows the results of both Experiment 2, and for ease of comparison, Experiment 1. Once again, the participants demonstrated a large anchoring effect, $t(27) = 4.82$, $p < .001$, $d = 1.76$. Moreover, a comparison of the pattern of data from the two experiments indicated little difference between the faculty (1.7) and the students (1.5), a result confirmed by a combined analysis of Experiments 1 and 2 that showed no interaction between experiment and anchor, $F(1, 65) < 1$, *ns*. Interestingly, although the magnitude of the anchoring effect did not differ as a function of expertise, the overall rating score from the academics (5.6) was lower than that from the students (7.6), $F(2, 65) = 71.09$, $p < .001$, $\eta_p^2 = .52$. Apparently, the academics had higher expectations of themselves than their students did, although they were equally affected by the value of the applicant's self-assessments.

Table 3: Average Rating Scores, With Standard Deviations, in Experiments 2 and 1.

	Experts (Experiment 2)		Novices (Experiment 1)	
	Low	High	Low	High
Score	4.7	6.4	6.8	8.3
SD	0.9	1.1	1.1	0.9

Our finding that expertise did not affect the magnitude of anchoring is generally consistent with prior research that reported persistent anchoring effects despite expertise in the task relevant area (e.g., Enough & Mussweiler, 2001; Northcraft & Neale, 1987).

Experiment 3

In Experiment 3 ($N = 96$, divided randomly and equally into 4 groups), we investigated yet another means of reducing the anchoring effect. Here we gave each participant two applications to review: one with a good record and the other with a bad record. We reasoned that having to evaluate two promotion applications of different quality should make participants consider their ratings more carefully, and, in doing so, they might eliminate their anchoring effects.

The method was similar to that of Experiment 1 except that each participant received two promotion applications presumably submitted by two applicants. One of the applications had a good performance record while the other one had a bad performance record. Both applicants were described as lecturers seeking promotion to become senior lecturers. As before, we manipulated applicants' self ratings. This resulted in four different combinations of record by self-ratings: both applications were of high self ratings (i.e., good-high and bad-high), low self ratings (i.e., good-low and bad-low), or one was of high self ratings and the other one low self ratings (i.e., either good-high and bad-low, or good-low and bad-high). The importance of reading both applications before rating was emphasized in the instruction.

Results and Discussion

The results are shown in Table 4. As each participant received one good and one bad record applications regardless of which group they were in, any group differences would indicate an anchoring effect.

A 4 x 2 mixed ANOVA with group as a between-subjects factor and record as a within-subjects variable confirmed that the participants showed a strong anchoring effect, $F(3, 92) = 8.27$, $p < .001$, $\eta_p^2 = .21$, and a significant effect of record, $F(1, 92) = 239.66$, $p < .001$, $\eta_p^2 = .72$, with higher ratings for the application that had a good (8.8) rather than a bad record (7.0). In addition, the two factors interacted, $F(3, 92) = 6.12$, $p = .001$, $\eta_p^2 = .17$, suggesting that the differences in record was modulated by the applicants' self

Table 4: Average Rating Scores, With Standard Deviations, for Experiment 3. The Abbreviations are: G-H: good-high condition; B-H: bad-high condition; G-L: good-low condition; B-L: bad-low condition.

	Group 1		Group 2		Group 3		Group 4	
	G-H	B-H	G-H	B-L	G-L	B-H	G-L	B-L
Score	9.2_{a}	$7.5_{b,c}$	9.0_{a}	6.4_{d}	8.9_{a}	$7.3_{b,c}$	7.9_{b}	$6.7_{c,d}$
SD	0.6	1.1	0.7	1.1	0.7	1.1	1.0	1.4

ratings. To clarify the pattern of data, we conducted a Tukey HSD test (see the subscripts in Table 4. Note that identifical letters refer to no significant difference, i.e., $p > .05$, and different letters significant differences, i.e., $p < .05$). Two aspects of the data are noteworthy. First, within each group the participants always gave higher rating scores for an application with a good rather than a bad record. This indicates that they could see the differences in performance record and rated them accordingly. Second, across groups, the absolute rating scores the participants gave to the applications were influenced by the applicants' self ratings. An application with a poor record but high self ratings could receive comparable rating scores as an application with a good record but low self ratings, and this was evidenced by the rating scores in the bad-high condition of Group 1 (7.5) and in the good-low condition of Group 4 (7.9). In light of the results of Experiment 3, it appears that giving participants two applications to review could not eliminate the anchoring effect in the present paradigm.

Experiment 4

In Experiment 4 ($N = 58$, divided randomly and equally into 2 groups), we provided participants with two sets of ratings, one from the applicant himself and the other from a third party. In the real world, as a quality control measure, many educational institutions implement a two-committee system, in which promotion applications are reviewed first in a lower-level committee before they are reviewed by a college or higher-level one. As variations in self evaluations are difficult to control, by setting up two independent committees, one hopes to keep any bias that may result from self evaluations to a minimum by the time the higher committee reaches its decision. A strong test for the persistence of anchoring effects would be to vary an applicant's self ratings while holding the committee ratings constant.

Experiment 4 used the same method as that of the bad record version of Experiment 1 except that a second set of ratings was added after the applicant's self ratings. The new ratings, which were in a table of the same format as that of self ratings, were described as those from a member of the promotion committee in the applicant's department. Regardless of the applicant's self ratings, ratings from the committee member were identical in the low and high anchor groups (B+, A-, and B+ for teaching, research, and service, respectively).

Results and Discussion

Once again, we found a significant anchoring effect, $t(56) = 2.05$, $p = .045$, $d = 0.61$, with a higher rating score in the high anchor (7.9) than in the low anchor condition (7.3). To test whether the addition of the second set of ratings would dilute the magnitude of anchoring, we conducted an analysis that combined Experiments 4 and 1. A reduction in anchoring was found (from a difference of 1.5 between the high and low anchor conditions in Experiment 1 to a difference of 0.6 in Experiment 4), as confirmed by a significant experiment by anchor interaction, $F(1, 93) = 5.21$, $p = .025$, $\eta_p^2 = .05$.

To ensure that the dilution of the anchoring effect in Experiment 4 was not due to the order of the rating tables (committee after self), we conducted an additional experiment with 46 participants ($N = 24$ and 22 in the low and high anchor conditions, respectively). In the new experiment, we switched the locations of the two rating tables so that the ratings from the committee member were now before the applicant's self ratings. The results were no different from those of Experiment 4. The rating scores for the low and high anchor conditions were 7.4 and 7.9, respectively, $t(44) = 1.95$, $p = .029$, one-tail, $d = 0.60$). The magnitude of the anchoring effect was again smaller than that found in Experiment 1, $F(1, 81) = 6.76$, $p = .011$. $\eta_p^2 = .08$. These results suggest that seeing a second set of ratings caused a genuine reduction of anchoring effects (cf. Asch, 1955). Importantly, however, even with a second set of ratings that were held identical across the two anchor conditions, the participants' evaluation was still influenced by the applicant's self ratings.

General Discussion

Mussweiler et al. (2000, p. 1143) remark: "Not only is the anchoring effect influential in a plethora of judgmental settings, but this influence is also remarkably robust". In the preceding experiments we took a single judgment setting, and found the anchoring effect to be robust over a plethora of variations of that setting. Thus, for promotion applications, we found anchoring effects of similar sizes for good and bad applications, when the applications were judged by novices and experts, regardless of whether the applicant was likely to receive feedback, and independently of the rater's pre-existing views of what constituted good performance. The anchoring effect was also little affected when a second application was available for comparison; it was reduced but not eliminated if the rater had access to another set of assessments as well as the self-assessments.

There are a number of specific possibilities as to why the anchoring effect occurs. It may be that people simply make insufficient adjustment from the anchor (Jacowitz & Kahneman, 1995; Tversky & Kahneman, 1974), although it is not clear why they should necessarily underestimate in this way. Another alternative is that the anchor in some way primes similar information and thus that anchor-consistent knowledge becomes more accessible (Mussweiler & Strack, 2000; Strack, 1992). The basic idea of this model is that people tend to evaluate hypotheses through confirmation (Klayman & Ha, 1987). Then, when they are asked to make estimates of uncertain quantities preceded by an anchor, they test the hypothesis that the correct answer is close to the value of the anchor by selectively activating knowledge consistent with the anchor. As availability of instances is known to affect judgment (e.g., Tversky & Kahneman, 1974), the estimate is biased towards the information retrieved, leading to anchoring effects. A third possibility is that anchoring effect is caused by accountability forces (Klimoski & Inks, 1990). People generally try to avoid giving negative feedback (Blumberg, 1972; Tesser & Rosen, 1975). Thus, when supervisors have to rate their employees' performance, they may feel obliged, consciously or unconsciously, to adjust their ratings in accordance with the expectations of their supervisees due to feelings of accountability to the latter, resulting in distorted ratings consistent with those of their supervisees. Rating inflation is especially likely to occur if the performance record is not particularly good. Consistent with the accountability forces model, there is evidence that participants' ratings were significantly more positive if feedback was to be provided or if face-to-face interaction with a ratee was anticipated (e.g., Fisher, 1979; Ilgen & Knowlton, 1980).

Although the four experiments we reported above both show the anchoring effect to be important in a promotion setting and show that it is robust in that setting, they do not tell us its exact origins.[1] However, regardless of the ultimate theoretical basis of the anchoring effect, the findings of the present experiments have important implications for the use of self-assessments. Our results suggest that organizations may be unwise to use them for administrative purposes. Raters, supervisors, and decision-makers in promotion processes that use self-assessments are all likely to be biased by them, and there does not appear to be a simple way to guard against them. On the other hand, for those who seek promotion, modesty is unlikely to serve them well.

[1] In two additional experiments that are not included in this paper, we tested the accountability forces interpretation by stressing the anonymity of the rater (in one experiment), and the accessibility of anchor-consistent knowledge account (in the other experiment) by activating participants' knowledge about academic performance via answering questions in a pre-evaluation task. We found no evidence of a reduction in the magnitude of the anchoring effect, suggesting that the primary cause of the anchoring effect in the present paradigm was unlikely to be accountability forces or accessibility of anchor-consistent knowledge. Of course, manipulations different from ours could be derived from these theories, and they might have had better success.

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