

Deception: Teacher Expectations. E. Lawson

Deception as an Experimental Procedure: A Methodological  
Evaluation in Teacher Expectations Research\*

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The methodological justification of deception asserted by the American Psychological Association (APA, 1982), is that deception enables valid inference by reducing causal ambiguity, or confounding, to a minimum. Although 1970s research undermined this justification, deception is still widely used and its efficacy is assumed pervasively. In the present investigation metatheoretical and statistical analyses of research into self-fulfilling prophecy effects of teacher expectations are carried out. These analyses show that deception has increased confounding, for a deception interpretation of research findings is at least as plausible as a teacher expectation interpretation. Thus the APA's methodological justification is not sustained, nor are claims that deceptive studies have fulfilled the unique role of unequivocally establishing the causal reality of the teacher expectation effect.

The methodological justification of deception as a research procedure, asserted by the American Psychological Association, is that deception enables valid inference by reducing causal ambiguity or confounding to a minimum (Cook, Kimble, Hicks, McGuire, Schoggen, & Smith, 1971; APA, 1982)<sup>1</sup>. This unsupported justification was undermined by two broad dimensions of methodological research in the late 1960s and early 1970s.

First, extensive evidence showed that suspicion of deception in research is widespread in campus and school subject pools. Furthermore, experimental subjects are frequently aware of the deceptions used in the research in which they participate. Numerous experiments demonstrated that subjects may gain this awareness before participating because preceding participants frequently disclose confidentially debriefed information about the deceptions. Furthermore deception creates contradictions in the experimental context and participants have identified specific contradictions which have prompted their suspicion (Glinski, Glinski & Slatin, 1971).

The second dimension of evidence showed that subject suspicion can

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1. The Australian Association for Research in Education has not offered a methodological justification for deception in research in their ethical guidelines.

systematically distort experimental results. Methodological experiments using the Asch conformity, attitude change, and incidental learning paradigms demonstrated that suspicion may reduce conformity, increase attitude change, and increase incidental learning (Weber & Cook, 1972). This research therefore cast doubt upon deceptively-derived findings in those

substantive areas.

Suspicion markedly increases a subject's tendency to respond according to a subject role and three subject roles were most commonly proposed as mediators of suspicion and behaviour on the dependent variable: the apprehensive, cooperative, and negativistic subject roles (Weber & Cook, 1972; Carlston & Cohen, 1980). The cooperative subject is motivated to confirm the experimenter's hypothesis or the experimenter's expectancy, and the negativistic subject is motivated to disconfirm the experimenter's hypothesis or expectancy. The behaviour of an apprehensive subject in relation to the hypothesis is not intrinsic to the apprehensive role, however, and needs to be predicted for each experimental design.

Although suspicion prompts subject role responding in general, other antecedents may determine which role subjects adopt. Experimenter power in relation to subjects is a particular antecedent of the apprehensive subject role, though also the cooperative subject role, and especially when it takes the form of "gatekeeper" power or control over resources of value to subjects, it prompts apprehensive subjects' conformity with the experimental hypothesis (Rosenberg, 1969). Generally, if subjects' suspicions about the hypothesis are similar and the experimental design prompts them to adopt a similar subject role, spurious confirmation or disconfirmation of the hypothesis may occur. Outcomes may then be attributed wrongly to the intended treatment variable when a subject role aroused by suspicion of the deception really mediated the results.

In view of these two broad dimensions of methodological research, reviewers concluded by the 1970s that the pervasive working assumption of subject naivety in deceptive research cannot be maintained, and that suspicion can seriously confound

study outcomes and interpretations (e. g. Diener & Crandall, 1978). Yet confidence in the methodological efficacy of deception, has not abated over the ensuing years and the APA (1982) continues to assert the same methodological justification for deception. Critical review of the methodological research reveals that several implicit defences of deception may have attenuated the impact of this research. The major defence proposed by Cook and his colleagues, was that methodological research findings which undermined the efficacy of deception were not generalisable to substantive deceptive research (Cook & Perrin, 1971; Weber & Cook, 1972). Cook and his colleagues pointed out that in the methodological research, experimenters ensured subject suspicion to study its effects, and made the hypothesis obvious to see how suspicious subjects would relate to it. They argued that in substantive research, however, deceptions are concealed to minimise subject suspicion, and the hypothesis generally is not discernible. They further proposed that generally, when the hypothesis is not discernible, any suspicion merely increases error variance, causing at worst false disconfirmation of a hypothesis, rather than misleading false confirmation.

The purpose of the present analysis, then, is to further evaluate the APA's methodological justification of deception. This analysis is guided by a theory of effects of deception upon experimental findings extrapolated from the earlier methodological research. A methodological strategy is developed to overcome the problem of generalisation by directly analysing a research substantive area. This strategy entails a fundamental premise as its starting point: when deception is used in an experiment, two bases for interpretation are established--the premise of successful deception and the premise of unsuccessful deception--and neither premise warrants epistemic priority in the absence of support. In substantive research, historically, positive outcomes have been interpreted only from the premise of

successful deception and usually in the absence of any support.

The methodological strategy thus consists of two steps applied to a substantive research area:

1. Analysis to discern whether a plausible interpretation, drawn from the theory of effects of deception, arises from the other premise: that the experimental deceptions were not successful. If such an interpretation can be generated, then deception has increased confounding contrary to the APA's claim that it reduces confounding.

2. Assessment of the seriousness of any confounding by comparing the plausibility of the deception and substantive interpretations on metatheoretical criteria and through secondary data analysis.

## Confounding by Deception in Research into Teacher Expectations as Self-Fulfilling Prophecies

The area of teacher expectations as self-fulfilling prophecies influencing student intelligence and achievement is chosen for analysis. It is a highly influential field of deceptively-effected research which also offers sufficient nondeceptive, naturalistic, research to enable a historical evaluation of the role of deception. The analysis focusses particularly upon the main deceptive field studies including and following Rosenthal and Jacobson's seminal study, *Pygmalion in the Classroom* (1968). In these studies measures were first taken of pupils' intelligence or achievement, then teachers were told that several randomly nominated pupils in their classes had hitherto unrecognised academic potential and would "bloom" shortly. Researchers hypothesised that the induced teacher expectations would generate teacher behaviours that would enhance the achievement or intelligence of the nominated pupils--that a self-fulfilling prophecy effect would occur. A postinduction period ranging from several weeks to a full academic year elapsed before pupils' intelligence or achievement was retested to see if they had made gains in line with the false inductions. At that point also, but only in a minority of studies, postexperimental questioning was carried out to check whether teachers had believed the false inductions.

Central to the present analysis is the feature common to all definitions of a "teacher expectation"--that it involves a belief held by a teacher about a given child or group of children (Babad, Bernieri, & Rosenthal, 1991; Brophy, 1983; Brophy & Good, 1974; Jussim, 1989; Raudenbush, 1984). Deceptive teacher expectations research findings therefore can be attributed to teacher expectations only if teacher subjects believe the false ability labels researchers conveyed to them..

## Researchers Claim That Deceptive Studies Have Established the Causal Reality of the Teacher Expectation Effect

Researchers who have considered the role of deception in teacher expectations research claim that deceptive studies have enabled the causal reality of the teacher expectancy effect to be unequivocally established (Brophy & Good, 1974; Jussim, 1989; Jussim & Eccles, 1992; Raudenbush, 1984; Rosenthal, cited in Fisher, 1986). They have made this claim despite the failure of teacher expectation effects in a substantial proportion of the field studies, and despite the reports of most teachers whenever postexperimental checking was carried out, that they had not believed the false inductions.

Researchers use deception as an auxiliary hypothesis to affirm the teacher expectation effect. In the face of these disconfirmations, researchers have strategically used deception as an auxiliary hypothesis to affirm the teacher expectation

effect. When results have been negative--when no teacher expectation effect emerged--they have maintained that teachers

did not believe the deceptive inductions, hence there was no chance of the effect; but when results have been positive they have unquestioningly affirmed the success of the deceptive inductions, even despite teachers' reports of unbelief (e.g. Brophy & Good, 1974; Fleming & Anttonen, 1971; Jose & Cody, 1971; Raudenbush 1984). Rosenthal and Jacobson's (1968) teacher subjects reported in postexperimental questioning that they had "paid little or no attention" (p. 154) to the printed list of "bloomers". Yet Rosenthal and Jacobson contravened this evidence to assert a teacher expectation interpretation and subsequent teacher expectation researchers followed suit (e.g. Henrikson, 1971; Meichenbaum, Bowers, & Ross, 1969).

To justify the assertion that deception has convincingly established the causal reality of the teacher expectancy effect, Brophy and Good (1974) and Raudenbush (1984) pursued inferential evidence for the auxiliary hypothesis that supports it--that when outcomes are positive deceptions have been believed, but that when outcomes are negative deceptions have not been believed. To do this they sought an index of the credibility of the deceptions and chose the extent of teacher familiarity with pupils as measured by the length of contact between them prior to, and after, the deceptive inductions. Contact was chosen as an index of credibility on the rationale that when teachers are familiar with pupils--when contact is high--the false inductions are less likely to be credible. When teachers are unfamiliar with pupils--when contact is low--the false inductions are more likely to be credible.

Following an extensive review of teacher expectation studies, Brophy and Good (1974) then claimed that in studies with positive outcomes preinduction and postinduction contact were low (deceptions were credible), but in studies with negative outcomes preinduction and postinduction contact were high (deceptions were not so credible). Although they made this claim, on an impressionistic rather than statistical basis, they concluded that studies using deceptive inductions and yielding positive outcomes had "unequivocally established the [causal] reality of [teacher] expectation effects" (p. 76).

Whereas Brophy and Good (1974) invoked both preinduction and postinduction contact in their argument supporting the auxiliary hypothesis, Raudenbush (1984) included only preinduction contact. He did, however, test his argument, through a meta-analysis of teacher expectancy studies in which IQ was the outcome variable. Framing the auxiliary hypothesis about deception into a specific prediction through his contact argument, Raudenbush predicted a negative correlation between length of preinduction contact and IQ effect size. He reasoned that a negative correlation would

ratify the reality of the teacher expectancy effect because credibility of inductions can be inferred when preinduction contact is low and teachers thus believing the inductions yield a real teacher expectation effect.

His prediction was confirmed by a significant and substantial negative correlation between length of preinduction contact and IQ effect size. Furthermore, dividing the sample into low preinduction contact studies (two weeks or less) and high preinduction contact studies (more than two weeks), Raudenbush found a teacher expectancy effect significantly greater than zero for the low contact studies, but no significant effect in either direction for high contact studies. He concluded that his analysis supported the claim that deceptive studies with positive outcomes have established the causal reality of the teacher expectation effect.

Have Deceptive Studies Established the Causal Reality of the Teacher Expectation Effect?

Raudenbush's (1984) evidence is consistent with his inference of credibility of inductions in positive outcome

studies, and his assertion that these studies demonstrated the reality of the teacher expectancy effect. However, neither he nor Brophy and Good (1974) counter reasons and evidence unfavourable to their conclusions, and further empirical tests also fail to support their conclusions.

Brophy & Good's (1974) claim that studies with positive outcomes are low on both contact dimensions more than studies with negative outcomes was assessed by Fisher's exact tests applied to two samples of studies (fully reported in Lawson, 1988). Sample 1 consists of all 20 studies that Raudenbush located in which IQ is the dependent variable. Sample 2 includes Sample 1, and additional studies in which the dependent variable is academic or physical education achievement. Comprising 26 studies it incorporates all the experiments with those dependent variables reviewed by Brophy and Good (1974) and draws from several other sources. For the tests, a four and a half month cut-off divided high from low postinduction contact; a two week cut-off divided high from low preinduction contact (after Raudenbush, 1984); and studies were classified as positive for outcome if a significant ( $p = < .05$ ) teacher expectancy effect emerged (after Brophy & Good, 1974). A significant association between contact and outcome failed to emerge for either sample.

Thus, contrary to Brophy and Good's assertion (1974), studies with positive outcomes are not low on both contact dimensions any more than studies with negative outcomes. Therefore, their inference that the deceptions were credible in studies with positive outcomes, and that these studies demonstrated a real teacher expectation effect is not supported.

There are difficulties for Raudenbush's (1984) conclusions also. One difficulty relates to evidence that teachers naturally occurring expectations develop early in the year, "even in the first few days", and generally are accurate (Brophy, 1983, p. 636; Jussim, 1989). This suggests that even given with a low preinduction period of up to two weeks, many teachers will still experience a contradiction between their own accurate perceptions of students' potential and the false information about students' potential conveyed in the false inductions. Discernment of this contradiction would be sufficient to generate teacher suspicion of the inductions.

Another difficulty with Raudenbush's (1984) analysis is that he included only preinduction contact and not postinduction contact in his statistical analyses. Thus his analysis provided no evidence that any initial teacher belief was maintained throughout the long postinduction periods in most of the low preinduction studies. Prolonged postinduction belief is also unlikely in view of the evidence for the accuracy of teachers' naturally occurring expectations. On the basis of this evidence Brophy (1983) argued that even if some teachers initially accepted false inductions they would probably discount them before long as newer and better evidence about pupils' abilities accumulated. Thus, because he excluded the postinduction contact dimension from his analysis, Raudenbush's inference of teacher belief and real teacher expectation effects is weakened.

Finally, available data from postexperimental questionnaires, although limited to six studies in Samples 1 and 2 do not support Brophy & Good (1974) and Raudenbush's (1984) inferences of teacher belief in the false inductions. A majority of teachers in all six studies admitted suspicion of the inductions and this applied to the three studies with low preinduction contact as well as to the three studies with high preinduction contact.

These reasons contravening the inference of teacher belief need not, however,

deprive Raudenbush's (1984) claim of real teacher expectation

effects of plausibility

given his negative correlation between preinduction contact and IQ effect size. In order

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2. Raudenbush made a brief conceptual attempt to justify his inference of teacher belief despite high postinduction contact periods by invoking Festinger's cognitive dissonance theory. This attempt is evaluated in Lawson (1988).  
to more strongly challenge the plausibility of his claim, a

feasible alternative interpretation is required based upon the supported premise that teachers were suspicious in studies with positive outcomes as well as in studies with negative outcomes.

#### A Deception Interpretation of Teacher Expectation Outcomes.

Rosenthal and Jacobson's (1968) study on teacher expectations as self-fulfilling prophecies was an extension of Rosenthal's (1966) research on experimenter expectation effects. Rosenthal and his associates demonstrated in a long series of studies that experimenters can unintentionally communicate the experimental hypothesis to subjects who may then confirm it. It is theoretically inconsistent therefore, that Rosenthal and Jacobson and other researchers have curtailed possible expectation effects in teacher expectation studies to the relationship between teachers and pupils, when in their own theoretical terms expectation effects can operate also between experimenter and teachers. To be theoretically consistent, results from teacher expectation studies too, may reflect an experimenter expectation effect. Furthermore, an experimenter expectation explanation can apply given the premise of unsuccessful deceptions, for suspicious teachers can gravitate towards conformity with the experimenter's expectation reflected in the inductions simply by tending attentively towards the nominated children, with resulting enhancement of the children's performance.

The processes of the theory of effects of deception upon experimental findings provide systematic guidance for framing an alternative interpretation<sup>3</sup>. Antecedents of Suspicion--or reasons for presuming suspicion--were identified in the preceding section and lend support to the premise of teacher suspicion. For the next dimension of the model--Antecedents of Mediators--the most salient antecedent, present in some studies, was the "gatekeeper" experimenter power antecedent of the apprehensive and cooperative subject roles. Experimenter power did not reside in the experimenters per

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3. See Figure 1 in Lawson (1988) for a summary model of the theory of effects of deception upon experimental findings. se, for they did not hold power in the school setting. Rather it occurred when a school power authority, like the school principal, was coopted into the experiment to conduct aspects of it--generally to convey the false inductions to the teachers.

After apprehensive or cooperative motivation has thus been aroused as a Mediator of suspicion and behaviour, the next dimension in the model is teacher perception of Contextual Cues to guide hypothesis-related behaviour. The primary, if not the only cue in a teacher expectations field experiment is the false information about pupils' potential conveyed to the teachers. This information, prophesying that nominated pupils will improve in performance reflects the experimental hypothesis

and experimenter's expectation.

The final stage in the model relates to the direction of Behavioural Outcome --whether spurious confirmation or spurious disconfirmation of the teacher expectation effect would be predicted for suspicious teachers. Prediction for cooperatively-motivated teachers is straightforward: teachers would gravitate

attentionally towards the nominated pupils which would press outcomes in the direction of spurious confirmation. Direction of behaviour is not, however, intrinsic to the apprehensive subject role. Yet as suggested by two teacher expectation researchers, some teachers may feel that their teaching skills could be viewed less favourably if the bloomers fail to bloom (Pellegrini & Hicks, 1972). Furthermore, research shows that experimenter power over resources of value to subjects prompts apprehensive subjects' behaviour in the direction of hypothesis confirmation (Rosenberg, 1969). Translated into teacher expectation research, this evidence leads to the prediction that when a school power authority like the principal--who controls resources of value to teachers--conveys the false inductions, apprehensive teachers' attention will gravitate towards the bloomers when it departs from equal attention to bloomers and nonbloomers. Increased attention to the bloomers will tend to enhance their performance. Thus spurious confirmation of the teacher expectancy hypothesis is predicted for apprehensively-motivated teachers also.

This deception interpretation was put to the test through several multiple regression analyses (Pedhazur, 1982) (fully reported in Lawson, 1988). If apprehensive or cooperative teacher conformity with experimenter expectations prompted by experimenter power, explains positive outcomes, then the prediction follows: that positive outcomes will occur more in studies in which experimenter power is present than in studies in which experimenter power is absent. Substantial and significant correlations between power and outcome supported this prediction in both Sample 1 and Sample 2.

The analysis therefore shows that results from teacher expectation studies can be explained according to either premise introduced when deception is used in a study. Given the premise of teacher belief, outcomes can be interpreted as teacher expectation effects. Given the premise of teacher suspicion outcomes can be interpreted as teacher conformity with the experimenter's expectation prompted by cooperative or apprehensive motivation. Deception therefore has confounded interpretation in teacher expectancy research.

The Respective Plausibility of Deception and Teacher Expectation Interpretations

In order to gauge the seriousness of confounding, the respective plausibility of deception and teacher expectation interpretations was assessed, beginning with multiple regression

analyses on both Sample 1 and Sample 2. Through these analyses the comparative importance of experimenter power and preinduction contact as predictors of outcome was tested. As experimenter power is the antecedent for the apprehensive/cooperative teacher interpretation, and preinduction contact is Raudenbush's (1984) antecedent for the teacher expectation interpretation, comparing the importance of these two predictors allowed the respective plausibility of the two interpretations to be gauged inferentially.

It was hypothesised that experimenter power is a more important predictor of outcome than preinduction contact, for given unsuccessful deceptions in studies with positive outcomes as well as in studies with negative outcomes, preinduction contact loses its function as an antecedent and predictor of belief or unbelief. Results supported this hypothesis for both Samples 1 and 2. The multiple regression analyses thus granted more inferential support to the apprehensive/cooperative teacher interpretation than to the teacher expectancy interpretation.

The respective plausibility of the two interpretations was also evaluated according to metatheoretical criteria of plausibility resulting in the following conclusions:

1. The apprehensive/cooperative teacher interpretation covers the relationship between experimenter and teachers as well as the relationship between teachers and pupils and thus takes

more of reality into account than the teacher expectation explanation. It therefore exceeds the teacher expectation interpretation on generality.

2. A teacher expectation interpretation depends upon clear and continuing teacher belief in the false inductions, and a number of reasons seriously impugn this assumption. The apprehensive/cooperative teacher interpretation does not require this assumption, hence exceeds the teacher expectation interpretation on parsimony.

3. The apprehensive/cooperative teacher interpretation furthermore holds the advantage on explanatory power for it explains not only positive outcomes, but variation in outcomes (positive and negative)--through covariation between outcome and the apprehensive/cooperative role antecedent, experimenter power. The teacher expectation interpretation, on the other hand, explains only positive outcomes. To explain variation, Raudenbush (1984) and Brophy and Good (1974) had to go outside the teacher expectation framework and invoke the auxiliary hypothesis about deception.

Thus the confounding introduced by deception is serious. The deception interpretation is at least as plausible as the teacher expectation interpretation, holding plausibility advantages on the metatheoretical indexes, generality, explanatory power, and parsimony, as well as on the multiple regression

analyses.

### Implications for General Methodological Issues Related to Deception

The main methodological implication of the confounding demonstrated is that the APA's asserted methodological justification for deception: that deception enables valid inference by reducing confounding to a minimum, not sustained. Far from reducing confounding, deception has rather increased it for outcomes can be explained from the premise of successful deception or from the premise of unsuccessful deception.

Other methodological implications emerge from the analysis especially for the defences of deception in the earlier methodological literature. Weber and Cook's (1972) defence that the hypothesis is seldom discernible in substantive research was not borne out in the teacher expectancy field studies. The false inductions--that nominated pupils had high potential and would bloom shortly--expressed the hypothesis, which therefore was functionally obvious (providing a guideline for teacher behaviour), even if teachers did not recognise it as a hypothesis in a technical sense.

The analysis did not, furthermore, support the related defence--that confounding by deception generally takes the more innocuous form of spurious negative outcomes--for the positive outcomes in the teacher expectation studies were also likely to be spurious according to the apprehensive/cooperative interpretation.

An implication for a defence involving postexperimental identification of suspicious subjects also emerged. Postexperimental questioning has been repeatedly pressed as a methodological rearguard against any failure of deceptions, even though it is used in only a minority of deceptive studies and even though many experiments have demonstrated that subjects are reluctant to admit their suspicions when questioned (e. g. Golding & Lichtenstein, 1970). Teacher expectation researchers selectively handled postexperimental evidence of teacher suspicion, accepting it when a teacher expectation effect failed to emerge, and disregarding it when results supported the teacher expectation hypothesis. This selectivity points to a contradiction in the defence that postexperimental questioning is a methodological rearguard for deception. If researchers make this claim, it is incumbent that they accept admissions of

suspicion when outcomes are positive and thus allow postexperimental data to override results consistent with experimental hypotheses. But this would grant a higher epistemological status to postexperimental questioning data than to the main deceptively-derived data, so would remove the justification for use of deception in the first place.

### Implications for the Teacher Expectancy Field

Generalised to the classroom, deceptively-derived findings have led to a misleading overestimation of the size of the effect of teacher expectations acting as self-fulfilling prophecies. Teacher expectations were even hailed as both a cause of, and a cure for, the educational fate of the culturally disadvantaged after Rosenthal and Jacobson's (1968) seminal study. Recent naturalistic evidence shows, however, that teacher expectations acting as self-fulfilling prophecies, account for only about 5% to 10% of student achievement in the average classroom (20% as an upper limit) (Brophy, 1983, Jussim, 1989; Jussim & Eccles, 1992). Brophy (1983) argued that the overestimation of the effect occurred, because in deceptive studies false estimates of pupils' potential were given to teachers, and sometimes teacher behaviour and student performance emerged in line with these false estimates. Teachers' naturally occurring expectations are, by contrast, generally accurate, so even the potential for teacher expectations to act as self-fulfilling prophecies is considerably lowered.

Finally, confounding of interpretation in deceptive teacher expectations research, undercuts the claim that deception has fulfilled the unique and important role of convincingly establishing the causal reality of the teacher expectation effect. Meanwhile nondeceptive naturalistic studies have continued to accumulate persuasive evidence of a causal influence of teacher expectations upon student achievement (Brophy, 1983; Jussim, 1989; Jussim & Eccles, 1992).

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