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Michael P. Burger

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Differential Effects of Minimal and More Specific Feedback Statements Derived from Inter-Test Scatter on the W.A.I.S.

by

Michael P. Burger

B.A. (Honours), University of Windsor, 1973

A Thesis
Submitted to the Faculty of Graduate Studies through the Department of Psychology in partial fulfillment of the requirements for the Degree of Master of Arts at the University of Windsor.

Windsor, Ontario, Canada
1974
ABSTRACT

The present study was carried out to test the effects of varying the length of feedback reports given to subjects (S1s) concerning their performance on the Wechsler Adult Intelligence Scale (W.A.I.S.). Sixty college students individually took W.A.I.S. verbal scale and later each received two feedback reports, one a short minimal report and the other a longer more specific report. Dependent variable measurements were obtained by having each S1 rate on an eight point likert scale the usefulness of each report. The ratings were examined for sex differences, report length preference and presentation order effects. Results showed that sex differences did not significantly affect the ratings; that S1s significantly preferred the long report over the short; and that significantly higher ratings were assigned to the short report when it was presented first rather than when it was presented after the long report.
PREFACE

Contained within the following pages are the contents of two theses. One set in black type, standing traditionally as a symbol of educational achievement and the other, both fluid and transparent, standing as a tribute to existence.

For support in this first thesis I am most grateful to the members of the committee for their constant guidance and continuous direction. To my chairman, Dr. William Balance, I have appreciated your valuable contributions of insight, experience and mostly of extreme patience. To Dr. Jerome Cohen, I thank you for your considerable contribution particularly with the statistical design and assessment and also for your continued guidance throughout the thesis. To Dr. Wolfgang Bringmann belongs the credit of initially suggesting an examination of the effects of a quantitative variation of feedback based on subscale scatter of the W.A.I.S. I thank you for your concept and for your personal recommendations which did much to add clarity and precision to the design of the thesis. To my outside reader, Dr. John O'Farrell, I offer a very special thanks for providing inspiration through an invaluable source - a very precious friendship. To Marilyn Renaud, my typist, who voluntarily contributed endless hours of her time, you are a very kind and generous woman. Your sacrifice speaks for the quality of your character. To my roommate Jim Meyer I thank you for the past year and also for the several times that you contributed your typing ability to help me meet deadlines.
Of the second thesis what can be said? It is written between the typed letters of the first, and recorded in the annals of time - thoughts and feelings contained within but all too difficult to express without. It can be seen only by looking through the eyes of emotion, a challenge for even the most sensitive of readers. However, for anyone who at any time has attempted a thesis or dissertation, I am confident that you have felt the existence of just such a work. While the first thesis is symbolic of educational achievement, the second is the totality of educational experience. For this I owe thanks to a great many people and yet it is only possible to mention a few.

No words can express the feelings that I would need to thank my parents - I am certain that you are two of the finest people that have ever joined lives and combined talents in order to love and to raise children. To Father Ted Gatfield (a Doctor of Psychology in his own right), I will say simply that in the ongoing flow of life I will carry with me the conviction that psychology is more a belief in man than it is a science of man. To Debra Cooper, thank you for your unyielding love and constant softness. You are a part of all that has been written.

Many treasured images appear in the thought flow of the second thesis. One such image is the rather mystical face of Father Henry Hill who had the most uncanny knack of showing up to offer warm words and a kind smile whenever the task of carrying out the first thesis had most discouraged me.
There is one last very special thankyou that returns these thoughts five years to the beginning of the creation of the second thesis. It was the school year 1969-70 at St. Joseph's High School, St. Thomas, and a new teacher had arrived. The teacher was a very quiet and humble Sister of St. Joseph - Sister Mary Esther - and in the course of one year she slowly melted a boy's growing cynical attitude towards education and replaced it with a deep feeling that the pursuit of knowledge was a worthwhile endeavour. To her I am forever grateful.
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CHAPTER I

AN INTRODUCTION

To Begin in the Midst

Psychological testing, like many other aspects of North American Society, has had its beginnings in foreign lands. It has, however, developed most rapidly on this continent, perhaps because in theory it satisfies certain strong cultural needs to appear to uphold the right of equal opportunity for all peoples. In any event no other part of the world has so resorted to the practice of developing and administering standardized, objective psychological tests.

Coslin (1963) stated that although it is difficult to estimate the extent of test usage it appears that between one hundred and fifty million and a quarter of a billion standardized ability tests are being administered annually in the United States. They are used by schools, colleges, government agencies, business and industrial firms attempting to evaluate the personalities and intellectual capabilities of potential and existing personnel. Over the past fifty years testing has become a firmly established part of North American culture. The experience of taking standardized tests of intelligence, apti-
tude or achievement is now virtually universal among children and very common within the adult population.

In 1960 a Harvard Business School survey indicated that over sixty per cent of the largest American companies, i.e. those having more than ten thousand employees, were making regular use of tests to select their salaried personnel. The weight now being given test reports makes it clear that for those aspiring to be executives the times they spend taking tests will be critical in determining their future.

Sundberg and Tyler (1962), quoting from Newsweek stated that the annual sale of test booklets and answer sheets to schools in the United States had reached 122 million and that the figure had increased fifty per cent over the sales in the mid nineteen fifties. In 1961 Sundberg estimated that public clinical services were testing over 700,000 individuals annually.

Then Came Controversy

In spite of the extensive use of psychological testing in North America, the field has been subjected to a growing wave of criticism. Indeed the critics have become more vocal with the ever increasing use of tests. Criticism has come not only from psychologists themselves but also from the general public. Journalists addressing psychological examiners have referred to them as "brainwatchers,"
and "peeping Toms". Such remarks did much to bring about the United States congressional investigations in June 1965. The hearing's chief concerns were possible abuses in psychological testing, especially the question of invading an individual's privacy.

However, even before the hearings, psychologists were beginning to respond to the public pressure. In 1963 a national committee of psychologists was commissioned to gather information and make recommendations concerning the practices and social consequences of psychological assessment. The criticisms were many and varied but it appeared that certain issues were the basis for the attacks.

Barclay (1968) summarized these issues:

1) That counseling practice and the use of testing is a communist inspired plot to subvert and pervert the morals of American youth.
2) That testing is being misused by many so-called professionals and some individuals who are far from being professional.
3) That some tests are personally obnoxious to certain segments of the population and contain items which actually inform children of anti-social or law breaking conduct.
4) That the prediction from some of these tests is nearly nil for individuals.
5) ...and foremost that there has been a widespread invasion of personal rights through the use of certain types of tests and the dissemination of these test results." p. (5)

Many of these criticisms were valid or at least had partial validity and a great deal of reconsideration and re-evaluation has been required. Much of the controversy still continues in the area of psychological testing and the issues raised by the "anti-test revolt" have given rise to a considerable amount of research in recent years.
in clinical psychology. The need for this research has been expressed most precisely by Anne Anastasi (1967).

"One way to meet the outside pressures that threaten to undermine psychological testing is to make improvements from within. Improvements are needed, not so much in the construction of tests, as in the interpretation of scores and the orientation of test users. Tests do not provide a technique for the rigid and static classification of individuals; on the contrary they are instruments for facilitating change in desired directions." p.p. (445-446).

The Issue of Giving Feedback

Perhaps the major issue to arise from the "anti-test" revolt and to remain unresolved in recent years is the issue of dissemination of information derived from psychological testing. Questions have been raised concerning the client's right to know the findings of his performance on psychological tests. The mass testing programmes used to aid in job selection have been attacked as invasions of individual privacy. Also, in education psychologists have been attacked for refusing to give parents feedback concerning their children's performances on various tests. Woodring (1961) reported that parents in several American communities charged that schools were withholding important information about their children. Some had taken legal action to require that the full record on each child be made available to his parents. Price (1970) pointed out the general tendency in psychology concerning the issue. He stated that "the practice of withholding feedback on
psychological tests has generalized from the clinic, to settings in education, research and industry. Indeed this practice has become an accepted part of procedure in modern psychological testing. The practice was originally borrowed from a similar practice of withholding threatening information from patients, in the medical profession. In recent years however, many in the medical profession have begun to reconsider this issue. Redlich and Freedman (1968) state that:

"In the recent past, there has been a tendency among physicians to be more open toward patients. We believe this trend is a consequence of rapid and publicized developments in scientific medicine and the rejection of a mystical and magical role in medicine. There is a growing conviction among laymen that they are entitled to know about the findings from modern medicine from books, lectures and, most of all from their doctors... One school of thought holds that threatening information should never be given; the opposite recommends being absolutely truthful. In practice, most physicians steer a course between these two extremes and adjust information given in terms of its content and their evaluation of the recipient. Often, however, these variations relate more closely to what the physician can tolerate than on the needs of a patient and his family. To put it simply, we recommend that physicians be both truthful and sensitive... Patients and relatives can handle the truth if they are properly supported and understand that the physician will see them through pain, agony and danger as well as possible." p.p. (812-813)

Not surprisingly these attitude shifts in the medical profession stimulated a movement by some psychologists to reconsider their opinions about giving feedback. The code of ethics of the American Psychological Association does not presently require psychologists to give feedback
to their clients but it does give general guidelines for
those people choosing to give feedback. The Biographical
Directory of the American Psychological Association (1973)
contains these guidelines:

"Principal 14. Test Interpretation. Test scores,
like test materials, are released only to persons
who are qualified to interpret and use them
properly.
a) Materials for reporting test scores to parents,
or which are designed for self-appraisal purposes
in schools, social agencies, or industry are
closely supervised by qualified psychologists or
counselors with provisions for referring and
counseling individuals when needed.
b) Test results or other assessment data used for
evaluation or classification are communicated
to employers, relatives, or other appropriate
persons in such a manner as to guard against
misinterpretation or misuse. In the usual case,
an interpretation of the test results rather than
the score is communicated.
c) When test results are communicated directly to
parents and students, they are accompanied by
adequate interpretive aids or advice." p. (xxii)

There has been strong resistance by psychologists who
fear that supporting the client's right to receive results
of his test performance is to stand smiling as Pandora
approaches the box. They fear the potentially disturbing
effects of giving information to clients who have done
poorly on tests. They foresee that much misunderstanding
may result from the communication of results. They also
engage in much speculation as to the effects the feedback
may have on a person's self image, on his motivation and
on his belief in his potentials. It is apparent that all
the major arguments stem from fears that psychologists do
not have the ability to communicate their findings effectively and with sensitivity. Their fear is well founded since to give this information effectively is an art and little effort has been made to systematically teach it. It is the opinion of the present author, however, that the sheer fact that the public is demanding feedback makes it essential that psychologists attempt to understand their needs and, wherever possible, to meet them. The ability to effectively communicate is an art that all psychologists must attempt to develop. It is not clear exactly what is being requested by the general public in terms of feedback; it is, however, apparent that in the no feedback testing situations there is a very real fear, consciously or unconsciously perceived, that one is or has been manipulated.

While the controversy concerning feedback reporting has only relatively recently arisen as an issue in clinical psychology, it has for some time been studied in a number of allied disciplines. Before turning to the research directly involved with psychological testing it may be helpful to review some of the feedback literature in two closely related fields.

The View From the Psychology of Learning and Cybernetics

In the area of the psychology of learning a great deal of interest and subsequent research has been generated by the general finding that knowledge of results aids in the
acquisition of skills in learning situations. Feedback or knowledge of results has come to be defined as stimuli produced by responses, both in terms of feeling the response occur and in terms of observing its effects on the environment. Two principal types of feedback have been recognized and distinguished. One type, positive feedback, tends to increase the frequency of responses producing the feedback. It in fact feeds back upon itself to produce more of the same. The second type, negative feedback, acts by tending to produce responding so as to remove the feedback or refers to a situation in which the effect of the feedback is to reduce the event producing the feedback. The development of feedback research in the area of learning has been traced by A. Irion in E. Bilodeau (1966).

"The early phase of the work on knowledge of results, at least as this concept applies to skill learning situations flows more or less directly from Thorndike's (1911) statement of the law of effect. By the 1930's a considerable number of studies had been conducted which showed that knowledge of results was an effective variable; that little improvement occurred without the knowledge of results that the introduction of the knowledge of results resulted in improvement and that withdrawal of knowledge of results was followed by a deterioration of performance.

Most of the early studies of knowledge of results were concerned principally with the effects of giving or withholding knowledge of results rather than with an analysis of the effects that could be produced by varying the nature of the administration of it. Also, the results of animal experimentation on reinforcement and the formulation of reinforcement theory by Hull (1943) exerted a strong influence on the general conception of the effects of knowledge of results...there was
a considerable tendency to accept the findings of animal research on the problems of reinforcement as being applicable to the feedback problem in human verbal and motor learning. In this instance at least the influence of animal research and Hullian theory was unfortunate.

A return to the study of knowledge of results in the context of human learning was initiated by Brown (1949) ... A number of problems have been investigated in the field of knowledge of results." p.p. (29-30)

Since then a great deal of research has been carried out resulting in varied findings with implications far beyond the scope of the present paper. Those interested are referred to an excellent review of the literature by Ina Bilodeau in her chapter entitled "Information Feedback". E. Bilodeau (1966). For our purposes reference will be made to the works of I. Bilodeau and E. Tulving. In summarizing the findings of recent feedback research in learning Bilodeau (1966) states that

"Probably most psychologists would allow that information feedback (I.F.) has at least the following three properties regardless of hypothesized theoretical properties: a) Response strengthening b) sustaining performance and c) eliminating previously established responses. As for its theoretical properties, logically, I.F., as any stimulus, can have all or any of the three a) directive b) motivating and c) reinforcing." p. (257)

Within the last few years some learning theorists have recognized that certain memory processes are influencing the effects produced by feedback.

In a recent essay two specific types of human memory have been distinguished in explaining how feedback can be
CHAPTER I

effected directly by the retrieval process. In it Tulving and Donaldson (1972) differentiate between episodic memory and semantic memory.

"Episodic memory refers to memory for personal experiences and their temporal relationships, while semantic memory is a system for receiving, retaining and transmitting information about meaning of words, concepts and classifications of concepts." p.p. (401-402)

The importance of the distinction becomes clear with the following quotation of Tulving and Donaldson (1972).

"The consequences of retrieval also appear to differ for the two systems. While retrieval operations can be considered neutral with respect to the contents and structure of semantic memory, in the sense that they do not change the system, the act of retrieval from either system may and usually is, entered as an episode into episodic memory. Retrieval as feedback into the episodic system may lead to changes in the contents, and the retrievability of these contents of episodic memory." p.p. (390-391)

Thus since every item stored in episodic memory contains further information about the experiences or events surrounding that item, the total context in which feedback is given must then be considered as relevant to the understanding of the feedback effects.

While feedback effects were being explored in the psychology of learning another area of psychology was attempting to learn more about the function of feedback. The psychology of cybernetics led by Norbert Wiener postulated the idea that control i.e. (the maintenance of essential variables within certain necessary limits) could
be effected by the device of feeding back signals from the output of a device (or the response of a dynamic system) so as to effect the input to the device (or the driving force exerted on the system). Since the early writings of Wiener, the field of cybernetics has made the concept of feedback a central focus of its studies. In attempting to understand the role of feedback, the concept of feedback loops has been extensively employed. The concept applies to systems, including the human system, which strive for homeostasis. The loop is conceived of as a closed circuit system which contains a governor. The governor will send negative feedback into the system as it fluctuates beyond its regulated bounds with the goal of returning the system to homeostasis. The concept has been found useful in understanding a wide variety of happenings including economic slumps and booms, fluctuations in animal populations, heart beats and the use of feedback in human reasoning. Powers, Clark and McParland, (1966) have developed a general feedback theory of human behaviour. The operation of this model can be summed up as follows:

"A system at a given order has goals given to it by higher-order systems. These goals are in the form of perceptual images of past experiences or combinations of past experiences. The system acts to make its present perceptual field match the goalfield as nearly as possible. It does not act directly on the external world, but on the only environment with which it is in immediate contact, the set of next-lower-order systems."
Its action is that of selecting and stimulating goals for lower-order systems, it is capable of perceiving the signals (either feedback or reference) resulting from its selection, so a set of lower-order signals can be specified which, if achieved, would be interpreted by the system's own feedback function as the required magnitude of perceptual variable." p. (343)

However, survival requires continuous adaptation to the environment and certain feedback may at times totally disrupt the internal stability of a once homeostatic system. Snyder, (1968) reports on Ashby's theory which extends the cybernetic model to include this situation.

"An adaptive mechanical brain cannot be a stable system; obviously, neither can it be an unstable system. Ashby proposed that, instead, the adaptive brain is an ultrastable system. His model, called Homeostat, is such a system. In addition to the primary feedback circuit that ties the brain to the environment on a continuous basis, Homeostat has a secondary feedback circuit. This is what converts a stable system to an ultrastable system; its interaction with the primary feedback circuit is what produces the adaptive behaviour. The organism responds initially as provided by the primary circuit and given certain values of parameters associated with the secondary circuit. If, however, the environmental parameters pass critical values, the secondary circuit switches to other values. As a consequence, the primary feedback circuit also changes values and operations. In brief the ultrastable system is able to regain stability even when the environment's parameters are grossly altered or, in fact, reversed. The consequent changed behaviour, we say, reflects learning. In the long run, such changes in behaviour operate to the benefit of the organism and so are adaptive." p. (201)

The findings of cybernetic researchers and the development of the "homeostat" model contribute greatly to the understanding of feedback. However, for our purposes,
one of the most important implications of the cybernetic research is best stated by Wiener (1954).

"effective behaviour must be informed by some sort of feedback process, telling it whether it has equalled its goal or fallen short. The simplest feedbacks deal with gross successes or failures of performance... It is often necessary for us to know whether a whole policy of conduct, a strategy so to say, has proved successful or not." p.p. (58-59)

Having reviewed some of the research and findings concerning feedback in the psychology of learning and cybernetics we shall now turn our attention to the research that has focused on the effects of giving feedback in psychological testing.

The Critical Questions

The largest research undertaken to date concerning the issue of giving feedback in psychological testing has been carried out by David A. Goslin and his associates at the Russell Sage Foundation. They have for a number of years been involved in a cross-country study of feedback effects in public, private and parochial schools in the United States. They have identified a number of their basic research questions. Goslin (1968) outlined their major concerns. The general issue was "what are the possible effects on an individual of receiving a test score or at least general information about his intellectual capacity?" They raised specific questions concerning
the extent of feedback being received by students presently
and the degree to which this information is different from
the individual's already informed estimate of his abilities.
For those cases in which there were significant differences
they attempted to determine what the factors were that
would influence whether or not a change would occur in the
person's self image. They also attempted to determine if
the majority of the individuals preferred to receive feed-
back concerning their performances on psychological tests
and what type of individual was most interested in receiving
feedback.

Other studies attempted to measure the extent to which
counselling, with test feedback as a major element, would
be followed by greater agreement between the individual's
self rating and his score on psychological tests. They
raised such questions as 1) Would gains in self-rating
accuracy be retained over long periods of time? 2) What
types of feedback will be best retained? and 3) Does test
taking without receiving feedback improve an individual's
self-rating ability?

A third approach to the issue was to directly measure
academic performance for subjects with and without knowledge
of scores on tests of intelligence, aptitude and personality.
The questions raised here were 1) would low scorers become
demoralized? and 2) would high scores become too complacent?
so that the later academic performance of both is inferior to that which would have resulted had they been kept in ignorance of their test scores.

Without answers to these principal questions it will be difficult to formulate a rational opinion concerning the feedback controversy. Thus the findings of these studies are of interest to all concerned with this topic.

The Findings

A survey conducted by the Russell Sage Foundation, Brim, Glass, Neulinger, Firestone and Lerner (1969) measured the extent of the feedback received by students taking intelligence tests in the present school systems. They report:

"There is clearly a great deal of variation in the feedback of intelligence test results. Considering now only students who have been tested, 31% of the public school students said that they have not been given any information about their intelligence test performances; another 24% reported having received only a general indication of how well they did, while 45% reported that they were given complete information about their test results.

The distribution of information about intelligence testing among private school students was virtually identical to that for the public school sample. Among parochial school students, the level of information reception was found to be generally higher: 53% were given complete information, 19% received general information and 29% received no feedback." p. (136)

Their evidence further indicated that in most cases the test scores were not significantly different from the
individual's private estimate to create problems of assimilation. However, there was a substantial number of individuals for whom the scores were significantly different. Goslin (1968), reporting from the same sample population, stated that about three quarters of the time the test score was lower than the individual's self-estimate. He also outlined the factors that would influence whether or not the differences would result in a change in the individual's self-image. Goslin (1968) reports that:

"a) the opinion of the individual about the accuracy of tests in general and this test in particular as well as the credibility of the source of the information,
b) the strength of competing ability estimates; for example what peers, parents and others have said,
c) the availability of rationalizations in the event that the score is lower, such as exceptionally poor performance due to anxiety or bad health." p. (363)

On the question of reporting test results to students and parents neither counsellors nor teachers showed a clear preference for either reporting scores or withholding them. However, Brim, Glass et. al. (1969) report that:

"The majority of respondents, almost three out of every four in the public and parochial schools, feel that all students should be given specific information and... their attitudes towards reporting the results to the parents are very similar." p. (147-149)

They note one important exception which is that the private school students were less favourable toward receiving the feedback of specific results of tests, them-
CHAPTER I

selves, however, they were slightly more favourable towards having the results reported to their parents. They could give no satisfactory explanation for the private school exception.

In summarizing their findings Brim, Glass et. al. (1969) state:

"Our picture of the respondent with the strongest interest in his test results show a student who believes that the outcomes of his actions are controlled by himself rather than fate or destiny, who is concerned about the likelihood of his own achievement, and who holds a generally favourable view of himself." p. (163)

The studies involving test feedback given in counselling situations and concerned with the agreement between self-rating and scores on these psychological tests give some further understanding into the effects of reporting test results. Johnson (1953) reported significant increases in accuracy of self-rating as a result of feedback. He indicated that the largest gains were in intelligence estimates, next interest and finally personality estimates. Berdie (1954) gave feedback to college freshmen previously assessed as having limited self knowledge, and reported significant improvements in self-rating accuracy for students retested six months after receiving the feedback. Torrance (1954) reported similar findings with freshmen asked to rate their S.A.T. scores. Froehlich (1957) however, found little improvement in self-rating testing using high school students as subjects in his feedback
experiment. Both Lallas (1956) and Wright (1957) showed increases in self-rating accuracy for groups receiving feedback in counselling and no effects on groups receiving no feedback. Yet Singer and Stefflre (1954) and Young (1955) report having experimental groups that received feedback showing no significant gains in self-rating accuracy over control groups. After reviewing this research Goldman (1961) states that "these studies taken as a group provide only limited evidence of the values derived by people from receiving reports of their test results."

It is unclear as to why some studies have so much more favourable results than others. One plausible speculation concerning these conflicting results is that the personality of the therapist is an uncontrolled variable in all of these studies. This seems particularly important in light of a recent study by Price (1971) in which he demonstrated that students more frequently endorsed non-pathological descriptive statements over pathologically oriented descriptive feedback statements. Thus it would seem logical that the way in which a therapist reported the feedback would affect the individual's acceptance of that statement. One further conclusion from the study by Price (1971) is worth noting. It is "that the acceptability of feedback information is markedly affected by the constructs upon which the assessment instrument is based."
CHAPTER I

The study by Flock and Saggar (1968) which directly measured academic performance for subjects with and without knowledge of scores on tests of intelligence, aptitude and personality, used as its main hypothesis that knowledge of test scores does result in poorer academic performance. This was based on research suggesting that the relationship between anxiety and performance obeys the curvilinear Yerkes-Dobson principle. Extrapolating from the theory it was held that students knowing that their test scores are low are impeded by overanxiety in their later work; and that students knowing that their scores are high, due to self satisfaction, fall below a medium level of anxiety needed for optimum performance. The findings of the study completely contradict the experimental hypothesis and disagree sharply with the implications of the Yerkes-Dobson principle. The subjects that received knowledge of psychological test results performed significantly better on degree examinations than the subjects that had not received knowledge of their results. Flock and Saggar (1968) discuss the implications of this finding.

"Another striking feature of the result is its unexpectedness. Not only does it run counter to the opinion prevalent in Great Britain that knowledge of test scores depresses subsequent academic performance, but also it goes beyond the intermediate view that this factor is immaterial, by creating the strong presumption that it has a facilitating influence. Such a "booster" effect, if confirmed, in replications, would have theoretical and practical implications that make it important to consider possible explanations." p. (398)
CHAPTER I

In further discussion they also indicate that the method of presentation may be a significant variable in determining the outcome of feedback effects. Flook and Sazgar (1968) state in reference to the Yerkes-Dobson principle that:

"Though plausible, the argument is open to the objection that the crucial factor is the form in which the feedback information is given. A mild version of this counterclaim asserts merely that "good" presentation cancels out any ill effects, while a strong version claims that the feedback may take a form that outweighs any ill effects thereby producing a net gain." p. (395)

An Attempt at Synthesis

From the review of the literature a number of facts become very apparent. In general the relationship between the general public and psychometricians is in a poor state and in need of repair. One of the major sources of the conflict is the controversy surrounding the withholding of feedback concerning performance on psychological tests. Research from the Russell Sage Foundation study supplies some important information concerning feedback on I.Q. tests in schools. It indicates that between 55% and 60% of the students given I.Q. tests receive very little or no information concerning their test performances. Yet approximately 75% of the students indicate the desire to receive specific information concerning these test results. The research has also shown that for most cases the test
scores were not significantly different from the individual's private estimate so as to create problems of assimilation. It further indicated that students concerned about the likelihood of their own achievement and holding a generally favourable view of themselves would be most interested in receiving feedback.

The studies concerned with the effects of feedback on agreement between self-rating and scores on psychological tests, although failing for the most part to isolate particular elements of the process, have given some evidence of values derived by people from receiving reports of their test results.

Also, the study of Flook and Sagar (1968) gives some direct support to the possibility that giving feedback on psychological tests may actually have positive effects in terms of improvement in academic performance.

The research from both the psychology of learning and cybernetics offer some further general support for providing feedback situations. Perhaps learning's strongest contribution to the issue comes from the finding that without the knowledge of results little improvement occurs and further that improvement on learning results with the introduction of knowledge of results. From cybernetics the concepts of feedback loop and homeostat have aided in the understanding of the brain's use of feedback and the
following words of Wiener (1954) have strong implications for the present issue: "effective behaviour must be informed by some sort of feedback process." p. (58)

Thus there is reason to further attempt to measure the effects of giving feedback and to determine their worth. In carrying out further research in the area of feedback the code of ethics of the American Psychological Association offers important guidelines. Also the research works of Price (1971) and Flook and Sagar (1968) both suggest that the method of presentation of feedback must be considered as an important variable in the understanding of the feedback effects.

Before leaving the introduction it is interesting to consider a thought expressed in one of the most recent feedback studies carried out by Balance, Sandberg and Brinzechmann (1971). To quote, "It is our opinion that much of the popular chagrin against psychological assessment is well deserved and traceable to the "hallowed" tradition of gathering types of information, which it is felt must be kept secret from the client."
CHAPTER II

STATEMENT OF THE PROBLEM

Aims

Having reviewed the literature involving feedback effects it is apparent that the issue is still unresolved. A number of critical questions have yet to be answered. The findings of the Russell Sage Foundation Survey have provided the most pointed empirical evidence that there is a great discrepancy between the client desire to receive feedback and the actual practice of psychologists concerning this issue.

Given, that the Code of Ethics of the American Psychological Association includes guidelines for reporting test results and given the positive implications for feedback usage from studies in learning, cybernetics and psychological testing, the current issue becomes one of isolating the relevant variables which will make feedback most effective when used, rather than the previous issue of whether feedback should or should not be given. It is for this reason that the present study attempts to focus on one possible relevant variable. It gives the subjects two quantitatively different feedback reports. One report gives only minimal feedback while the other gives far more specific feedback information. Subject ratings of the
short minimal feedback report and the longer more specific feedback report are compared in order to determine the effects of the quantitative variation. Realizing that the feedback setting will influence the subject's experience, the study attempts to obtain information concerning the subject's reactions to the feedback situation.

The present work varies from previous studies in that it employs the subjects as direct information sources allowing the individuals to report their feelings and impressions about the feedback statements that they received. It was felt that obtaining just such direct answers from subjects was a necessary and useful step in clarifying the effectiveness of this feedback situation. It was further felt that allowing individuals an opportunity to report certain experiences concerning feedback would be consistent with the belief that the centre of all clinical activity should be the interests and needs of the client. The major questions asked in this research also were quite different from those asked in previous studies. They emphasized the subject's feelings towards receiving feedback and thus attempted to focus on the type of information being stored in the subject's episodic memory.

1) By having clients report on how they felt about receiving feedback, it was hoped that some general indications could
be identified concerning the subject's perception of the nature of the situation in which he is receiving feedback (i.e. Tulving episodic memory).

2) Can it be determined whether or not clients prefer to receive quantitatively more extensive to rather minimal feedback statements.

It is hoped that answers to these questions will set the groundwork for further research and aid in clarifying much of the feedback controversy.

Given the previous research in the subject area two major hypotheses were generated,

1) The subjects would find receiving quantitatively more extensive feedback statements preferable to receiving rather minimal feedback statements.

This hypothesis is generated by the findings in the Russell Sage Foundation Research that approximately 75% of all students requested specific feedback as to their performance on intelligence tests.

2) There would be no significant sex differences concerning the quantitative preference in receiving feedback statements.

This hypothesis is based on the findings of the Russell Sage Foundation Research which failed to discover any significant male-female differences concerning attitudes or opinions about receiving feedback. This is also consistent with the findings of Sandberg (1969) and Price (1971) which both indicated that there were not significant sex differences concerning attitude and feeling concerning the reception of feedback.
CHAPTER II

While a third major hypothesis was not generated there were certain indications that the SIs would not report experiencing severe emotional upset from the feedback and that they would positively respond to having received feedback.

Significance of the Problem Area

1) It is significant that this study has used as its diagnostic tool a battery of subtests taken from the Wechsler Adult Intelligence Scale (W.A.I.S.) presently the most popular I.Q. test in North America. Much of the feedback controversy stems from the practice of school psychologists of withholding information about a student's intelligence from his parents. In many cases the information being withheld was information derived from the W.A.I.S.

2) Intelligence is a concept on which society has placed an extremely high value. The ethical issues raised concerning the withholding of information derived from intelligence testing from a non-pathological population warrants an investigation into the effects of giving just such feedback.

3) The great discomfort of the general public with the psychologist's practice of withholding information demands that the feedback issue be reconsidered. It further suggests that decisions in the future should be based on experimental findings as well as on the clinician's impression
CHAPTER II

of an individual's ability to deal with feedback statements.

4) It is important that this study has approached
the source for answers concerning their feelings about the
feedback situation. Using the client as a direct information
source is in keeping with the contemporary spirit of
humanistic psychology.

5) It is significant that the present study compares
subject preference for either rather minimal or more
extensive feedback statements. It is important to make
feedback reporting as significant and meaningful as possible.
Therefore it is necessary to attempt to isolate those
variables which may be contributing to the effectiveness
of giving feedback.

6) By providing subjects with feedback concerning
their performance on psychological tests, testing can no
longer be considered to have simply a diagnostic or pro-
nostic function. It must be considered as a learning
situation and clinical research must begin to view it in
that light. In the words of Constance Fischer (1973),
"Assessment processes are interactions which, to some
extent, alter the experience and hence the life possibil-
ities of both participants." p. (39)
CHAPTER III

Method

Subjects

Sixty subjects (S1s), twenty-nine male and thirty-one female undergraduate college students in the city of Windsor participated in the study. The ages ranged from 17 to 43 years with a mean age 20. All of the S1s were voluntary participants in the study. The S1 motivation originated from the opportunity to take psychological tests as well as from the prospect of evaluating feedback derived from the assessment and the promise of further information regarding their own test results.

Eight of the subjects, three males and five females were eliminated from the major study because their W.A.I.S. profiles did not contain sufficient scatter to warrant the use of the study's standardized feedback statements. However, they did participate in the entire study and differed from the other subjects only in that they received qualifying statements which modified the meanings of their feedback reports. For this reason a separate statistical analysis was carried out on this subgroup. Thus the major study contained 52 subjects, 26 males and 26 females and the minor study consisted of 8 subjects, 3 males and 5 females. It was believed that there was no selection
bias prevalent in the study since all subjects volunteered for the study and only one subject that originally volunteered was unable to be contacted in order to complete her participation. It is recognized that the population sample is not representative of the general population, but it is seen as representative of the undergraduate college population in Windsor.

Instruments

The Wechsler Adult Intelligence Scale (W.A.I.S.) verbal subtest battery was employed to assess the intellectual functioning of individual subjects.

The W.A.I.S. was designed to yield various intellectual measures which are relevant to the functioning of individuals in rather diverse situations. The W.A.I.S. represents an approach to intellectual assessment which views "intelligence as an expression of ego functioning and views each of the components of the intellectual process as representing general cognitive modes of interacting, functioning, and meeting reality demands" (Allison, Blatt, Zimet, 1968). David Rapaport states that the W.A.I.S. is of primary importance as an intellectual assessment tool because it offers "the possibility for an interpersonal comparison of the subject's intelligence to that of the general population as expressed in I.Q.'s, and it also allows for an interpersonal comparison of the efficiency of the
different functions underlying the achievements on the different subtests" (Rapaport, Gill and Schafer, 1970).

The question of the reliability and validity of the W.A.I.S. as an intellectual measure leads to a great deal of conflicting research and heated debate. Since intelligence is an abstract concept and no operational definition has yet satisfied all of the people, the topic is extremely controversial. For the purposes of the present paper suffice it to say that at the present time the W.A.I.S. is by far the most widely used intelligence scale for adults and is, in the opinion of a large number of clinicians, the most valid and reliable test of intelligence that is presently designed. Those interested in the research concerned with validity and reliability are referred to Jones (1956), McNemar (1957), Field (1960), Griffith and Yamahiro (1958), Guertin, Rabin, Frank and Ladd (1962), and Guertin, Ladd, Frank, Rabin and Hiester (1966). However, it is worth considering the comment made by Robert Hold (1970) concerning this very research. "It is difficult to remain cheerful about research and practice in clinical psychology after plowing through a good deal of this literature. So much effort has been wasted by so many, by the application of inappropriate research design."

The W.A.I.S. manual (1955) reports the reliability of the individual subtests for the W.A.I.S. and also reports the
intercorrelations of the subtests as reported from the research of David Wechsler and his associates. The reliability of the individual subtests on the verbal scales range from a reliability coefficient of .66 on Digit Span to .95 on vocabulary.

Both high score and low score descriptive feedback statements were designed for each of the individual verbal subscales. The content of the statements was taken from the following sources concerning the rationale and interpretation of the individual subtest scores, Rapoport, Gill and Schafer (1970), Allison, Blatt, Zinet (1968), Ozdon (1967), Matarazzo (1972) and Glasser and Zimmerman (1967). The statements described the major functions tapped by each of the subtests. They informed the subject as to whether it was a high or low test score for him and described the general implications in terms of the subject's intellectual functioning. The statements were standardized. There was no distinction made in the feedback statements to distinguish males from females.

Each subject was requested to answer the following question immediately after receiving each of his feedback reports: "How useful do you find the feedback information that you have just received concerning your performance on the W.A.I.S.?" The response took the form of a rating on an eight point Likert-type rating scale of 0 to 7 with the extreme poles marked - 0 totally useless and 7 very useful.
CHAPTER III

The following forced choice question was administered after the subject had received and rated both feedback reports, "Which type of feedback report do you prefer?"

a) The short direct report naming your high and low scales,

b) The more extensive descriptive feedback report

Finally, the following projective summary item was administered,

"Please respond briefly concerning your personal feelings and reactions to your experiences surrounding the feedback received in this study."

The question was designed to focus the subject's attention on our specific area of interest but at the same time allowed the subject to freely express his emotion whether it be positive, negative or neutral.

Procedure

Each of the 60 subjects was administered all the verbal subscales of the W.A.I.S. on an individual basis. The testing followed all of the standardized administration procedures set down by David Wechsler in the W.A.I.S. manual (1955). Within two weeks after each test administration the subject returned for the feedback interview. At the beginning of this interview each subject received the following standardized instructions, "You will be receiving feedback concerning your recent performance on the W.A.I.S. You will be asked to read the feedback carefully and to respond honestly and sincerely to the
questions asked about the feedback. The entire session will take approximately twenty minutes. After having completed the entire task you will be allowed to ask any questions you may have concerning the feedback report but kindly reserve any such questions until the tester has notified you that the formal session is completed."

Following the instructions the subject was handed the initial feedback report and asked to read it. For half of the subjects the initial report would consist of the rather minimal feedback statement. This statement reported only the names of the subject's two highest and two lowest subscales. The other half of the subjects received the more extensive feedback statements as their initial feedback report. This feedback report consisted of reporting the standardized statements appropriate for each of the subject's two highest and two lowest scores. The criterion used to define high and low performance was a minimum difference of three scaled scores between high scales and low scales. This was in keeping with Wechsler's definition of significant differences. Subjects not meeting this criterion were given their feedback with a qualifying statement attached but eliminated from the major study. All subjects were randomly assigned before the testing to receive either the shorter or more lengthy initial report. After reading the initial report the subject was
asked to rate the usefulness of the report for himself, on the eight point Likert-type scale. Immediately after the rating, the subject was handed his second feedback report. For the subject that had initially received the minimal feedback report, the more extensive feedback report was now given. For the subject that had initially received the more extensive feedback report, the minimal feedback statement was now received. After reading the second report, the subject was again asked to rate the usefulness of the feedback he had just received. Immediately after the rating was completed, the subject was administered the forced choice question concerning his preference of the long or short feedback report. After this response was completed, the subject was given an open-ended question which asked him to respond briefly concerning his personal feelings and reactions to his experiences surrounding the feedback received in this study. After the subject completed this response, he was notified by the E1 that the formal interview was over. The possibility has been considered that some subjects may have had certain negative effects from the feedback. Thus, as a precaution each subject was individually debriefed immediately after he completed his involvement in the experiment. The debriefing dealt specifically with the feedback reports and discussed the subject's feelings towards certain statements. It attempted to clarify any misinterpretations or mis-
understandings. Provisions had been made for psychological counselling for any subject that may have indicated discomfort or dissatisfaction even after the debriefing.

The subject’s answers to the open-ended question were given to three judges, all Psychology Professors at the University of Windsor. The judges were naive as to the purpose and procedures of the experiment. They were asked to rate individually each of the 60 subjects' responses to the open-ended question. They rated the statements in terms of their negative or positive impact on the feelings and expressions of well-being of the subjects. The ratings took the form of a response on a 5-point Likert scale with the extreme poles labelled: 1 - very negative effects and 5 - very positive effects.

Statistical Treatment of Data

The Fmax test, Winer (1971), was carried out to test for homogeneity of variance in the sample population.

A sex X temporal order of feedback X feedback length (repeated factor) analysis of variance (ANOVA) was carried out on the Likert scale data. A Newman-Keuls test was used to measure the interaction effects. The procedures used for the three factor ANOVA with one repeated measure, and the Newman-Keuls test, are described by Winer (1971). Binomial tests, Siegel (1956) were carried out on the forced choice preference question data. A product moment
correlation was used to establish the reliability of the content analysis, carried out by the three naive judges, on the open-ended question.
CHAPTER IV

RESULTS

The Likert scale ratings assigned by the subjects to the short and long feedback reports are contained in Appendix 1 and 2. Table 1 summarizes the results of the Fmax test used to test the assumption of homogeneity of variance for the subject ratings. Table 1 shows \( F_{\text{max}} < F_c \) thus supporting the assumption of homogeneity of variance and justifying the use of the analysis of variance (ANOVA) on the raw data.

Table 2 presents the mean scores for the subject ratings of the short and long reports for the quantitative or length of report factor. Both male and female average ratings show that the short reports were rated lower than the long reports. The average of the means also shows a clear preference for the long report over the short report. An inspection of the means for variations due to a sex factor suggest very little difference in ratings. Table 4 contains the results of the ANOVA for the three factor design. An inspection of the significant P's shows that the C factor (length of report) is quite significant \( (p < .01) \). Table 4 also shows that the A factor (sex) is not a significant factor. Both findings confirm the suggestions in Table 2.
### Table 3

**Fmax Test on Subject Ratings Of Feedback Reports**

<table>
<thead>
<tr>
<th>SS largest</th>
<th>SS smallest</th>
<th>Fmax</th>
<th>Fc</th>
</tr>
</thead>
<tbody>
<tr>
<td>99.08</td>
<td>24.31</td>
<td>4.08 N.S.</td>
<td>4.79</td>
</tr>
</tbody>
</table>

N.S. - not significant  $p > 0.05$
TABLE 2

Mean Scores of Subjects Ratings of Usefulness of Short and Long Feedback Reports (order factor collapsed) (Standard Deviations in Parentheses)

<table>
<thead>
<tr>
<th></th>
<th>Report Length</th>
<th></th>
<th>Average of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short</td>
<td>Long</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>3.33 (1.47)</td>
<td>5.74 (.89)</td>
<td>4.54</td>
</tr>
<tr>
<td>Female</td>
<td>3.27 (1.01)</td>
<td>5.42 (.97)</td>
<td>4.34</td>
</tr>
<tr>
<td>Average of Means</td>
<td>3.30</td>
<td>5.58</td>
<td>4.44</td>
</tr>
</tbody>
</table>
CHAPTER IV

Table 3 presents the mean scores for the subjects' ratings of the two feedback reports, for the order of presentation factor. Whether the subjects received the short or the long report first they indicate a clear preference for the long report over the short one. The subjects show virtually no difference between their ratings of the long report, whether having received it first, or having first received the short report. However, the subjects do rate the short report much higher when it is presented first than when it is presented after the long report. Table 4 confirms the significant order effect with a significant F for the B factor (presentation order) (p. < .01). Also reported in Table 4 is a significant F for the BC interaction (presentation order X length of report) (p. < .01). In order to establish the nature of this interaction the Newmann Keuls test was used. Results of the test are summarized in Table 5. Again, it is clear that under both order conditions the subjects preferred the long report over the short one (p. < .01). However, the between groups comparison of the short report ratings for order effects reveals that the subjects' tendency, to rate the short report much higher when it is presented first, than when it is presented after the long report, is a significant factor (p. < .01). This is not the case in the long report ratings. There is no significant difference between subject ratings of the long report due to an order effect.
<table>
<thead>
<tr>
<th>Type of First Report Given</th>
<th>Report Length</th>
<th>Average of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Minimal Feedback Report</td>
<td>4.37 (1.40)</td>
<td>4.99</td>
</tr>
<tr>
<td>Long More Specific Feedback Report</td>
<td>2.23 (1.08)</td>
<td>3.89</td>
</tr>
<tr>
<td>Average of Means</td>
<td>3.30</td>
<td>4.44</td>
</tr>
</tbody>
</table>
TABLE 4

Analysis of Variance for Sex, Presentation Order and Length of Report Factors Of the Subjects' Ratings of The Short and Long Feedback Reports

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A (sex)</td>
<td>.96</td>
<td>1</td>
<td>.96</td>
<td></td>
</tr>
<tr>
<td>B (presentation order)</td>
<td>32.34</td>
<td>1</td>
<td>32.34</td>
<td>14.44**</td>
</tr>
<tr>
<td>AB</td>
<td>.97</td>
<td>1</td>
<td>.97</td>
<td></td>
</tr>
<tr>
<td>Subj. w. groups [error (between)]</td>
<td>107.38</td>
<td>48</td>
<td>2.24</td>
<td></td>
</tr>
<tr>
<td>Within Subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C (report length)</td>
<td>133.88</td>
<td>1</td>
<td>133.88</td>
<td>215.94**</td>
</tr>
<tr>
<td>AC</td>
<td>.35</td>
<td>1</td>
<td>.35</td>
<td></td>
</tr>
<tr>
<td>BC</td>
<td>28.05</td>
<td>1</td>
<td>28.05</td>
<td>45.24*</td>
</tr>
<tr>
<td>ABC</td>
<td>.02</td>
<td>1</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>C x subj. w. groups [error (within)]</td>
<td>29.70</td>
<td>48</td>
<td>.62</td>
<td></td>
</tr>
</tbody>
</table>

* (p < .05)
** (p < .01)
TABLE 5

Results of Newmann-Keuls Test: Differences Between Means of Subjects Ratings of Short and Long Feedback Reports for the Interaction of BC Factor (presentation order x length of report)

<table>
<thead>
<tr>
<th>Source</th>
<th>Preferred Report</th>
<th>Mean Differences</th>
<th>Critical Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a) within groups</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group receiving short report first</td>
<td>Long</td>
<td>1.25**</td>
<td>.54</td>
</tr>
<tr>
<td>Group receiving long report first</td>
<td>Long</td>
<td>3.31**</td>
<td>.54</td>
</tr>
<tr>
<td><strong>b) between groups</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>two temporal locations of short report</td>
<td>First</td>
<td>2.14**</td>
<td>.94</td>
</tr>
<tr>
<td>two temporal locations of long report</td>
<td>Last</td>
<td>.08 N.S.</td>
<td>.94</td>
</tr>
</tbody>
</table>

* (p. < .05)

** (p. < .01)

N.S. - not significant
CHAPTER IV

A separate ANOVA was carried out on the data collected from the eight subjects that had only minimal W.A.I.S. scatter. They required a qualifying statement to modify the interpretation of their two highest and two lowest scores and thus their feedback differed slightly from that of the major sample. A summary of the ANOVA can be found in Appendix 3. Despite the small sample population one significant F for the C factor (length of report) was obtained (p. .01). Again the subjects indicated a preference for the long report over the short.

Table 6 presents the frequency of responses to the forced choice question which asked the subject to choose his preference between the short and the long report. Table 6 clearly shows in all of the groups a preference for the long report over the short. The findings are significant for all the groups in the major study (p. .01), however, for the group with the qualifying statement the preference for the long report does not reach significance.

The ratings of the sixty subjects’ responses to the open-ended question, by the three judges, are presented in Appendix 6. To determine the reliability of the ratings, a product-moment correlation was carried out. The correlation between ratings was .36. The mean score for the three judges’ Likert scale ratings of the subjects’ responses was three (neutral effects). While there was a low degree of direct agreement between judges on any given response
### TABLE 6

Frequency of Responses to Forced Choice Question

<table>
<thead>
<tr>
<th>Group by Sex Factor and First Report Given</th>
<th>Chosen Report</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Males - short</td>
<td>Short</td>
<td>1</td>
<td>12</td>
<td>.003**</td>
</tr>
<tr>
<td>Males - long</td>
<td>Long</td>
<td>1</td>
<td>12</td>
<td>.003**</td>
</tr>
<tr>
<td>Females - short</td>
<td></td>
<td>1</td>
<td>12</td>
<td>.003**</td>
</tr>
<tr>
<td>Females - long</td>
<td></td>
<td>0</td>
<td>13</td>
<td>.001*</td>
</tr>
</tbody>
</table>

| Group with Qualifying Statement            | Short         | 2      | 6      | .145 N.S. |

* (p < .05)  
** (p < .01)  
N.S. - not significant
rating it should be noted that both of the judges rated several responses one (very negative effects).

Recalling the two major hypotheses generated in the Statement of the Problem, 1) that the subjects would find receiving quantitatively more extensive feedback statements preferable to receiving rather minimal feedback statements and 2) that there would be no sex differences concerning the quantitative preference in receiving feedback statements, it is clear that the results have confirmed both hypotheses.
CHAPTER V

DISCUSSION

This investigation was conducted to examine the effects of providing undergraduate college students, taking intelligence tests, with two different levels of feedback reports. All students received and rated both a short feedback report and a longer feedback report. The findings indicated that the individuals preferred the more extensive report to the shorter one. These findings point out that college students prefer to receive a longer more specific report concerning their I.Q. test results to receiving a short minimal feedback report. For psychologists looking to maximize positive effects in giving feedback, the findings suggest that the quantitative or length of report factor must be considered important. It is as yet not known whether or not the length of the report has some optimum level for yielding positive effects in the subjects. However, it could be hypothesized that as long as the feedback given is meaningful to the subject the increased length of the report would be paralleled by an increased subject rating of the feedback's worth.

The findings of this study indicate that there were no significant male-female differences in ratings of the
feedback reports. This finding is consistent with similar findings of Price (1971) and Goslin (1968). Future research may bare out that sex differences are not significant in terms of either subject attitude towards receiving feedback of subject response to receiving feedback reports.

Both the significant presentation order effect and the significant interaction effect of (order x report length) were of special interest since they were not originally hypothesized. The unforeseen factor was that subjects receiving the short report first rated it significantly higher than the subjects that rated it after having seen the long report. What appears to have happened is that the subjects receiving the short report first had no basis on which to compare this report and thus rated it rather leniently. However, the subjects that rated the long report first then used that as a basis for which to rate the short report and thus rated the short report more severely. Two immediate hypotheses could be generated from this. a) If subjects are rating a report and they have in mind a previous preferred report they will rate the present report more severely, 2) If subjects are rating a report which normally would not be preferred they will rate it higher, if they are given it before they have seen a preferred report that could be used as a comparison. An interesting speculation that could flow from these
findings is that, given that in the future the trend to give subjects feedback in psychological testing increases we could be dealing with people that have a wide variety of experience in receiving information about their test performances. Thus the effects of any given feedback report could be altered by subject comparisons with past feedback reports.

To offset the undesirable effects that could result from such comparisons future research into feedback reporting could attempt to further isolate the relevant variables which optimize positive feedback responses within the subjects. It could be envisaged that findings from such research could lead to guidelines for forming feedback reports that would aid psychologists in maximizing positive feedback effects for subjects receiving information about their test performance.

The findings of the content analysis on the open-ended question are also important for further research. While there was considerable variation between the three judges' ratings (correlation .36) one important finding must be considered. In giving feedback from I.Q. testing there is a certain risk that some subjects may experience negative effects. While one judge didn't rate any of the subjects' responses as indicating very negative effects, two of the judges rated several of the responses as indicating very negative effects. It is the opinion of the author that
while some negative effects were expressed in the open-
ended question they represented some slight misinterpre-
tations in the reports and when clarification was made in
the debriefing session the negative effects were dissipated.
There were no situations following the debriefings in which
referral for psychological counselling was warranted. It
is recommended, however, that as a safeguard, future re-
search involving feedback in I.Q. testing includes the
precautions of individual debriefing with the option of
further psychological counselling.

It was hoped that this study would serve to clarify
differential effects, of receiving both a short minimal
feedback report and a longer more specific feedback report
on W.A.I.S. results. The findings have given valuable
information concerning differential effects but they have
also raised many new questions. As such the study serves
as a source for a great deal of future research. The
finding of the long report preference over the short,
immediately raises the question of whether these findings
are specific to a university population-oriented towards
intellectual pursuits. Research could test to see if the
quantitative effects and the order effects would be
repeated in studies using factory workers or white collar
workers. Another interesting study could specifically test
a number of levels of the quantitative factor. It could
present subjects with numerous lengthy reports varying the
lengths to determine if the quantitative factor would be significant even when the shorter report is still rather long. This type of study could also be attempting to establish some optimum length of feedback report for a given test like the W.A.I.S.

The significant order effects and interaction effects also give rise to some interesting future research. One study could test to see if the time between receiving the short and long report might further affect the ratings due to presentation order. Another study might test to see if the order effects are consistent when personality tests rather than I.Q. tests are used. One final possibility for a study would be to test for order effects and length of report effects for subjects' ratings of feedback reports received at different times and dealing with different types of psychological tests.

If we as psychologists are to give feedback on psychological test performances we must do it well and to do it well we must know the effects of what we are doing. Perhaps it is time for the psychologist to learn from the client, for the teacher to grasp the knowledge of the student,
# APPENDIX 1

**MALE S1 LIKERT RATINGS OF FEEDBACK REPORTS**

<table>
<thead>
<tr>
<th>Order of First Report</th>
<th>Subjects</th>
<th>Quantitative Ratings c1 (Short)</th>
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**FEMALE S1 LIKERT RATINGS OF FEEDBACK REPORTS**

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<td><strong>a₂</strong> (Female)</td>
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<td><strong>b₂</strong> (long)</td>
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# APPENDIX 3

## GROUP WITH QUALIFYING STATEMENT SUMMARY OF ANALYSIS OF VARIANCE

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<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Square</th>
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<td>Between Subjects</td>
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<td>Within Subjects</td>
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<td>$F_{0.05} (1, 20) = 8.10$</td>
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<tr>
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<td>.59</td>
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<td>.59</td>
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</tr>
<tr>
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<td>.58</td>
<td>1</td>
<td>.58</td>
<td></td>
</tr>
<tr>
<td>ABC</td>
<td>.58</td>
<td>1</td>
<td>.58</td>
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</tr>
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<td>C x Subject with group (error within)</td>
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* $(p < .05)$

** $(p < .01)$
APPENDIX 4

SHORT FEEDBACK REPORT AND QUALIFYING STATEMENT
FOR SUBJECTS WITH MINIMAL SCATTER
ON W.A.I.S. PROFILES

SHORT FEEDBACK REPORT

The names of the two subtests on the W.A.I.S. in which you obtained your highest scores were __________ and __________. The names of the two subtests on the W.A.I.S. in which you obtained your lowest scores were __________ and __________.

Qualifying Statement

Your performance on the W.A.I.S. was very consistent. You indicated that you are functioning rather close to your potential on all your measurements. You will be given the feedback of your two highest and two lowest scores simply for the information's sake. These reports are written for people who have a wider discrepancy between their high and low scores. Thus the statements made will only apply to you in a very moderate way.
APPENDIX 5

HIGH AND LOW FEEDBACK STATEMENTS GIVEN TO SUBJECTS IN RELATION TO THEIR PERFORMANCE ON THE W.A.I.S.

HIGH SCORE FEEDBACK STATEMENTS

Information

One of your highest scores was achieved on the information subtest. This test measures the amount of general information that you have acquired. You have given evidence that your intellectual potential has been complemented by a richness of early environment and by extensive school experiences. In the process of maturation, curiosity and motivation have led you to expand your areas of interest.

Comprehension

One of your highest scores was achieved in the Comprehension subtest. This test measures judgement and common sense. You have indicated that you have good common sense and reasoning ability. You have also shown adequate to better than average judgement. You are quite aware of socially appropriate behaviour. You have the ability to delay your impulses and to behave appropriately in emotionally arousing situations.
Arithmetic

One of your highest scores was achieved on the arithmetic subtest. This test measures your arithmetic skills. Such skills involve grasping the abstract concept of numbers and developing problem-solving sets which allow you to abstract the proper number operations such as addition, subtraction, multiplication, and division. You have shown a very good ability to concentrate and a rather good resistance to distractibility.

Similarities

One of your highest scores was achieved on the Similarities subtest. This test measures the degree to which you are aware of the similarities and differences in the objects, facts, and ideas surrounding you. You have indicated a rather good understanding of the relationships between objects and events. You have shown an ability to separate the essential from the non-essential features in object relationships.

Digit Span

One of your highest scores was achieved on the Digit Span subtest. This test measures immediate auditory recall. This reflects a flexibility in adaptation. You have indicated that you have the emotional freedom to attend and to adapt quickly to the demands of auditory stimuli. Major qualities facilitating this process are low
distractibility, low anxiety and an easy effortless contact with your environment.

Vocabulary

One of your highest score was attained on the Vocabulary subtest. This indicates a sensitivity to new information and ideas and the ability to store and associatively regroup these as the occasion demands. You have an extensive vocabulary. You have developed a very good intellectual capacity. You have the potential to be academically successful. You have shown the ability to effectively use higher order reasoning.
LOW SCORE FEEDBACK STATEMENTS

Qualifying Statement
(Placed at the end of each low score feedback report)

Your low score on the subtest does not in any way reflect a problem in functioning. It rather suggests only that in relation to your overall performance this score is lowered. This implies only that you are not presently performing at your maximum potential in this area of functioning.

Information

You have not done as well on the information subtest as would be expected from your overall performance. This test measures the amount of general information that you have acquired. This lowered score could reflect that early life experiences contained adequate but not extensive richness and variety; or that achievement of your intellectual potential has been hampered somewhat by a lack of curiosity and motivation.

Comprehension

You did not do as well on the Comprehension subtests as would be expected from your overall performance. This test measures socially acceptable judgement and reasoning ability. You do not always respond to environmental situations in socially acceptable ways. You have a tendency to be somewhat impulsive which at times may lead to
APPENDIX 5

inadequate judgement. This may be most pronounced in emotionally arousing situations.

**Arithmetic**

You did not do as well on the Arithmetic subtests as would be expected from your overall performance. This test reflects your arithmetic ability. Your arithmetic reasoning is interfered with when you are distracted. You indicated some difficulty in concentration. It is important to note that concentration can be improved through practice and that lapses in concentration frequently reflects temporary anxieties.

**Similarities**

You have not done as well on the Similarities subtest as would be expected from your overall performance. The test measures the degree to which you are aware of the similarities and differences in the objects, facts, and ideas that are prominent in your environment. At times you show a tendency to concentrate on non-essential features and thus have misperceived certain object relationships.

**Digit Span**

You have not done as well on the Digit Span subtest as would be expected from your overall performance. This test measures your ability to freely attend and immediately recall auditory stimuli. Trying very hard on this subtest
APPENDIX 5

often hinders good performance. Your performance here suggests some evidence of a certain degree of anxiety and tension which, if alleviated, would increase your attentive processes.

Vocabulary

You have done poorer on the Vocabulary subtests than would be expected from your overall performance. This test measures the extensiveness of your vocabulary. You have given evidence that a lack of wide variety of life experience has hampered attainment of your maximum intellectual potential. Since both informal experience and formal schooling may enrich your intellectual capacity, motivation could maximize your intellectual output.
APPENDIX 6 - a

JUDGES' RATINGS OF SUBJECT RESPONSE TO THE OPEN-ENDED QUESTION

Please rate the following statements in terms of their negative or positive impact on the feelings and expressions of well-being of the subjects.

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<th>2</th>
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<tr>
<td>very negative effects</td>
<td>neutral effects</td>
<td>very positive effects</td>
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Thank you for your time.
APPENDIX 6 - b

Please rate the following statements in terms of their negative or positive impact on the feelings and expressions of well-being of the subjects.

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Thank you for your time.
APPENDIX 6 - c

Please rate the following statements in terms of their negative or positive impact on the feelings and expressions of well-being of the subjects.

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Thank you for your time.
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