

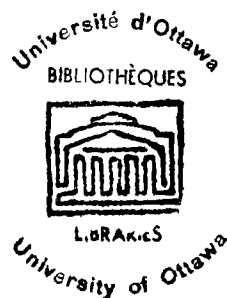
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INTENSITY OF ASSERTIVE COPULA,  
INCONGRUITY AND ATTITUDE CHANGE  
- A TEST OF OSGOOD'S MODEL

by Yash P. Aggarwal

Thesis presented to the School of  
Graduate Studies of the University  
of Ottawa as partial fulfilment of  
the requirements for the degree of  
Doctor of Philosophy



3 Yash P. Aggarwal, Ottawa, Ontario, 1972.



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## CURRICULUM STUDIORUM

Yash P. Aggarwal was born on January 15, 1937, in Naraingarh, Haryana, India. He obtained the Degree of Bachelor of Arts in 1956, the Degree of Bachelor of Education in 1957, and the Degree of Master of Arts in History in 1962, all three from the Panjab University, India. He received the Degree of Master of Education from the Kurukshetra University, India, in 1965. The title of his Master of Education thesis was Attitude of Junior Basic Trainees (Final Year) toward Basic Education and its Relationship with Some Outside Variables.

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## INTRODUCTION

Today we are more keenly aware than ever before of the differing beliefs, values, ways of life, and ideologies of various human groups and societies. These differences are reflected in the attitudes of individuals belonging to the various groups. Because the differences are frequently revealed in actual and potential conflict, problems of attitude and attitude change are among the most vital and timely in this world of rapid change.<sup>1</sup>

Many of the current attitude change studies derive their hypotheses, or seek an explanation for their results, from one of the several "Cognitive Consistency" theories of attitude change. Cognitive consistency theories are based on the principle that mechanisms operate within a person to bring his various opinions, attitudes and beliefs into a state of consistency or harmony. The consistency theorists assert that inconsistency is introduced into the cognitions of a person when he comes to cognize that a person admired by him is praising something that he himself does not admire. As a result, a drive-like tension is produced within him. The tension so produced leads to an effort on the part of the person concerned to resolve the inconsistent cognitions. The consistency theorists specify which cognitions will change and to what extent through a person's effort to create consistency.

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<sup>1</sup> M. Sherif, "Introduction", in C. W. Sherif and M. Sherif, Eds., Attitude, Ego Involvement and Change, New York, John Wiley, 1967, p. 1.

Typical studies conducted to investigate the paradigm of achieving cognitive consistency through attitude change would involve the following: a persuasive communication or a message purported to have been made by a person or persons (called the source of the communication), the object about whom the communication has been made (called the concept), and the recipient of the communication who already holds some attitudes about the source and the concept of the communication. The persuasive communication is so designed as to create inconsistency between the recipient's attitudes about the source and the concept. The post-communication attitudinal change is generally considered to be the dependent variable.

Among the consistency models, from the standpoint of precision, Osgood's congruity model presents one of the more refined principles of attitude change which have so far been advanced. The model yields predictions not only about the direction of attitude change but also about its magnitude. Also, it generates predictions about shifts in attitude toward both the source and the concept of the persuasive message.

The congruity model provides for finer variations in the recipient's initial attitude toward the source and the concept. The variations in the persuasive assertions have been restricted to a dichotomy -- associative - dissociative. Several studies have been conducted to explore the effects of

source and concept variables involved in the persuasive message. Very few researchers have studied the possible effects of differential characteristics of the persuasive message on attitude change. Moreover, the evidence provided by these studies has remained inconclusive.

Hence, one of the objectives of the present study was to investigate the effects of varying intensities of persuasive messages on attitude change. For this purpose, the intensity of the assertive copula, or the verb that links the source and the concept, was varied.

In situations involving sources and concepts of equal polarity of attitude, the congruity model predicts that the recipient's attitude toward the source and the concept will change by equal amounts. This prediction was later modified by the authors of the model. It was observed that, in these situations, the recipient's attitude toward the concept changed more than his attitude toward the source. Subsequent research has been inconclusive in its support for both the original and the modified versions proposed by Osgood and Tannenbaum.

Hence, the second objective of the study was to investigate possible differences in the magnitudes of changes in the recipients' attitudes toward the source and the concept.

In order to obtain comparability of attitudes toward a source and a concept, the research was conducted using situations in which a prediction of equal magnitudes of these changes could be made.

Education, formal and informal, aims at the development of healthy attitudes among the educands. This is generally done by exposing them to an appropriate cognitive content. At times, the new information may be introduced in order to change the students' cognitive component. In schools and other educational settings, it is not uncommon for the participants to encounter situations and information which conflict with their previous ways of thinking. How they react to the topic and source of information in these situations can be of interest to all those who are directly or indirectly concerned with the act of educating. The two questions proposed to be investigated in the present study will attempt to provide some further empirical information in this regard.

This report is organized in the following manner. A statement of the rationale of the research problem is presented in Chapter I. This is followed, in Chapter II, by a description of the method and design of the study. In Chapter III, the analysis of the data is described and the results presented. The results are discussed in Chapter IV. The Summary and Conclusions are followed by a number of appendices and an abstract of the study.

## CHAPTER I

### REVIEW OF THE LITERATURE

In this chapter is presented the rationale for the study. The chapter opens with a definition of the term "attitudes" and a brief introduction to the cognitive consistency models. This is followed by a discussion of the congruity model in section 2. Relevant literature is presented in the next two sections. The first of these concerns literature relating to the intensity of assertive copula and attitude change. Literature related to differences in attitude change toward the source and the concept is reviewed in the next section. The chapter ends with a statement of the problem.

#### 1. Attitude Change and Cognitive Consistency Models

The term "attitudes" refers to certain regularities, on the part of an individual, in feelings, thoughts and predispositions to act toward some aspect of his environment. Attitudes have been a subject of interest for the social psychologists, the educational psychologists, the sociologists and the researchers in other fields of study of the human behavior.

From the pioneer work of Thurstone<sup>1</sup> until recently, researchers confined their scope of inquiry to the amount of attitude change as a function of the overall communication content. The function and effects of the inherent variables involved in the communication content were ignored. However, only recently, in an attempt to establish a conceptual framework of cognitive dynamics and to isolate and identify the factors involved in attitude change, a number of models of attitude change has been put forward. Among these the cognitive consistency models are the most prominent. The cognitive consistency models of attitude change presuppose that an individual may have varying attitudes toward a near infinity of objects without feeling inconsistency or any psychological pressure for attitude change. If two objects, about which an individual has different attitudes, are linked together in a linguistic assertion (other media are also possible), the individual experiences psychological stress. In order to reduce this stress, the individual rearranges his psychological world

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1 L. L. Thurstone, "The Influence of Motion Pictures on Children's Attitudes", Journal of Social Psychology, 2, 1931, p. 29-305.

so as to produce consistency or equilibrium in his cognitions.<sup>2</sup> The cognitive equilibrium thus restored is called "balance" by Heider, "congruity" by Osgood and "consonance" by Festinger.

Among these models, Osgood's congruity model presents a refined principle of cognitive interaction and attitude change. Its unique features are that it yields predictions not only about the direction of attitude change, but also about its magnitude. Furthermore, it generates predictions about shifts in attitude toward the source as well as toward the concept of the persuasive message.

Osgood, Suci and Tannenbaum<sup>3</sup> on the basis of their work with the experimental semantics have been able to identify attitude as the evaluative dimensions of meaning in general. They thus connected the term attitudes with the measurement process designed to identify the evaluative component of meaning. Thus cast within the larger context of attitude as an enduring system of feelings, thoughts and predispositions to act, the term attitude, for the purpose

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2 C. A. Kiesler, B. E. Collins and N. Miller, Attitude Change, New York, John Wiley, 1969, p. 155-157.

3 Charles E. Osgood, George J. Suci and Percy H. Tannenbaum, The Measurement of Meaning, Urbana, University of Illinois Press, 1957, p. 189.

of the present study refers to the degree of favorableness or unfavorableness of a person's judgement with respect to a particular object, activity, person or idea.

## 2. The Congruity Model

The paradigm of the congruity model starts with situations involving a source, a concept, an assertion, an assertive copula and a recipient. Before a statement of the congruity principle and other postulates which concern the prediction and measurement of attitude change is made, it is appropriate to define these terms.

The person who makes the evaluative statement or to whom the evaluative statement is attributed is called the Source.

The person, object or issue about which a statement has been made by the source is called the Concept.

An Assertion is an evaluative statement made by a particular source about a particular concept. Osgood et al. would place assertions into two categories - associative and dissociative. Associative assertions were illustrated by such examples as "A is E", "A loves B", "A helps B", and "A shakes hands with B".<sup>4</sup> Dissociative assertions are illustrated by "A is not B", "A hates B", "A hinders B", and "A avoids B".<sup>5</sup> The distinction between these two types of assertions, according

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4 Osgood et al., ibid., p. 202.

5 Ibid., p. 202.

to Osgood et al. corresponds to the basic distinction in all languages between affirmation and negation.<sup>6</sup>

The Assertive Copula is the verb that links the source of an assertion with its concept. In the illustrations of assertions, given above, the expressions - "loves", "shakes hands with" and "hates" are assertive copulas.

The person who receives or is exposed to the persuasive assertion is called the Recipient.

In terms of the above definitions, the congruity model holds that if the recipient's initial evaluations of a source and a concept are known, the changes in his attitudes toward these can be predicted on the basis of the congruity principle. The congruity principle has been stated in terms of positive and negative concepts and sources as follows.

Whenever two signs are related by an assertion, the mediating reaction characteristic of each shifts towards congruence with that of the other, the magnitude of the shift being inversely proportional to the intensities of the interacting reactions.<sup>7</sup>

In the context of the present study, the term "signs" refers to the source and the concept.

The congruity principle has a general application to the problems of cognitive interaction as well as particular

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6 Osgood et al., ibid., p. 201.

7 Ibid., p. 207.

application to the study of attitude change.

The congruity principle has been co-ordinated with the operations of measurement by the semantic differential.<sup>8</sup> The semantic differential is usually based on the use of a seven-point bipolar scale. Such a scale has three degrees of polarization possible in each direction. It is generally scored on a scale of -3 to +3. The direction of attitude, favorable or unfavorable, is determined simply by the selection of the positive or negative poles of the scale, respectively. If the score falls nearer the positive pole then the attitude is taken to be favorable. A score nearer to the negative pole indicates an unfavorable attitude. Polarity of attitude of a person is indicated by how far out from the origin his score lies on the scale. A score that falls at the origin, defined by "0" on the scale, is taken as an index of neutral polarity of attitude. There are, on a single scale, only three levels of polarity: "slightly" (indicated by ±1), "quite" (indicated by ±2), and "extremely" (indicated by ±3). By using more than one bipolar scale and by summing the scores over all of the scales, still finer degrees of polarization of attitude can be made possible.<sup>9</sup>

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8 Osgood et al., ibid., p. 204.

9 Ibid., p. 191-192.

To illustrate the calculation of polarity of attitude, an assertion will be used: "President Nixon favors trade with South Africa". On a seven-point scale of the semantic differential, "President Nixon" could be assigned either a favorable attitudinal position (ranging between +1 and +3), a neutral position of 0, or an unfavorable attitudinal position (ranging between -1 and -3). In a similar manner, the concept "trade with South Africa" could also be assigned some attitudinal value in terms of scale units.

Osgood et al.<sup>10</sup> formulated two hypotheses regarding the measurement and prediction of attitude change. First they hypothesized that when incongruity exists, a person's attitude toward both concept and source (in the illustration, "trade with South Africa" and "President Nixon" respectively) will change. Other consistency theorists like Heider<sup>11</sup> and Festinger<sup>12</sup> typically expect only one of these relationships to change.

Secondly, Osgood et al. hypothesized that the interacting elements (person's attitude toward the concept and

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10 Ibid., p. 201.

11 F. Heider, The Psychology of Interpersonal Relations, New York, John Wiley, 1958.

12 L. Festinger, A Theory of Cognitive Dissonance, Stanford, Stanford University Press, 1968.

the source) will be modified in inverse proportion to their polarization.<sup>13</sup> Given that some incongruity exists in the situation, Osgood et al. assert that the more extreme a person's attitude toward one of the attitudinal "objects" - (source or concept) - is, the less that attitude will change.

The procedure of calculating predicted change in a person's attitude toward a specific source and a specific concept requires the pre-knowledge of that person's initial attitudes toward the same specific source and specific concept. Another prerequisite is knowledge concerning whether the persuasive assertion was associative or dissociative. Once this information has been obtained, the predictions of attitude change based on the congruity model can be generated by using the procedures discussed below.

When a source and a concept are linked by an assertive copula, the congruity model predicts that the recipient of the evaluative message, in order to arrive at the maximal congruity, will develop an identical attitude toward the source and the concept. The total amount of attitude change required in such a process will be equal to the amount of pressure toward congruity. To illustrate the calculation of pressure

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13 Osgood et al., op. cit., p. 206.

toward congruity, suppose in the previously cited assertion "President Nixon favors trade with South Africa", the recipient's attitude toward President Nixon was +3, and his attitude toward trade with South Africa was -2. The recipient could obtain maximal congruity by changing his evaluation of President Nixon from +3 to -2. Thus the recipient would adopt an identical attitude toward President Nixon and trade with South Africa. Otherwise, the recipient's evaluation of trade with South Africa could move to +3 without any change in his attitude toward President Nixon. It may be noted that the amount of attitude shift or the pressure toward congruity in each of these two cases is five scale units.

Thus, for associative assertions, the pressure toward congruity equals the algebraic difference in the recipient's initial evaluations of the source and the concept. Hence, in the above illustration, pressure toward congruity for Nixon is -5 units, and that for trade with South Africa is +5 units.

However, the congruity model predicts a change in the recipient's attitude toward both the source and the concept.<sup>14</sup> Furthermore, the model indicates that the pressure toward congruity may not be distributed equally between the

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<sup>14</sup> Osgood et al., ibid., p. 201.

source and the concept. Rather, the less polarized of the two absorbs the greater share of the pressure, and hence shows larger shifts of attitude. The more polarized absorbs the smaller share of the pressure toward congruity and shows less shift of attitude.

Before algebraic expressions for attitude change are stated, a number of symbols will be defined. Pressure toward congruity will be denoted by  $p$ , and polarity of the recipient's initial attitudes by  $p$ . Symbols relating to source or concept will carry the respective subscripts 1 and 2. Expressions for the amount of predicted attitude change are as follows.<sup>15</sup>

$$\text{Attitude change toward source} = \left( \frac{|p_2|}{|p_1| + |p_2|} \right) p_1 \quad \text{and,}$$

$$\text{Attitude change toward concept} = \left( \frac{|p_1|}{|p_1| + |p_2|} \right) p_2$$

In the preceding illustration, the amounts of attitude change for the source and the concept would be as follows.

$$\text{Attitude change toward President Nixon} = \frac{2}{3+2}(-5) = -2 \quad \text{and,}$$

$$\text{Attitude change toward trade with South Africa} = \frac{3}{3+2}(5) = 3$$

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15 Osgood et al., ibid., p. 206.

In this case the congruity model predicts a shift of 2 scale units in the negative direction in the recipient's attitude toward President Nixon. A shift of 3 scale units in the positive direction is predicted in the recipient's attitude toward trade with South Africa. Thus, the recipient, as a result of his exposure to the assertion, will change his attitudes toward President Nixon and trade with South Africa to identical positions of  $\pm 1$ .

Although any situation in which two objects of differing evaluation have been linked involves incongruity, yet four situations have been mentioned by Osgood and Tannenbaum,<sup>16</sup> as involving high incongruity due to the possibility of incredibility or the degree to which the assertions will be considered unbelievable. The four situations are:

1. a positively evaluated source favoring a negatively evaluated concept,
2. a positively evaluated source opposing a positively evaluated concept,
3. a negatively evaluated source favoring a positively evaluated concept, and
4. a negatively evaluated source opposing a negatively evaluated concept.

Since the first of these situations is proposed for use in the present study, these situations are of particular importance for this report.

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<sup>16</sup> C. E. Osgood and P. H. Tannenbaum, "The Principle of Congruity in the Prediction of Attitude Change", Psychological Review, 1955, 2, p. 47-48.

The congruity model assumes a complete credibility of assertions on the part of the subjects,<sup>17</sup> a pre-condition that is hard to attain and becomes still more so as one proceeds from less incongruous to grossly incongruous situations. Furthermore, for all incongruous assertions the amount of predicted change in attitude toward the concept is assumed to be constant for a given original attitude toward the source.<sup>18</sup> For example, a source, evaluated as highly favorable, when associated with concepts evaluated as having different degrees of unfavorableness would produce the same amount of attitude change toward any of these concepts. As an illustration, suppose President Nixon were evaluated as a +3 source on an attitude scale, and communism, trade with South Africa, and smoking as -3, -2, and -1 respectively. Further suppose that President Nixon makes an assertion favoring each of the three concepts above. On the basis of the assumption of complete credibility of assertion on the part of the recipient, the congruity model envisages a constant amount of change to be +3 units for each concept.

In practice the situation seems to be somewhat different from that expected by the model. In situations

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17 Osgood and Tannenbaum, ibid., p. 47.

18 Ibid., p. 46.

involving high incongruity, the recipient might use modes of incongruity resolution other than simply changing his attitude toward the concept. He may reduce incongruity by trying to change the source's opinion (in face to face situations) to bring it closer to his own, and thus not change his own opinion at all. The recipient may derogate the source and consider him incompetent and unreliable, and thus devalue him. The congruity model incorporates this possibility. It predicts that in incongruous situations, the recipient will lower his own attitude toward the source, thus rating it somewhat less favorably than before. In the preceding illustration, "President Nixon favors trade with South Africa", it was observed that as a result of President Nixon's favoring trade with South Africa, the recipient will devalue President Nixon from the initial attitudinal position of  $+3$  to a new position of  $+1$ .

Other possible modes of incongruity resolutions can be that the recipient, as a result of incredibility of the assertion, might not change his initial attitude toward the concept. Otherwise, he may change it in the direction opposite to the one advocated in the assertion, thus strengthening his own initial position. The strengthening of one's own attitudinal position, as a result of a persuasive attempt,

is known as "boomerang effect".<sup>19</sup> The "boomerang effect" is more plausible in the four types of incredible situations cited previously, than in relatively credible situations. Osgood and Tannenbaum have not been altogether oblivious of these possibilities and have suggested a correction for incredibility which is calculated by the formula given below.<sup>20</sup>

$$\text{correction for incredibility}(i) = \frac{1}{40} (p_1^2 + 1) (p_2^2 + p_2)$$

$p_1$  and  $p_2$  denote polarity of attitudes toward source and concept, respectively. The constants,  $\frac{1}{40}$  and 1, have been suggested arbitrarily and without any theoretical basis. In this regard, Osgood and Tannenbaum stated "(t)he precise nature of the  $i$  function remains to be empirically determined".<sup>21</sup> The correction is added to the predicted negative attitude change, and subtracted from the predicted positive attitude change. It applies to both the source and the concept in the four types of incongruous situations mentioned previously.

The suggestion made by Osgood et al. that incredibility would affect attitude changes, is further supported by a

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19 A. R. Cohen, "A Dissonance Analysis of Boomerang Effect", Journal of Personality, 1962, 30, p. 75-88.

20 Osgood and Tannenbaum, op.cit., p. 48.

21 Ibid., p. 48.

study which found that changes in attitudes were significantly related to the perceived credibility of the source.<sup>22</sup>

Osgood and Tannenbaum<sup>23</sup> further observed that in situations involving prediction of equal amounts of attitude change toward the source and the concept, the concept changed more than the source. These results were explained as the effect of the assertive copula. Since the assertion applies to the concept, the assertive copula exerts greater pressure on the concept than on the source. The index of the size of this difference obtained from the mean difference between source and concept changes in comparable situations was reported to be .17 in units of the seven step attitude scale used. The amount of the assertion constant is to be added to the concept changes with dissociative assertions, and subtracted from the concept changes with associative assertions.

Osgood and Tannenbaum, in addition to mentioning the possibility of effects on attitude change due to incredibility of assertions, and the operation of the assertion constant, discussed above, have pointed out some other factors which are likely to affect the model's operation. These factors will now be discussed briefly.

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22 C. H. Hovland and W. Weiss, "The Influence of Source Credibility on Communication Effectiveness", Public Opinion Quarterly, 15, 1951, p. 635-650.

23 Osgood and Tannenbaum, op. cit., p. 52.

Osgood et al.<sup>24</sup> have pointed out that the intensity of assertion could be a potent factor in determining the magnitude of attitude change. They expect greater congruity due to assertions involving the use of more intense copulas to bind the sources and the concepts.

The factor of contiguity of signs<sup>25</sup> in the assertion might affect the predictions of congruity. Osgood et al., for example, expect that if a modifier such as "lazy" were displaced away from its nominal object "athlete" in various syntactical arrangements, the effect on the meaning of "athlete" would be different from one arrangement to the other.

The extent to which the concept was related to the area of source competence and familiarity might also affect attitude change. Osgood et al.<sup>26</sup> called it the factor of relevance of the source to the concept. Kerrick<sup>27</sup> reported that a source's effectiveness when communicating about a concept, relevant to an area of his competence and familiarity, would produce greater mean attitude change than would his effectiveness in a non-relevant area.

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24 Osgood et al., op. cit., p. 213.

25 Ibid., p. 212.

26 Ibid., p. 214.

27 J. S. Kerrick, "The Effect of Relevant and Non-Relevant Sources on Attitude Change", Journal of Social Psychology, 1958, 47, p. 15-20.

Although no research investigating the effects of the meaning of the copula on attitude change has been cited by Osgood et al., yet they expect that in certain cases the assertive copula itself might have meanings in addition to its linking function. They illustrate this as follows: The copula, "lied about", beyond its function of providing a dissociative relation between the source and the concept, has the implied declaration that the source is a "liar".<sup>28</sup>

Lastly, another factor, although not cited by Osgood et al., that might affect the attitude change predictions, is the intelligence of the recipients. Research literature in this connection has been inconclusive. There is evidence in support of the null, the positive, and the negative relationship between intelligence and attitude change.<sup>29</sup>

Studies, using the congruity principle, have been conducted in such areas as the generalization of attitude change from a source to a concept, and to another linked

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28 Osgood et al., op. cit., p. 215.

29 R. L. Ronsow and E. D. Robinson, Eds., Experiments in Persuasion, New York, Academic Press, 1967, p. 198.

source,<sup>30</sup> informational persuasion processes,<sup>31</sup> and reduction of persuasion.<sup>32</sup> The congruity model, however, has not been subjected to many direct tests of validity. The few studies conducted to investigate the validity of its hypotheses have provided evidence of the soundness of the model.

Osgood and Tannenbaum<sup>33</sup> conducted a study to test the congruity model. The subjects were 405 college students. Six evaluative scales of the semantic differential were used to obtain the criterion measures. On the basis of a pre-test, three sources and three concepts were selected. The criterion of their selection was approximately equal number of subjects holding favorable, neutral and unfavorable attitudes about each of these sources and concepts. Five weeks after the pre-test, the same subjects were presented

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30 P. H. Tannenbaum and R. Gengel, "Generalization of Attitude Change Through Congruity Principle Relationships", Journal of Personality and Social Psychology, 1966, 3, p. 299-304; and P. H. Tannenbaum, "Mediated Generalization of Attitude Change Via the Principle of Congruity", Journal of Personality and Social Psychology, 1966, 3, p. 493-500.

31 D. Katz, "The Functional Approach to the Study of Attitudes", Public Opinion Quarterly, 1960, 24, p. 163-209.

32 P. H. Tannenbaum and E. L. Norris, "Effects of Combining Congruity Principle Strategies for the Reduction of Persuasion", Sociometry, 1965, 28, p. 145-147.

33 Osgood and Tannenbaum, op. cit., p. 42-55.

with reproductions of realistically-written newspaper stories in which the sources made favorable or unfavorable assertions about the concepts. Subjects' post-treatment attitude scores were obtained on the same six semantic differential scales as before. Attitude change amounts for sources and concepts were derived by subtracting the before-test score from the after-test score for each subject. A comparison of the obtained changes with the predicted changes revealed a fairly high degree of correspondence. The value of correlation between the obtained and the predicted attitude changes was .91.

The study was restricted to the very basic details of the model. The assertive copula was varied as associative and dissociative. No efforts were made to see whether further variations in the degree of association and dissociation provided by the copula would lead to differential attitude change. Secondly, no efforts were made to have a measure of credibility of the sources used and their differential effects on attitude change. Thus the study ignored another important limiting condition of the model. Furthermore, the use of two ad hoc corrections without any theoretical basis can be questioned on certain grounds. The high degree of correlation between the obtained and the predicted attitude changes could

have been due to the use of these two corrections.<sup>34</sup>

While the design of the study was not sensitive enough to fully accommodate the detailed predictions of such a precise model, it did allow for a reasonable assessment of the basic trends in expected attitude change toward concept and source. Substantial support for the model's prediction of direction and amount of attitude change was forthcoming in the form of a high correlation between predicted and obtained scores.

In their attempt to look into some of the bases of prediction in the congruity model, Stackowiak and Moss<sup>35</sup> collected evidence which supports the congruity predictions with regard to direction of attitude change. After having evaluated "experimenter" and "Negro" along with a number of other items on the evaluative scales of the semantic differential, a group of male college students was individually exposed to an 11-minute oral communication favorable toward Negroes. The communication was delivered by the experimenter. At the conclusion of the presentation of the communication, the subjects rated "experimenter" and "Negro"

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34 Osgood and Tannenbaum, *ibid.*, p. 52.

35 J. Stackowiak and C. Moss, "Hypnotic Alterations of Social Attitudes", Journal of Personality and Social Psychology, 2, 1965, p. 77-83.

a second time. Approximately two weeks later, the subjects rated them on the same scales a third time.

The initial ratings of "experimenter" were quite positive and of "Negro" slightly positive. The congruity model predicts that on the second and third ratings, the "experimenter" (the source) should be rated as less favorable and "Negro" (the concept), as more favorable. The authors found that predictions with regard to both the attitude change from the first to the second rating and the attitude change from the first to the third rating were in the direction of congruity. However, the prediction that the less polarized object of judgment should change more than the more polarized was not upheld. It is possible that the initial ratings of the concept "Negro" were distorted so as to be more positive than was actually the case. This conceivably could account for the fact that the change in this concept was unexpectedly small.

In addition to these studies, Berlo and Kumata,<sup>36</sup>

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36 D. K. Berlo and H. Kumata, "The Investigator: The Impact of a Satirical Radio Drama", Journalism Quarterly, 1956, 33, p. 287-298.

Kerrick,<sup>37</sup> Kraus,<sup>38</sup> Kerrick and McMillan,<sup>39</sup> Tanaka,<sup>40</sup> and Rose<sup>41</sup> also reported that their research data showed, on the whole, a good fit to the model's predictions of direction and magnitude of attitude change. However, in some cases, discrepancies between the predicted and the obtained attitude changes were observed.

In summary, the congruity model assumes a need, on the part of a person, to keep his cognitions in a state of consistency or congruity. When confronted with incongruity, the person re-evaluates his cognitions and tries to bring about congruity by changing his attitudes toward the sources and concepts involved in the particular situation.

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37 J. S. Kerrick, op. cit., p. 15-20.

38 S. Kraus, An Experimental Study of the Relative Effectiveness of Negroes and Whites in Achieving Racial Attitude Change Via Kinescope Recordings, unpublished Doctoral Dissertation, State University of Iowa, 1959.

39 J. S. Kerrick and D. McMillan, "The Effects of Instructional Set on Measurement of Attitude Change Through Communications", Journal of Social Psychology, 1961, 53, p. 113-120.

40 Y. Tanaka, A Test of Congruity Hypothesis Across Three Language/Culture Communities, unpublished, Doctoral Dissertation, University of Illinois, 1963.

41 E. D. Rose, Attitude as a Function of Discrepancy Resolution in Multiple Channel Communication, unpublished Doctoral Dissertation, Stanford University, 1964.

The operation of the model has been shown to be successful in some studies of attitude change. Some researchers, however, point out a discrepancy, and consider the model's success to be contingent upon the operation of the limiting conditions of intensity of assertion, credibility of assertion, contiguity of signs, and other such factors. Furthermore, the model has been criticized for its use of the correction for incredibility, the correction for assertion constant and for not providing for the finer variations in the intensity of assertive copula.

### 3. Intensity of Assertive Copula

Intensity of assertive copula is defined as the degree to which a copula pulls together the source and the concept which it links.

Osgood et al., proposed that the assertive copula or the link, is an important factor in generating predictions from the congruity model. They asserted:

What we are saying is that all lexical (meaningful) members in assertions whether they occur as subjects, copulas, or objects, participate in cognitive congruity predictions.<sup>42</sup>

Yet the fact remains that the authors of the model did not attempt any study to investigate the effect of

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<sup>42</sup> Osgood et al., op. cit., p. 216.

variations in the intensity of assertive copulas on attitude change. Osgood et al., observed:

By operating on the copula of English statements or on the kind of assertive action in perceptual situations, the intensity of either associative or dissociative assertions can be modified. In language, for example, it seems intuitively true that 'A gives 100 per cent support to B' is a stronger assertion than 'A is cordial to B', and that, therefore, the congruity effect should be greater in the former case. We have done no experiments on this, but they should be relatively straightforward.<sup>43</sup>

The congruity predictions are based upon three elements. These are the recipient's initial attitude toward the source, the recipient's initial attitude toward the concept, and the assertive copula. These predictions presuppose an interaction between the first two elements, forced by the introduction of the third element. While the congruity model makes provision for the possibility of finer variations in the recipient's initial attitude toward the source and the concept, the variations in the third element, the assertive copula, have been restricted in research to a dichotomy, associative - dissociative.

While the recipient reacts to the source and the concept on a continuous scale provided by the semantic

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<sup>43</sup> Osgood et al., ibid., p. 216.

differential, he has to restrict his perception of the assertive copula as either positive or negative. This restriction is a constraint on the model and its application to practical situations.

In the incongruous situations which are not incredible greater congruity is likely to be achieved. In incongruous situations involving the possibility of being incredible, congruity may be affected by the operation of certain other factors. It is reasonable to assume that in situations of incredibility an extremely positive assertion made by a source would lead to a different effect on the recipient than would a mildly positive assertion. In such situations the variations of intensity of the link, keeping other factors constant, may lead to different magnitudes of attitude change.

Since the factor of intensity of assertive copula has not been incorporated into the congruity model, this view appears to be inconsistent with the prediction of the model. The latter does not differentiate between congruity effects due to assertions on the basis of variations in the intensity of copulas. It seems logical that in situations of incredibility the degree of incredibility will be boosted with the introduction of a highly intense statement. This

would affect the attitude change toward the source and the concept. The recipient will simply not believe such a statement and hence will not be persuaded in the direction of attitude change advocated in the statement. In the case of a mild statement, there is a greater possibility of its acceptance, and hence attitude change in the desired direction. Hence, in incredible situations greater congruity is likely to follow when a highly favorable source is linked with a highly unfavorable concept through a copula of mild intensity. The magnitude of attitude change in the direction of congruity should be lower in a similar situation involving a more intense copula.

Most of the studies conducted to investigate the validity of the congruity predictions have dealt with the effects on attitude change of several factors. These include different levels of favorability of pre-test attitudes toward the source and the concept,<sup>44</sup> instructional sets,<sup>45</sup> relevance of the source to the concept,<sup>46</sup> and multiple channel communication.<sup>47</sup> Osgood and Tannenbaum, and many other researchers,

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<sup>44</sup> Osgood and Tannenbaum, op. cit.; and Stackowiak and Moss, op. cit.

<sup>45</sup> Kerrick and McMillan, op. cit.

<sup>46</sup> Kerrick, op. cit.

<sup>47</sup> Rose, op. cit.

have found it possible to carry on studies in which they ignored the assertion variables. This was done either by keeping them constant or by varying them as associative and dissociative assertions.

However, some efforts have been made to investigate the effects of variations in the intensity of assertive copulas on attitude change.

Bettinghaus<sup>48</sup> studied the operation of the congruity model in an oral communication situation. He used five independent variables: the speaker, the speaker's delivery, the speech topic, the treatment of the speech topic, and the assertions. In the above study, the speaker was the source and the speech topic was the concept. Intensity of speech was defined as "strong - weak" treatment of the concept and "effective - ineffective" delivery. A pre-test was given to obtain subjects' initial evaluations of these factors. Two weeks after the pre-test, the subjects heard experimental speeches and registered their attitudes toward the first four of the five factors mentioned above.

The study confirmed that the subjects tended to shift their attitudes toward the source and the concept to more congruous positions. However, no significant difference was

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48 F. P. Bettinghaus, "The Operation of Congruity in an Oral Communication Situation", Speech Monographs, 1961, XXVIII, p. 131-142.

found between the mean attitude changes produced by "strong" and "weak" treatment of the concept. Neither did the "effective" and "ineffective" delivery situations produce significantly different effects. This could be due to the insufficient time gap between the pre-test and the post-test. However, these results provide support for the basic congruity predictions.

Bettinghaus used all possible combinations of favorable, neutral and unfavorable sources and concepts and positive and negative assertions. He has not discussed the results of his study on the basis of different combinations of these elements of assertion. However, one result is clear from Table I<sup>49</sup> reported by him. The proportion of correct predictions and the amount of mean attitude change in the direction of congruity in the four situations of incredibility (mentioned by Osgood and Tannenbaum, and cited previously in the present report) were better than the results obtained for any other situation used in the study. This brings into question the contention of Osgood and Tannenbaum that incredible situations are simply rejected by the recipients and a correction would apply in these instances.

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49 Bettinghaus, ibid., p. 137.

Bowers,<sup>50</sup> also, studied the effects of intensity of assertion on attitude change in oral communication situations. Four sources and four concepts, judged as neutral, were selected on the basis of a pilot study. Four speeches, two positive and two negative, were prepared using one source and one concept for each. These four speeches were further varied each at two intensity levels produced by using words and phrases of high and low mean intensity ratings, respectively. The subjects were 472 freshman students randomly divided into four groups each of which received a high intensity speech and a different low intensity speech. One of the two speeches for each group was "pro" and the other "anti", corresponding to associative and dissociative copulas. The order of presentation of the speeches to the four groups was counterbalanced on the factors of intensity and the direction of attempted influence. The procedure of the study involved a pre-test to obtain the initial evaluations of the four sources and four concepts used in the study. This was followed, after several weeks, by an exposure to appropriate experimental speeches and immediately after, by the post-testing. The hypothesis that high intensity speeches bring

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50 J. W. Bowers, "Language Intensity, Social Introversion, and Attitude Change", Speech Monographs, 1963, XXX, p. 345-352.

about more attitude change toward concepts than do low intensity speeches was rejected for "pro" and "anti" speech situations. However, in the "anti" speech situation, the mean attitude change toward the concept resulting from low intensity speeches was found significantly different from and larger than that from high intensity speech. For source change data, the hypothesis that attitude change toward sources is greater for high than it is for low intensity speeches was rejected also. Bowers' study did not support the predictions of change of attitude toward greater congruity either in direction or in magnitude of attitude change. Perhaps the congruity model originally conceived and tested in written communication situations was not a good fit for the oral communication situations. The result that low intensity speeches were more effective than high intensity speeches in producing attitude change toward the concept is in contradiction with Bettinghaus' finding of no difference in attitude change due to various levels of intensity of speech. Furthermore, these findings do not support the contention of the authors of the model that high intensity assertions would produce a greater congruity effect than the low intensity speeches. It seems probable that at the time of post-testing, the subjects attached greater degree of favorableness to the

concepts than what was actually expected by the experimenter.

Furthermore the study was restricted to relatively credible situations involving neutral sources and concepts. What would be the trend of results in the relatively incredible situations is yet to be seen.

Bowers' failure to find results consistent with those of Bettinghaus could be due to the failure of the former researcher properly to manipulate the degree of favorableness of sources and concepts, and the intensity of assertion. Further, Bowers did not investigate whether the factors of intelligence of the subjects and the credibility of the assertions used in his study had confounded the results.

Bowers' study indicates that the congruity model could not be used to predict attitude change with optimum efficiency in oral communication situations. However, it does lend credence to the possibility of intensity of assertions as a factor in the prediction of attitude change toward the concepts.

Another piece of evidence of the "copula effect" on attitude change has been provided by McCarrey.<sup>51</sup> The scope of his study was restricted to highly positive sources and relatively neutral concepts; the subjects were 145 adults.

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<sup>51</sup> M. W. McCarrey, Intensity of Assertion and the Incongruity, unpublished Master's Thesis, Faculty of Psychology and Education, University of Ottawa, 1967.

The intensity of assertions was varied by using copulas of high, medium and low intensities. These copulas were selected on the basis of subjects' ranking of eleven copulas which were later assigned scale values derived through the normalized ranking procedure. McCarrey reported a curvilinear relationship between intensity of assertive copulas and attitude change. He concluded that there existed a certain level of intensity of assertive copulas beyond which greater intensities would result in a reduced change of attitude toward the concept. The study can be considered as pioneering work that investigated the effects of intensity of copula on attitude change in written communication situations. The results, however, cannot be generalized beyond the situations involving highly favorable sources and relatively neutral concepts. Furthermore, no efforts were made to measure changes in attitude toward the sources. However, the study is indicative of the copula effect on attitude change in relatively congruous situations.

McEwen and Greenberg,<sup>52</sup> also, examined the effects of variations in message assertion intensity on the accuracy

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<sup>52</sup> W. J. McEwen and B. S. Greenberg, "Effects of Communication Assertion Intensity", The Journal of Communication, 1969, 19, p. 257-265.

of the congruity predictions of attitude change. Sources and concepts evaluated as highly favorable (+3 in scale units) and, those evaluated as slightly favorable (+1 in scale units) were selected for the study. Sources and concepts of equal polarities of attitudes were linked by negative assertions. The message intensity was varied by using "modifiers" (adverbs) and "connectors" (verbs) of high and low intensities. The intensity of speeches was verified by having the subjects rate the speeches on a seven-point scale ranging from "very strongly in favor of" to "very strongly opposed". The study used two levels of intensity of assertions only: high intensity and low intensity.

The authors reported no significant difference in attitude change toward the source and the concept due to high and low intensity of assertions. They further reported that the congruity predictions with respect to change in attitude toward the concepts were more accurate when sources and concepts of highly favorable evaluation were linked by assertions of high intensity than when they were linked by assertions of low intensity. The same trend was noticed in the data involving sources and concepts of low favorable evaluation linked by low intensity assertions. Similar predictions about the change in attitude toward the source were not upheld. This is consistent with the findings of Powers.

The study of McEwen and Greenberg suffers from methodological defects. Sources and concepts were selected on the basis of the mean rating given by the subjects. The use of mean rating, however, overlooks the fact that it was possible for a number of subjects to use extreme ratings. Since no value of dispersion was reported, the allocation of mean ratings of +1 to sources and concepts was unreliable.

Furthermore, no precise measurements of the intensity of assertions used in the study were taken. In this case, the use of only one seven-point scale cannot give very reliable results. Moreover, taking of post-test measures of attitude just after the subjects had rated the assertions on intensity could have led to contamination of the post-test measures of attitude. The subjects' commitment in terms of rating a source or a concept as "very strongly in favor of" or "very strongly opposing" might have affected their ratings of the sources and concepts.

The study of McEwen and Greenberg was confined to dissociative assertions only. Whether the use of associative assertions would have produced the same effects as did the ones used remains to be investigated.

Lastly, McEwen and Greenberg failed to take due cognizance of subjects' intelligence, and **credibility** of assertions. Had measures of these variables been taken, the

discrepancies in the predicted and the obtained results might have been explained more meaningfully.

In summary, the importance of intensity of assertive copula in congruity predictions of attitude change has been suggested by Osgood et al. Research studies, however, provide only a partial support for the suggestion. Furthermore, some of these studies have ignored the incongruity situations in which the congruity predictions have been reported to hold only when a correction was made. There is a need for the congruity model to incorporate the factor of intensity of assertive copula for the purpose of trying to generate more accurate predictions of attitude change in these situations. This will be plausible only after conclusive evidence as to the precise nature of the relationship between intensity of assertive copula and attitude change has been demonstrated by future research.

#### 4. Comparison of Attitude Change toward the Source **with** Attitude Change toward the Concept

It is an important issue in attitude change theory whether changes in attitude toward the source are associated with changes in attitude toward the concept. The relative magnitude of such changes is of importance also.

The congruity model of attitude change takes this fact into consideration. It generates predictions about the change of attitude toward the source as well as toward the concept of a particular assertion.<sup>53</sup> No other model of attitude change makes such a provision. The message-discrepancy theory,<sup>54</sup> by implication, suggests that as discrepancy between the recipient's attitude toward the concept and the amount of attitude change advocated in the assertion increases, the possibility of the derogation of the source by the recipient becomes larger. Hence, as a result of exposure to a discrepant or incongruous assertion, the recipient will devalue the source. However, no suggestion as to the magnitude of this change of attitude has been provided by the message-discrepancy theory.

Osgood et al.<sup>55</sup> suggest specific and precise direction and magnitude of change in attitudes toward the source and the concept. They predict equal amounts of change in the recipient's attitude toward the source and the concept when sources and concepts of identical evaluations are linked.

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53 Osgood et al., op. cit., p. 203.

54 C. Hovland and H. Pritzker, "Extent of Opinion Change as a Function of Amount of Change Advocated", Journal of Abnormal and Social Psychology, 1957, 54, p. 257-261.

55 Osgood et al., op. cit.

However, Osgood and Tannenbaum<sup>56</sup> on the basis of a study, observed that changes in attitudes toward concepts were consistently larger than changes in attitude toward sources. They asserted that since the persuasive assertion applied to the concept rather than the source, it exerted greater pressure on the recipient's attitude toward the concept. Hence, it was suggested that an index of the difference between changes in attitudes toward the sources and the concepts be calculated, by comparing amounts of source changes and concept changes in comparable situations. Osgood and Tannenbaum called this index "assertion constant",<sup>57</sup> a value to account for the effect of message variables. They further suggested that, in order to obtain better predictions of attitude change, the value of the assertion constant be added to the amount of an observed concept change of attitude with a negative assertion and subtracted from the amount of an observed concept change of attitude with a positive assertion. Osgood and Tannenbaum observed that in their study the changes in attitude toward the concepts were on the average .17 scale units greater than the changes in attitude toward the sources. They further noted that the congruity model would predict

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56 Osgood and Tannenbaum, op. cit. p. 51.

57 Ibid., p. 51.

better if a post hoc correction using the assertion constant was made.<sup>58</sup>

Although Osgood and Tannenbaum, in their study identified specific incongruous situations involving the possibility of being incredulous, yet for the purpose of calculating the assertion constant, they failed to differentiate between these situations and the situations having no possibility of being incredible.

The change in recipient's attitude toward a particular source as a result of the latter's attempt to influence the recipient's attitude toward a concept involves generalization of attitude change from the concept to the source.

Tannenbaum and Gengel<sup>59</sup> conducted a study to investigate whether change in attitude toward a concept would generalize to the change in attitude toward a source which previously made an assertion about that concept. With each of three sources, "teaching machines" was used as a concept. In the message, one source favored the teaching machines, the second opposed them and the third remained neutral. Following an exposure to this message, the subjects were exposed to another communication attributed to another source. For half the subjects, the latter communication favored the concept and for the other half, opposed it.

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58 Osgood and Tannenbaum, ibid., p. 52.

59 Tannenbaum and Gengel, op. cit., p.

In order for congruity to be achieved, a favorable change in attitude toward teaching machines should produce a favorable attitude toward the source with a positive link, and an unfavorable change toward the source with a negative link.

The results of this investigation provided support for the generalization of attitude change from concept to source in most of the source-concept linkages. One finding, contrary to the prediction, was the occurrence of change of attitude toward the source in a favorable direction when a negative change was predicted. This unanticipated result could be the function of a "halo" effect accruing to both the positively-linked and the negatively-linked sources. These sources were presented as recognized authorities participating in a symposium sponsored by a major professional association. This observation was further supported when a high degree of favorableness was attached to an initially neutral source who was introduced as the "symposium chairman" and "one of the principal authorities on learning theory".

Tannenbaum<sup>60</sup> conducted a similar experiment using a different type of population and a different experimental design. He found that not only did attitude change generalize

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60 P. H. Tannenbaum, "Mediated Generalization of Attitude Change via The Principle of Congruity", Journal of Personality and Social Psychology, 1966, 3, p. 493-500.

from a manipulated concept to a linked source, but also from the source to an additional linked concept. These findings are strongly supportive of congruity predictions.

Bettinghaus<sup>61</sup> in an attempt to study the operation of the congruity model in an oral communication situation confirmed that source changes accompanied concept changes of attitude. These changes were in the direction of congruity. Furthermore, attitude toward the source was found to undergo greater change than did the recipient's attitude toward the concept.

The results in general support the basic congruity principle. However, the finding that the attitude toward the source changed more than that toward the concept was inconsistent with Osgood and Tannenbaum's findings.<sup>62</sup> Bettinghaus did not provide any explanation for this contradiction. It seems probable that the dynamics of oral delivery, and written presentation of a persuasive message, differ in their effects on the subjects' perceptions of the source. It possibly had led to a differential effect on attitude change toward the source in oral and written presentations of the persuasive message.

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61 Bettinghaus, op. cit., p. 131-142.

62 Osgood and Tannenbaum, op. cit., p. 51.

Bettinghaus' findings of larger changes in attitude toward the source than the changes in attitude toward the concept are further supported by a study conducted by Aggarwal.<sup>63</sup> Aggarwal used twenty-eight graduate students of both sexes. The assertions used were of two types. The first type involved sources evaluated as highly favorable positively associated with concepts evaluated as highly unfavorable. The second type involved sources evaluated as low favorable positively associated with concepts evaluated as low unfavorable.

The study found that the first type of assertions produced a mean change in attitude toward the sources which was significantly different from and larger, by 1.49 units of a seven-point scale, than the mean change in attitude toward the concepts. The corresponding value of this mean difference for the second type of assertions was 1.58.

In conclusion, the preceding discussion has shown that changes in attitude toward the source do accompany changes in attitude toward the linked concept about which the source has made an evaluative assertion. This applies both to credible and incredible situations. To this extent, the

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63 Yash P. Aggarwal, A Critical Survey of the Consistency Theories of Attitude Change with Special Emphasis on the Congruity Theory, an unpublished Report, Faculty of Education, University of Ottawa, 1972.

predictions of the congruity model are well borne out by the research findings of various studies. These studies, however, provide contradictory evidence as to the magnitude of this change relative to the change in attitude toward the concept.

### 5. The Problem

In the present version of the congruity model, the degree of incongruity is merely a joint function of the recipient's initial attitudes toward the source and the concept, and whether the assertive copula involved is associative or dissociative. The operation of the congruity principle is based on the interaction between source and concept, brought about by the assertive copula. This link, however, is as important as the other two components in the assertion.<sup>64</sup>

While provision for finer variations in the first two components has been made in the model, variations in the third element have been restricted to the dichotomy, associative and dissociative. This constraint on the congruity predictions can be removed only if conclusive empirical evidence as to the nature of the relationship between intensity of assertive copula and attitude change is demonstrated.

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<sup>64</sup> Osgood et al., op. cit., p. 216.

Studies reviewed in the preceding sections of this chapter indicate that the variable of intensity of assertive copula was operative in situations involving attitude change. Yet, because of contradictory findings regarding whether the high intensity copula produced larger attitude changes than the low intensity copula, these studies did not provide any conclusive evidence of the nature of the relationship between intensity of copula and attitude change. Furthermore, these studies have ignored the possibility that effects would be different in credible and incredible situations. Most of them, for the purpose of arriving at their results, either used relatively credible situations or did not differentiate between these two types.

The congruity model predicts equal amounts of change in attitude toward the source and the concept when sources and concepts of equal polarity of attitudes are linked. However, it seems logical to say that the effects of variations in the intensity of assertive copula on attitude change in incredible situations are likely to differ from the effects in credible situations. In credible situations, the high intensity copula is likely to make the situation more credible and hence produce greater attitude change than would the low intensity copula. But in incredible situations, introduction of a highly intense copula will

further add to the degree of incredibility already inherent in the situation. While most studies failed to find a significant difference in attitude change due to high and low intensity of copula, such an effect has been indicated by the study of Bowers reviewed in a previous section.

Hence to investigate the question as to what would be the effect of variations in assertive copula on attitude change in situations involving the possibility of being incredible the following hypothesis is stated:

In situations which are possibly incredible, low intensity assertive copulas will produce larger attitude changes toward congruity than will medium or high intensity copulas.

The research evidence provided support for the congruity predictions that changes in the recipient's attitude toward a particular source will accompany changes in his attitude toward a linked concept. However, there is a possibility of the derogation of the source in incredible situations. Thus the source, while losing in favorability, might not be able to effect any changes in the recipient's attitude toward the concept. Contradictory findings, reported by the research with regard to the relative amount of attitude change toward the source and the concept could be the result of different magnitudes of incredibility involved in the situations used by these studies.

The second question investigated by the study is: "Will the recipient's attitude toward the concept of an assertion change more than his attitude toward the linked source in situations involving concepts and sources of equal polarity of attitudes?"

To examine this question, a research hypothesis based on the findings of Osgood and Tannenbaum is stated below.

When sources and concepts, evaluated as similar in polarity but different in direction of attitude, are linked through associative copulas, the recipient's attitude toward the concept will change more than his attitude toward the source.

The above mentioned hypotheses will be tested in incongruity situations involving sources evaluated as high favorable associated with concepts evaluated as high unfavorable, and those involving sources evaluated as low favorable associated with concepts evaluated as low unfavorable.

In this chapter, a review of the background literature leading to the research problem was first presented and discussed. This was followed by a statement of the problem. Research hypotheses pertinent to the problem were then postulated.

The design of the study investigating the hypotheses stated above is described next.

## CHAPTER II

### METHOD AND DESIGN OF THE STUDY

The main objectives of the study were to investigate the effects of intensity of assertive copula on attitude change and to compare change of attitudes toward the source and the concept. It was decided to use situations involving two different levels of incongruity as follows. High incongruity situations are those which involve sources, evaluated as highly favorable, associated with concepts evaluated as highly unfavorable. Low incongruity situations involve sources, evaluated as slightly favorable, associated with concepts evaluated as slightly unfavorable.

The study was conducted in three distinct, although interlinked, stages. The first step pertained to the preliminary selection of the sources and concepts, and the selection of the experimental assertive copulas. The second stage involved the administration and scoring of the pre-test and the formation of the experimental groups. In the third stage, experimental groups were exposed to treatments, followed by the post-testing. In this chapter, these three steps of procedure will be discussed. The chapter ends with a statement of the planned analyses of data.

In order to avoid the repeated use of cumbersome expressions, one of the terms "high positive" or "high

negative" will be applied to a source or concept when it is evaluated as highly favorable or highly unfavorable, respectively. Similarly one of the terms "low positive" or "low negative" will be used to describe sources and concepts evaluated as slightly favorable or slightly unfavorable, respectively.

#### 1. Elements of Assertive Combinations

Assertive combinations consist of sources and concepts linked through assertive copulas. These elements of assertive combinations, appropriate for the present study, were to be selected for use in the pre-test and the post-test.

a) **Selection of Sources and Concepts.** — The present study pertains to the exploration of the effects of a potential determinant of attitude change. Hence, the scope of the selection of sources and concepts was not restricted to any single field. Names of important persons were used as sources and names of issues were used as concepts. The names and issues were taken from such fields as politics, sports, education and current affairs.

Since the scope of the study has been restricted to sources evaluated as favorable and concept evaluated as unfavorable, it was necessary to obtain such sources and concepts. Eighty-two grade X and XI male students of two

high schools of Ottawa were asked to list names of important persons whom they liked very much, and the names of issues which they would not support. The lists so prepared were collected by their teachers in regular class periods. From the names of persons and issues thus suggested, a list of forty sources and thirty-eight concepts was compiled. This list was further edited by the researcher on the following criteria:

- (i) Most of the subjects would be familiar with these sources and concepts; and
- (ii) a specific source would be relevant to at least three concepts, and a specific concept would be relevant to at least three sources.

Twenty-seven sources and twenty-seven concepts were thus selected.

Since the pre-test was to include positive sources and negative concepts, a questionnaire designed to assess the degree of favorableness of each of the previously selected sources and concepts was constructed. For each of these sources and concepts, a seven-point Likert-type scale was provided. The cues ranged from "highly favor" to "highly disapprove".

Each source and each concept were included at least once. In addition, three sources and four concepts randomly chosen from the revised list of the selected sources and concepts were each included a second time. It was so done

in order to obtain a measure of consistency with which each subject would respond to the questionnaire. These sixty-one items were placed in random order in the questionnaire. The questionnaire was administered to fifty-three grade X and XI male students of a secondary school<sup>1</sup> controlled by the Carleton County Board of Education. A sample copy of the questionnaire is presented in Appendix 1. This questionnaire will be referred to as Source - Concept Selection Questionnaire.

The scope of the study was restricted to male subjects because of the possible sex differences in persuasibility. The relationship between sex and persuasibility is straightforward. There is research evidence to show that females, on the average, tend to be more susceptible to persuasive communication than males.<sup>2</sup> Hence to control for the variable of sex, only male subjects have been used in the study.

Subjects' responses to each item were scored from 1 to 7, "highly disapprove", receiving a score of 1, and "highly favor", a score of 7. For any particular item (source or concept) an aggregate score was calculated by adding the scores obtained by all the fifty-three subjects. Thus the

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1 The name of the school is not given to protect the identity of the students who participated in the study.

2 T. M. Scheidel, "Sex and Persuasibility", Speech Monographs, 1963, 30, p. 353-358.

aggregate scores so obtained could range between 53 and 371 with an average possible score of 212. These scores are presented in Appendix 2.

For the purpose of selecting positive sources and negative concepts for inclusion in the pre-test, the following criteria were used. The first criterion for this selection was that a particular source, to be deemed as positive, should have an aggregate score greater than the average possible score of 212. In case of concepts, only those concepts whose aggregate scores were below 212 were considered as negative. Since these sources and concepts were required for making assertive combinations later, it was important that a source be relevant to a few concepts, and a concept to a few sources. From among the sources and concepts which met the first criterion, selection was made only if a particular source was judged relevant to at least three concepts, and a particular concept, to at least three sources. Fourteen sources and ten concepts were selected as meeting these criteria.

To investigate the consistency with which the subjects answered the Source - Concept Selection Questionnaire, a product-moment coefficient of correlation was calculated for each of the four repeated sources and three repeated concepts. The values thus obtained are shown in Appendix 3. These coefficients ranged between .83 and .98. Since the sources and concepts,

referred to above, were repeated in the same testing session, the time gap between the two measurements on each of the repeated items was approximately ten minutes. Hence a certain degree of correlation was to be expected. The correlations obtained, however, are fairly high and thus provide evidence for the consistency of the responses.

b) Quantification of Assertive Copulas. — The next step was to select assertive copulas to represent various levels of intensity. Since the scope of the study has been restricted to the use of associative assertions, only positive copulas were of interest to the present researcher. A list of forty positive copulas was drawn up from newspapers and consultation with the researcher's colleagues.

For the purpose of ascertaining whether grade X students would understand the meanings of these copulas, and the accompanying instructions for their ranking, the list was presented to ten grade X students during the summer of 1971. The students expressed some doubts as to the meanings of some of the copulas. Those copulas were dropped from the list. Further revision, based on the suitability of each copula for making an assertive combination by joining a source and a concept, was also done. This resulted in ten copulas being retained. For each of these copulas, it was necessary to obtain a measure of intensity. For this purpose assertive combinations, using these copulas, were constructed.

To avoid any possible bias due to interaction between a specific source and a specific concept, each combination was written in the form "A Copula B". Letters A and B were used instead of specific sources and concepts. An example of such a combination was "A favors B". Also provided on the form were instructions giving the procedure by which these combinations were to be ranked. This questionnaire will be referred to as the Intensity of Copula Questionnaire. A copy of this questionnaire is presented in Appendix 4.

The fifty-three subjects, who had already answered the Source - Concept Selection Questionnaire, responded to the Intensity of Copula Questionnaire. In this questionnaire, subjects were required to rank the assertive combinations according to their perceived degree of intensity. The responses of one subject indicated that the subject had not followed the instructions. His responses were, therefore, excluded from further consideration. On the basis of the responses of the remaining fifty-two subjects, a scale value was assigned to each copula. This value was obtained by using the normalized ranking method as suggested by Guilford.<sup>3</sup> A list of copulas along with their scale values appears in Table I.

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<sup>3</sup> J. P. Guilford, Psychometric Methods, New York, McGraw Hill, 1954, p. 181-183.

Table I.-

Assertive Copulas Arranged in Descending  
Order of Scale Values Derived through  
Normalized Ranking Procedure  
(Mean = 4.99, N = 52)

Copulas	Scale Value
A absolutely and totally supports B	7.44
<sup>a</sup> A gives 100% support to B	7.17
A fully supports B	5.96
A supports B	5.23
A defends B	5.12
<sup>b</sup> A is very much in favor of B	5.02
A slightly supports B	4.33
A favors B	4.15
<sup>c</sup> A likes B	3.13
A is aware of B	2.29

a, b and c Experimental copulas selected to represent high, medium and low intensity, respectively.

Three copulas, to represent high, medium and low intensity, respectively, were selected as follows. The copula, which was closest to the mean of the distribution of scale values of copulas, was selected to represent medium intensity. Two others - one from each extreme of the same distribution - were selected to represent high intensity and low intensity, respectively. The high intensity and the low intensity copulas, thus selected, showed almost equal increments, in terms of scale values, from the medium intensity copula. The three experimental copulas thus selected are indicated in Table I.

Reliability of judgments of rank order of copulas was calculated by using the method of Average Rank - Order correlation as suggested by Guilford.<sup>4</sup> Guilford<sup>5</sup> considers this method to be a better index of group agreement, than any other method that can be used with the ranked data. The value of the reliability coefficient obtained by this method was .79. This value indicates a high level of agreement among the subjects who ranked the assertive combinations.

## 2. Pre-test

In order to ascertain the initial attitudes of the subjects toward the sources and the concepts selected

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4 Guilford, ibid., p. 397.

5 Ibid., p. 397.

previously, a pre-test was required. It would enable the researcher to identify the experimental groups for the purpose of post-testing.

a) Construction of Pre-test Questionnaire. — For the purpose of obtaining a measurement of subjects' pre-treatment attitudes toward sources and concepts, a questionnaire was constructed. It was referred to as the Pre-test Questionnaire. Evaluative scales of the semantic differential were used for this purpose. Before further details of the procedure of the study are given, it seems appropriate that a brief description of the semantic differential technique and some evidence concerning its reliability and validity as a measure of attitudes be presented.

The semantic differential technique was developed by Osgood, Suci and Tannenbaum<sup>6</sup>. It involves the use of seven-point-bipolar scales. The scales are constructed by using bipolar adjectives such as -- good - bad. The authors factor-analyzed fifty such scales and obtained three common factors. These, they named "evaluation", "potency", and "activity". For the purpose of measuring attitudes, scales highly loaded on the factor of evaluation are used.<sup>7</sup> Generally five to seven of these scales are used to evaluate one item.

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<sup>6</sup> C. E. Osgood, G. J. Suci and P. H. Tannenbaum, The Measurement of Meaning, Urbana, Illinois University Press, 1957, p. 37.

<sup>7</sup> Ibid., p. 37.

The present researcher selected the semantic differential as the basic tool of the present study for the following reasons. First, the fact that the congruity model was a product of the experimental work done on the semantic differential implies that the same tool must be used to verify and validate different dimensions of the model. Secondly, since the first appearance of the semantic differential as a psychometric device, a vast amount of data on its reliability and validity has been reported in the research literature.<sup>8</sup> Its underlying assumptions have been tested and found valid.

Messick<sup>9</sup> reported that the interval size across the scales tended to be consistent and the origin fell in approximately the same place on all the scales. Thus Messick supported the use of successive integers as category mid-points for the semantic differential scales.

Aiken<sup>10</sup> tested the validity of the assumption of independence between the concepts judged. He reported no significant differences in the scale-locations of the experimental concepts as a function of the context in which they

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<sup>8</sup> J. G. Snider and C. E. Osgood, Eds., Semantic Differential - A Source Book, Chicago, Aldine, 1969.

<sup>9</sup> G. S. Messick, "Metric Properties of the Semantic Differential", Journal of Educational and Psychological Measurement, 1957, 17, 2, p. 200-206.

<sup>10</sup> E. Aiken, 1953, as reported in Osgood, et al., op. cit., p. 84-85.

were embedded. Furthermore, Osgood et al.,<sup>11</sup> and Stagner and Osgood<sup>12</sup> found that the use of seven-point scales, rather than five - or nine - point scales, was appropriate and valid.

Moreover, there is tangible evidence to support the appropriateness of the semantic differential technique as a valid measure of attitudes. Osgood et al.<sup>13</sup> reported that product moment correlations between the evaluative form of the semantic differential and a series of Thurstone-type scales, ranged between .74 to .91. The same authors<sup>14</sup> reported a rank order correlation of .78 between the evaluative form of the semantic differential and the Guttman scale (reproducibility coefficient .92). Tannenbaum<sup>15</sup> reported test-retest reliability coefficients ranging between .87 to .93 with a mean R, computed on Z - transformation, of .91 (N = 135). The time between test and retest was five weeks.

The evidence, mentioned in the preceding pages, indicates that the semantic differential would provide a valid and

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11 Osgood et al., op. cit., p. 85.

12 R. Stagner and C. E. Osgood, "Impact of War on a Nationalistic Frame of Reference: I. Changes in General Approval and Qualitative Patterning of Certain Stereotypes", Journal of Social Psychology, 1959, 24, p. 188-215.

13 Osgood et al., op. cit., p. 194.

14 Ibid.

15 P. H. Tannenbaum, Attitude Toward Source and Concept as Factors in Attitude Change Through Communications, unpublished Doctoral Dissertation, University of Illinois, 1953.

reliable technique of attitude measurement.

For the purpose of the present study, five semantic differential evaluative scales were used. The scales used were selected because each had high loadings on the evaluation factor and minimal loadings on each of the other two factors. Moreover, these scales were each deemed to be relevant to the sources and concepts to be used in the study.

In addition to these five scales, four additional scales were used for the purpose of disguising the five experimental scales. Two of these "filler" scales were highly loaded on the potency factor, and two on the activity factor. A list of experimental and filler scales, along with their loadings on all three factors, is presented in Appendix 5.

In order to prevent the establishment of any response set, on the part of the subjects, the scales were placed in a random order in the Pre-test Questionnaire. The direction of the polar terms, (bipolar adjectives), was also arranged in a random order. Moreover, only one item (source or concept) was placed on one sheet.

As explained earlier, fourteen sources and ten concepts were selected for inclusion in the Pre-test Questionnaire. To gauge the extent of consistency with which the subjects would approach the Pre-test Questionnaire, one source and one concept, selected randomly from the fourteen sources

and ten concepts, were each included twice. All the twenty-six items (fifteen sources and eleven concepts) thus obtained were arranged in a random order in the Pre-test Questionnaire.

A copy of the Pre-test Questionnaire is included in Appendix 6.

b) Administration of Pre-test Questionnaire. — The Pre-test Questionnaire thus prepared was administered to 420 grade X and XI male students of two secondary schools,<sup>16</sup> school 1 and school 2, administered by the Carleton County Board of Education.

At each school, the Pre-test Questionnaire was administered in one sitting. The testing at school 2 took place two days after the testing at school 1. In each case, the students were tested in the school cafeteria. The researcher was assisted by two colleagues and a number of teachers, who acted as proctors. There was one proctor to approximately thirty students at each school.

To maintain the uniformity of procedure of testing at both the schools, a brief statement introducing the researcher and the purpose of the test to the subjects was played from a pre-recorded tape. A copy of this statement

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<sup>16</sup> Names of the schools are not given to protect the students' identity.

appears in Appendix 7. In each school the slowest subject took about twenty minutes to complete the Pre-test Questionnaire.

c) Scoring of Pre-test and Identification of Experimental Groups. — Each of the five evaluative scales was scored from 1 to 7 -- the unfavorable pole receiving a score of 1, and the favorable pole, a score of 7. For each of the fourteen sources and the ten concepts a score was obtained by summing over all five evaluative scales. A pre-test attitude score for each subject was thus obtained. The score for each source and each concept could range between 5 and 35. These scores are presented in Appendix 12.

Nine subjects had consistently checked extreme points of the semantic differential scales on most pages of their test booklets. Since they seemed not to have followed the instructions, their responses were not scored. The pre-test attitude scores of the remaining 411 subjects were tabulated in a frequency distribution which is shown in Appendix 8.

The study deals with four categories of attitudes, viz: high positive sources, low positive sources, high negative concepts, and low negative concepts. Score ranges which would define these four attitude categories were decided a priori, and are shown in Table II. The main consideration in deciding these score ranges was to allow the subjects

Table II.-

Attitude Categories and Their Definition  
of Pre-test Attitude Score Ranges

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Attitude Category	Pre-test Attitude Score Range
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Sources	
High positive	30-35
Low positive	23-28
Concepts	
Low negative	12-17
High negative	5-10

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enough room (in terms of scale units) for attitude shift toward a specific source and a specific concept.

In terms of the above attitude categories, a high incongruity situation would occur when a high positive source is associated with a high negative concept. Similarly, a low incongruity situation would involve a low positive source and a low negative concept.

In such situations, the congruity model predicts that, after treatment, the amount of a subject's attitude shift toward a particular source equals that toward the linked concept. Thus it is expected that in the high incongruity condition, the average total shift for a source or a concept, in a particular source - concept combination, would be 12.5 scale units. In the low incongruity situations, this shift would be 5.5 scale units. These estimates are based on the semi-ranges between the mid-points of the score intervals for the high positive sources and the high negative concepts in the high incongruity condition. To calculate a value for the low incongruity condition, score intervals for the low positive sources and the low negative concepts were employed.

On the basis of the frequency distribution of pre-test attitude scores, combinations of sources and concepts, to represent high and low incongruity conditions, based on individual scores, were formed. Combinations for the high

incongruity condition have high positive sources associated with high negative concepts. The combinations for the low incongruity condition have low positive sources coupled with low negative concepts.

For the high incongruity condition, high positive sources having large frequencies in the high positive score range were coupled with high negative concepts having large frequencies in the high negative score range. Sources and concepts having large frequencies were used to obtain a sufficiently large number of subjects that could be placed in a particular combination on the basis of their individual scores for the source and the concept of that combination. Several source - concept combinations were tried. Four combinations in which a sufficiently large number of subjects fell were selected. Moreover, for each of these combinations, the source was relevant to the concept.

For the low incongruity condition, low positive sources having large frequencies in the low positive score range were coupled with low negative concepts having large frequencies, in the low negative score range. By following the procedure, as mentioned above for the high incongruity condition, four source - concept combinations were finally selected for the low incongruity condition. It may be noted that the use of four different combinations each for high and

low incongruity condition will enable the researcher to investigate whether different combinations had different effects on attitude change. Moreover, the use of four combinations in each congruity condition allowed for the use of the majority of the subjects who had taken the pre-test. It may be further noted that the procedure of the selection of source - concept combinations led to the selection of two combinations common to both incongruity conditions. Since the placement of a subject in high and low incongruity conditions depended on his pre-test attitude scores, the same subject could not be placed in both incongruity conditions under a particular source - concept combination.

A subject was included only once in a particular incongruity condition. However, forty-nine subjects were common to both high and low incongruity conditions. Each of these subjects had pre-test attitude scores appropriate for a particular source - concept combination of the high incongruity condition and also for a different source - concept combination of the low incongruity condition. Since separate analyses of data for each incongruity condition are proposed to be done, the fact that the forty-nine subjects were common to both incongruity conditions, would not affect the results. Table III shows the source - concept combinations and the number of subjects placed in each combination on the basis of the pre-test attitude scores.

Table III.-

Source-Concept Combinations used in High and Low  
Incongruity Conditions and Numbers of Subjects  
placed in each Experimental Group on the basis of  
their Pre-test Attitude Scores

METHOD AND DESIGN	Source-Concept Combination	Number of Subjects* in Experimental Groups				
		High Int.	Med. Int.	Low Int.	Control	Total
	High Incongruity Condition					
	1. Bobby Orr - Compulsory Military Training	8	7	7	7	29
	2. Astronaut Neil Armstrong - U. S. Nuclear Tests	21	21	20	20	82
	3. U. S. Senator Edward Kennedy - Ban on Rock Festivals	19	19	19	19	76
	4. John Lennon - Restrictions on Drinking of Young People	7	7	7	7	28
	Total for high incongruity condition	55	54	53	53	215
	Low Incongruity Condition					
	1. U. S. Senator Edward Kennedy - Ban on Rock Festivals	7	7	7	7	28
	2. Health Minister Mr. Munro - Ban on Younger People Going to Adult Entertainments	23	23	23	23	92
	3. John Lennon - Restrictions on Drinking of Young People	19	19	18	18	74
	4. Premier William Davis - Imposition of School Regulations Regarding Hair, Clothes, etc.	7	6	6	6	25
	Total for low incongruity condition	56	55	54	54	219

\* 49 subjects were common to both high and low incongruity conditions

Within each source - concept combination, for each incongruity condition, subjects were randomly assigned to three treatment groups and one control group. The three treatment groups were designated high intensity copula group, medium intensity copula group, and low intensity copula group, corresponding to the intensities of the three assertive copulas previously selected.

### 3. Post-test

In this section, a description of the treatment material used in the study, the procedure of construction, administration and scoring of the post-test and the calculation of attitude change scores is presented.

a) Treatment Material. — Material for the experimental treatment (which was included in a post-test booklet) consisted of fabricated news headlines. These will be referred to as experimental news headlines. Each of these news headlines consisted of a source and a concept from a particular source - concept combination shown in Table III, and an assertive copula selected through a procedure explained previously. Each of the news headlines was printed at the top of a sheet in Eleven-Point-Bold-Press Roman type, set in a two column width. Such sheets will be referred to as experimental sheets. To make each news headline look realistic, it was followed by a typical dateline showing the name of a city, the name of a press-agency, and

an incomplete sentence. The name of the press-agency was the same for all experimental news headlines. Moreover, the press-agency used was the one most often quoted in the Canadian Press.

For each source - concept combination for each incongruity condition, shown in Table III, four experimental sheets corresponding to high intensity copula, medium intensity copula, low intensity copula and control groups, respectively, were prepared for obtaining subjects' ratings of the concept of that combination.

For the high intensity copula group, the source and the concept of a particular source - concept combination were linked by the copula "gives 100% support to". For the medium intensity copula group and the low intensity copula group, the same source and concept were linked by the copulas, "is very much in favor of" and "likes", respectively. It may be recalled that these copulas were selected previously to represent the high, medium and low intensity, respectively. The experimental sheet for each treatment group carried an appropriate news headline followed by a concept and nine semantic differential scales on which that particular concept was to be rated. The experimental sheet for the control group carried a concept followed by the nine semantic differential scales, but no experimental news headline.

The semantic differential scales used in all the four types of experimental sheets, their order of presentation, and arrangement of polar terms were the same as in the Pre-test Questionnaire.

In addition, four filler sheets, filler sheet 1, filler sheet 2, filler sheet 3 and filler sheet 4, were also prepared. Filler sheets 1 and 2 were different from the experimental sheets in one respect, that the former carried each a news headline consisting of a source and a concept which had been rated neither highly favorable nor highly unfavorable on the Source - Concept Selection Questionnaire, and a negative copula linking the source and the concept. Filler sheets 3 and 4 carried a concept and a source, respectively, followed by the nine semantic differential scales, but no news headline. The source and the concept used for this purpose were rated relatively neutral on the Pre-test Questionnaire. The purpose of using the filler sheets was to provide practice for the subjects, and spacing between the experimental sheets. Moreover, filler sheets 3 and 4 would also provide a measure of consistency of the subjects' responses to the semantic differential scales used in the study.

It may be noted that, in addition to the four experimental sheets prepared for each source - concept combination in order to obtain subjects' ratings of the concept, four

similar sheets were also prepared for obtaining subjects' rating of the linked source. For each of the filler sheets 1 and 2, also another similar sheet was prepared for obtaining the subjects' ratings of the appropriate linked source. These filler sheets were referred to as filler sheet 5 and filler sheet 6.

b) Construction of Post-test Questionnaire. — To expose subjects to the experimental material and then to obtain a measure of their attitudes toward the sources and the concepts, a Post-test Questionnaire was constructed. In order to correspond with the four experimental groups in each source - concept combination, four different types of post-test booklets were required.

The arrangement of the test material in the post-test booklet for a particular treatment group was as follows. This applies to a subject placed exclusively in one incongruity condition.

Sheet 1. filler sheet 1 followed by the rating of the concept concerned.

Sheet 2. filler sheet 2 followed by the rating of the concept concerned.

Sheet 3. filler sheet 3.

Sheet 4. experimental sheet for that particular group, followed by the rating of the concept concerned.

Sheet 5. filler sheet 5 followed by the rating of the source concerned.

Sheet 6. filler sheet 6 followed by the rating of the source concerned.

Sheet 7. filler sheet 7.

Sheet 8. experimental sheet for that particular group followed by the rating of the source concerned.

It may be observed that all sheets requiring the rating of concepts were placed in the first half of the post-test booklet, and those requiring the rating of sources, in the second half. Sheets requiring the repetition of a specific news headline were kept at least **three** sheets apart.

It may be noted that for all the subjects, exclusive to a particular incongruity condition, the test-booklet contained eight sheets of experimental material and two sheets of instructions. However, for each of the forty-nine subjects common to both conditions of incongruity, the test booklet had two additional sheets corresponding to the second incongruity condition. One of these sheets required the rating of a concept; this was inserted between sheets 4 and 5. The second of these sheets required the rating of the linked source; this was placed at the end of the booklet. A sample copy of the Post-test Questionnaire for a subject, in the high intensity copula group, exclusive to high incongruity condition, is presented in Appendix 9.

c) Administration and Scoring of Post-test. — The post-testing took place four weeks after the pre-testing. The

location of the testing, the seating arrangements, the time of the day and the number of supervisors for the post-test was the same as for the pre-test. A brief statement of the purpose of the post-test and the instructions for its completion were played from a pre-recorded tape in both schools. A copy of this statement appears in Appendix 10.

Each subject's responses to the Post-test Questionnaire were scored in a manner similar to the one used for scoring of the Pre-test Questionnaire. A post-test attitude score for each subject was, thus, obtained. The scoring was restricted to the experimental sources and concepts only. It may be noted that five subjects from the high incongruity group and nine subjects from the low incongruity group were not present at the time of post-testing. These included one subject common to both incongruity conditions. Hence, they were dropped from further consideration in the study. The post-test attitude scores of the remaining subjects are shown in Appendix 12.

d) Calculation of Attitude Change Scores. — The dependent variable in the present study is change in a subject's attitude toward a source and a concept. These changes will be referred to as source change and concept change, respectively. The congruity model predicts that after exposure to an incongruous message involving a positive source associated with a negative concept, the subjects will evaluate the source as less favorable than his initial attitude. The concept will, however,

be evaluated as more favorable than his initial position.

Therefore, source change scores and concept change scores, in either of the two incongruity conditions, were established as follows. The source change score was defined as the value obtained when the post-test attitude score of a subject for a particular source was subtracted from that subject's pre-test attitude score for that particular source. In contrast, the concept change score was defined as the value obtained when the pre-test attitude score of a subject for a particular concept was subtracted from that subject's post-test attitude score for that particular concept. A negative value of the source change score or the concept change score indicated a change of attitude toward that particular source or concept in the direction not intended by the experimental treatment. The source change scores and the concept change scores, thus obtained, are shown in Appendix 12.

#### 4. Additional Measures

In addition to the Post-test Questionnaire, two other instruments were administered to the subjects. The first of these was designed to obtain a measure of the credibility with which each experimental news headline was approached by the subjects. A self-constructed Credibility Scale was used. A Likert-type scale with seven cues ranging from "highly

credible" to "not at all credible" was provided. Each subject after having completed the Post-test Questionnaire was required to rate the experimental and the filler news headlines provided in the Credibility Scale. These headlines were the same to which that subject was exposed in the Post-test Questionnaire. Subjects' responses to a particular experimental news headline were scored from 1 to 7 (7 for highly credible). Credibility scores of all the subjects are presented in Appendix 12.

The second additional instrument was designed to locate subjects who had been able to discern the true purpose of the study. The subjects were required to write their general impressions and specific comments about the survey. For this purpose, a General-Questions-Sheet was appended to the Credibility Scale. The Credibility Scale and the General-Questions-Sheet are presented in Appendix 11.

Finally, measures for each subject on the Verbal Reasoning (VR) † Numerical Ability (NA) sub-tests of the Differential Aptitude Tests (DAT) were obtained from the school records. These scores were based on the testing done by the schools in the Spring and the Fall of 1970. The purpose of obtaining these measures was to allow the calculation of correlation between intelligence and attitude change.

A composite score on the VR and NA sub-tests of the DAT has been shown to have a high correlation with other

well-known tests of scholastic aptitude and general mental ability. The authors of the DAT<sup>17</sup> have reported that coefficients of correlation between DAT (VR+NA) and Henmon-Nelson Test of Mental Ability, Form A, ranged between .78 and .92. With the California Test of Mental Maturity, correlations of .65 to .84 were reported, and with Otis Quick Scoring Mental Ability Tests (Form Gamma FM) correlations of .81 to .85 are given.

As regards the use of the DAT (VR+NA) as an index of general mental ability, Bennett et al., state:

(...) a review of the coefficients of correlation of DAT (Forms L and M) VR+NA with well known scholastic aptitude or intelligence tests reveals consistently high coefficients: only five of 34, (...) are below .70 while 15 are larger than .80. Apparently the VR+NA score serves the same purpose for which general mental ability tests are used.<sup>18</sup>

Hence scores on VR+NA sub-tests of the DAT were used as measures of general mental ability. For forty-nine subjects, these scores were not available from the records.

The DAT VR and NA were, therefore, administered to them. This was done in a special testing session arranged by the guidance departments of their respective schools and

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17 G. K. Bennett, H. G. Seashore and A. G. Wesman, Differential Aptitude Tests, New York, the Psychological Corporation, 1966, p. 8-2.

18 Ibid., p. 8-1.

taking place two weeks after the post-test.

There is tangible empirical evidence to show that DAT scores are stable over periods up to three years. The authors of the DAT reported a test retest correlation of .86 for VR and .68 for NA for a group of 140 boys, tested after a lapse of three years.<sup>19</sup> This evidence indicates that DAT scores resulting from testing two weeks after the administration of the post-test would be compatible with the scores obtained from the school records. DAT (VR+NA) scores of all the subjects are included in Appendix 12.

#### 5. Planned Statistical Analyses

This section relates to the planned analyses of data. It opens with a description of analyses planned for the attitude change data, followed by those for the credibility scores and responses to the General-Questions-Sheet. Finally, the plan of analysis of the DAT VR+NA scores is outlined.

The attitude change scores of the subjects were analysed by using a two factor analysis of variance design separately for the source change and the concept change. It was proposed also to use a t-test of difference of means between source change and concept change separately for the high and the low incongruity conditions. The design of the

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<sup>19</sup> Bennett et al., ibid., p. 6-8.

study is shown in Figure 1. Similar designs were used separately for high and low incongruity condition data.

Separate analyses were used because the high incongruity group had more room to shift on the attitude scale, in the predicted direction, than had the low incongruity group. Therefore, any comparison of the two incongruity groups would be inappropriate.

In order to achieve proportionality, it was necessary to adjust the numbers in the cells so that the number of subjects in any particular level of assertive combination was the same for each experimental group in a particular incongruity condition. In case of the high incongruity condition, this was effected by dropping two subjects, one each randomly selected from the two cells in which the number was larger than that required for proportionality. For the low incongruity condition also, the same procedure was adopted to achieve proportionality. In the latter case, two subjects had to be dropped for the purpose. The number of subjects in each assertive combination, finally retained for analysis of data, is shown in Table IV.

All tests of significance were pre-set at the .05 level. It was proposed also to conduct any post hoc analyses by means of the Tukey test.

	Assertive Combina- tion 1	Assertive Combina- tion 2	Assertive Combina- tion 3	Assertive Combina- tion 4
High Intensity Copula (Gives 100% Support to)				
Medium Intensity Copula (Very much in favor of)				
Low Intensity Copula (Likes)				
Control				

Figure 1. Two Factor Analysis of Variance Design  
Used in the Study.

(Similar designs, each for the source change and the  
concept change scores, were used. Separate analyses were  
carried out for the high incongruity and the low incongruity  
conditions)

Table IV.-

Number of Subjects Finally Retained in each  
Source-Concept Combination (Assertive  
Combination) for Statistical Analysis of Data

METHOD AND DESIGN

Source-Concept Combination	Number of Subjects* in Experimental Groups				Total
	High Int.	Med. Int.	Low Int.	Control	
High Incongruity Condition					
1. Bobby Orr - Compulsory Military Training	7	7	7	7	28
2. Astronaut Neil Armstrong - U. S. Nuclear Tests	20	20	20	20	80
3. U. S. Senator Edward Kennedy - Ban on Rock Festivals	18	18	18	18	72
4. John Lennon - Restrictions on Drinking of Young People	7	7	7	7	28
Total for high incongruity condition	52	52	52	52	208
Low Incongruity Condition					
1. U. S. Senator Edward Kennedy - Ban on Rock Festivals	7	7	7	7	28
2. Health Minister Mr. Munro - Ban on Younger People Going to Adult Entertainment	22	22	22	22	88
3. John Lennon - Restrictions on Drinking of Young People	17	17	17	17	68
4. Premier William Davis - Imposition of School Regulations Regarding Hair, Clothes, etc.	6	6	6	6	24
Total for low incongruity condition	52	52	52	52	208

\* 48 subjects were common to both conditions of incongruity

It was proposed that, for the three treatment groups in each incongruity condition, a two way analysis of variance be done on the credibility scores to determine if differences in credibility existed among the treatment groups.

It was planned also to examine the responses to the General-Questions-Sheet with a view to locating subjects who had discerned the true purpose of the study.

Finally, it was intended to use DAT (VR+NA) scores to determine whether there was any correlation between intelligence and attitude change. It was planned to test the significance of this correlation by an F test. The procedure used was the one advocated by Dayton<sup>20</sup> in a discussion of the practical applicability of the analysis of covariance.

In this chapter, method and design of the study have been presented. The chapter started with a description of the preliminary selection of sources and concepts and the quantification of assertive copulas. This was followed by a discussion of the material and procedures involved in the pre-testing and the post-testing of the subjects. The chapter ended with a statement of the statistical procedures planned for the analysis of the research data.

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20 C. M. Dayton, The Design of Educational Experiments, New York, McGraw Hill, 1970, p. 313.

## CHAPTER III

### PRESENTATION OF RESULTS

This chapter presents data on reliability and validity of the two main questionnaires used in the study. This is followed by a description of the analyses of attitude change data. The chapter ends with a summary of the results.

#### 1. Reliability and Validity of the Semantic Differential Scales used in the Study

It is considered important for a research study to use reliable and valid tools of data collection. At the same time, the researcher should demonstrate the reliability and validity of the tools. The present study used two instruments constructed by the researcher. These were designed as the Source - Concept Selection Questionnaire and the Intensity of Copula Questionnaire. In addition to the data obtained through these instruments, subjects' scores on the Differential Aptitude Tests (DAT) VR+NA were taken from their school records. Pertinent information on the reliability of the two researcher-made questionnaires and the DAT mentioned above was also given in Chapter II. Information as regards the reliability and validity of the other two questionnaires incorporating the semantic differential scales used in the study is presented below.

In order to allow the calculation of a measure of reliability of the Pre-test Questionnaire, two items (one source and one concept), randomly selected from a total of twenty-four used in the pre-test were repeated. For these two items, test-retest correlations were calculated. Table V gives the values of the reliability coefficients thus obtained. The value of the reliability coefficients in both cases is high, and also statistically significant. This indicates the high level of consistency with which the subjects responded to the Pre-test Questionnaire.

In order to obtain an index of stability of responses of the subjects to the Post-test Questionnaire, two items randomly selected from the Pre-test Questionnaire were repeated in the Post-test Questionnaire. These items were not used in connection with any experimental treatment. For these two items, test-retest correlations were calculated. The values of these reliability coefficients are reported in Table VI.

Both coefficients of reliability are high and also statistically significant. This demonstrates the consistency with which the subjects approached the semantic differential scales in the Post-test Questionnaire. It shows also the high degree of stability of the subjects' attitudes over a period of four weeks.

To gauge the validity of factorial composition of the semantic differential scales used in the study, two items

Table V.-

Values of Test-Retest Reliability Coefficients  
obtained for the Source and the Concept  
repeated in the Pre-test Questionnaire  
(N = 411)

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Item	Test-Retest Reliability Coefficients
U. S. President Nixon	.887
U. S. Ownership of Canadian Industries	.913

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Table VI.-

Values of Test-Retest Reliability Coefficients  
obtained from the Source and the Concept  
selected from the Pre-Test Questionnaire and  
repeated in the Post-test Questionnaire  
(N = 398)

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Item	Test-Retest Reliability Coefficient
Foreign Minister Mitchell Sharp	.792
Restrictive divorce laws	.851

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(sources) were randomly selected from the twenty-four items used in the pre-test. A factor-analysis using the Centroid Method with orthogonal rotation was done on the responses of 411 subjects separately for each item. Table VII shows the summary of the results thus obtained.

The computer programme "BMD X 72 - Factor Analysis"<sup>1</sup> was used to extract the factors. In both cases, the extracting of factors beyond the fourth was stopped because this factor accounted for less than 2% of the total variance and appeared to be residual in either case. The first factor in both the cases is clearly identifiable to be "evaluation" because all the five evaluative scales, as designated by Osgood et al.,<sup>2</sup> have high loadings on it, while others do not. The first factor accounted for 48% of the variance in one case, and 57%, in the other. Hence, the five scales on which the collection and analysis of research data for the present study is based appear to hold their factorial composition to a great extent. Hence, they may be considered a valid measure of attitudes.

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1 W. J. Dixon, Ed., BMD Biomedical Computer Programmes, Berkeley, University of California Press, 1970, p. 90-103.

2 C. E. Osgood, G. J. Suci and P. H. Tannenbaum, The Measurement of Meaning, Urbana, Illinois University Press, 1957, p. 36.

Table VII.-

Rotated factor loadings on Nine Semantic  
Differential Scales, Obtained from the  
Responses to Two Sources  
(N = 411)

Scales	Source								
	Premier Davis				John Lennon				
		Factor					Factor		
	I	II	III	IV	I	II	III	IV	
Evaluation:									
Good-Bad	-.606	.338	.394	-.075	-.629	.364	.325	.189	
Valuable-Worthless	-.603	.266	.437	-.067	-.517	.482	-.267	.208	
Pleasant-Unpleasant	-.707	.294	.231	.030	-.792	.294	-.204	-.000	
Fair-Unfair	-.604	.321	.111	.063	-.690	.254	-.317	.098	
Awful-Nice	-.747	.286	.224	.017	-.803	.240	-.291	.041	
Potency:									
Large-Small	-.348	.304	.350	.049	-.218	.627	-.177	.012	
Strong-Weak	-.369	.523	.345	.051	-.298	.607	-.432	.038	
Activity:									
Fast-Slow	-.271	.540	.211	.030	-.421	.457	-.550	.065	
Active-Passive	-.196	.562	.087	-.033	-.314	.300	-.558	.027	
Cum.Proportion of Total Variance	.479	.524	.537	.539	.569	.627	.646	.652	

## 2. Examination of Responses to the General-Questions Sheet

An examination of subjects' responses to the General-Questions Sheet showed that the subjects had enjoyed their participation in the present study for various reasons. These included "getting a chance to think about persons and issues in the news", "participation in the construction and validation of a useful testing instrument" and "getting a chance to come out of the classes". None of the subjects, however, mentioned that the researcher had tried to change their attitudes.

## 3. Intelligence and Attitude Change

Product moment coefficients of correlation ( $r$ ) were computed between intelligence scores and source change scores and between intelligence and concept change scores for each condition of incongruity. The control group was excluded from this analysis because a change of attitude in this group was not expected. An F-ratio test was used to test the significance of the values thus obtained. The procedure used was the one advocated by Dayton<sup>3</sup> in a discussion of the practical applicability of the analysis of covariance. Values of  $r$ 's and F-ratios are given in Table VIII.

Values of all the  $r$ 's were very small and those of all the F-ratios were less than unity. Hence, no significant correlation was indicated between source change

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<sup>3</sup> C. M. Dayton, The Design of Educational Experiments, New York, McGraw Hill, 1970, p. 313.

Table XIII.-  
 Values of Product Moment Coefficients  
 of Correlation (r) between DAT (VR+NA)  
 Scores and Attitude Change Scores and  
 Values of F-ratios for Significance of  
 these Correlations in High and Low  
 Incongruity Conditions

	r*	F-ratio	Degrees of Freedom
High Incongruity:			
Source Change	-0.04	0.65	1,206
Concept Change	-0.07	0.85	1,206
Low Incongruity:			
Source Change	-0.06	0.27	1,206
Concept Change	-0.01	0.02	1,206

\* N = 208 for each group

and intelligence, and between concept change and intelligence. This was true for both conditions of incongruity.

#### 4. Credibility of Assertive Combinations

In order to investigate whether there were significant differences in the effects of various intensities of copula and in those of various assertive combinations on the credibility scores, a two way analysis of variance, using the credibility scores as criterion measure, was carried out separately on the high incongruity and the low incongruity data. Since the control group was not exposed to any experimental treatment, their credibility scores were not compatible with those of the treatment groups who had rated particular sources and concepts in the light of particular assertive combinations. Hence, in each incongruity condition, the analysis was based on the data of the three treatment groups only. The results of these analyses are presented in Tables IX and X.

These results indicate that in the high incongruity condition, interaction between intensity of copula and assertive combinations was significant at the .05 level. Neither of the main effects was significant. In the low incongruity condition, the only significant result was the main effects due to assertive combinations. In neither case were significant differences found in credibility scores when intensity of copula was the independent variable.

Table IX.-

Analysis of Variance Table for  
Credibility Scores of the  
Three Treatment Groups in  
High Incongruity Condition

Source of Variation	df	SS	MS	F
Intensity of Copula (I)	2	3.44	1.72	0.58
Assertive Combinations ( $\Lambda$ )	3	4.75	1.58	0.54
Intensity of Copula x Assertive Combinations ( $I \times \Lambda$ )	6	49.55	8.26	2.78*
E:IA	144	425.01	2.95	

\* Significant at the .05 level

Table X.-

Analysis of Variance Table for  
Credibility Scores of the  
Three Treatment Groups in  
Low Incongruity Condition

Source of Variation	df	SS	MS	F
Intensity of Copula (I)	2	8.17	4.09	1.30
Assertive Combinations (A)	3	35.32	11.77	3.74*
Intensity of Copula x Assertive Combinations (IxA)	6	26.64	4.44	1.41
R:IA	144	452.87	3.14	

\* Significant at the .05 level

### 5. Testing the Hypotheses

In the present research, the variables of primary interest were the intensity of assertive copula, and the source - concept change. Three levels of intensity of assertive copula -- high, medium and low -- were used. The experimental groups under each of the two incongruity conditions -- high incongruity and low incongruity -- were, high intensity copula group, medium intensity copula group, low intensity copula group, and the control group. It was predicted that, in both conditions of incongruity, the amount of attitude change produced by the low intensity assertive copulas will be greater than that produced by either medium intensity or high intensity assertive copulas. In the case of source - concept change, it was predicted that the concept changes will be larger than the source changes in each incongruity condition.

In each case of incongruity, the research hypotheses were stated in their null form.

#### Hypothesis 1.

There is no significant difference between the mean concept change produced by one level of intensity of copula and that produced by any other level.

#### Hypothesis 2.

There is no significant difference between the mean source change produced by any level of intensity of copula and that produced by any other level.

### Hypothesis 3.

There is no significant difference between the mean source change and the mean concept change.

Mean attitude changes for the various subgroups in each condition of incongruity are shown in Tables XI and XII.

For each incongruity condition separately, two factor analysis of variance on source change scores and concept change scores was carried out. The results of these analyses are given in Tables XIII and XIV.

These results indicate that the main effects due to intensity of copula were not significant at the .05 level for concept change in either condition of incongruity. Thus hypothesis 1 was not rejected. Various assertive combinations were found to be affecting the concept change differently in both conditions of incongruity.

In both conditions of incongruity, the main effects due to intensity of copula with regard to source change were found to be significant at the .05 level. In each case, however, hypothesis 2 was independent of the control group. It was necessary, therefore, before making a decision about the hypothesis, to locate significant differences between the source change means.

Table XI.-  
Mean Attitude Change for Various  
Subgroups in High Incongruity Condition

Subgroup		Assertive Combinations*				Subgroup Grand Mean (All Assertive Combinations)
		1	2	3	4	
High Intensity	Concept	5.42	4.75	2.05	5.85	4.06
	Source	9.42	9.70	14.50	10.85	11.48
	Combined	7.42	7.23	8.27	8.35	7.77
Medium Intensity	Concept	6.42	4.90	0.61	5.00	3.63
	Source	14.57	10.15	13.94	14.28	12.35
	Combined	10.50	7.52	6.88	9.64	7.99
Low Intensity	Concept	9.57	5.75	2.72	3.42	4.90
	Source	3.85	9.80	13.29	9.71	9.94
	Combined	6.71	7.77	7.63	6.57	7.44
Control	Concept	2.42	2.32	2.72	0.28	2.19
	Source	0.85	2.62	3.29	2.57	2.54
	Combined	1.67	2.45	2.91	1.42	2.32
Subgroup Grand Mean (All experi- mental groups)	Concept	5.96	4.42	2.02	3.64	3.70
	Source	7.17	8.06	10.83	9.35	9.08
	Combined	6.57	6.24	6.43	6.55	6.39

\* In each experimental group N's for assertive combinations 1, 2, 3 and 4 are 7, 20, 18 and 7, respectively.

Table XII.-

Mean Attitude Change for Various  
Subgroups in Low Incongruity Condition

Subgroup		Assertive Combinations*				Subgroup Grand Mean (All Assertive Combinations)
		1	2	3	4	
High Intensity	Concept	0.28	0.40	4.76	0.16	1.79
	Source	3.85	7.22	4.41	6.50	5.77
	Combined	2.07	3.81	4.58	3.33	3.78
Medium Intensity	Concept	1.14	2.95	1.58	-1.50	1.75
	Source	8.57	5.09	6.52	5.00	6.02
	Combined	4.86	4.02	4.05	1.75	3.88
Low Intensity	Concept	-2.14	-1.72	2.52	0.33	-0.15
	Source	3.85	4.45	6.05	10.16	5.52
	Combined	0.86	1.36	4.29	5.25	2.70
Control	Concept	2.14	-1.04	1.41	1.66	0.50
	Source	0.57	-1.40	0.76	1.16	-0.13
	Combined	1.36	-1.22	1.08	1.41	0.18
Subgroup Grand Mean (All experi- mental groups)	Concept	0.35	0.14	2.57	0.16	0.97
	Source	4.21	3.84	4.44	5.70	4.30
	Combined	2.28	1.99	3.50	2.93	2.64

\* In each experimental group, N's for assertive combinations 1, 2, 3 and 4 are 7, 22, 17 and 6, respectively.

Table XIII.-

Results of Analyses of Variance on the  
 Concept and Source Change Scores for the  
 High Incongruity Group (N = 208)

Source of Variation	df	SS	MS	F
Concept Change:				
Intensity of Copula (I)	3	200.438	66.812	2.508
Assertive Combinations (A)	3	387.031	129.010	4.843*
Intensity of Copula x Assertive Combinations (IxA)	9	293.648	32.628	1.225
R:AI	192	5114.802	26.640	
Source Change:				
Intensity of Copula (I)	3	3118.269	1039.423	16.722*
Assertive Combinations (A)	3	407.546	135.849	2.185
Intensity of Copula x Assertive Combinations (IxA)	9	430.410	47.823	0.769
R:AI	192	11934.544	62.159	

\* Significant at the .05 level

Table XIV.-

Results of Analyses of Variance on the  
 Concept and Source Change Scores for the  
 Low Incongruity Group (N = 208)

Source of Variation	df	SS	MS	F
Concept Change:				
Intensity of Copula (I)	3	143.635	47.878	1.481
Assertive Combinations (A)	3	260.3531	86.784	2.684*
Intensity of Copula x Assertive Combinations (IxA)	9	361.719	40.191	1.284
R:AI	192	6208.120	31.395	
Source Change:				
Intensity of Copula (I)	3	1370.822	456.941	12.296*
Assertive Combinations (A)	3	67.708	22.569	0.607
Intensity of Copula x Assertive Combinations (IxA)	9	356.271	39.586	1.065
R:AI	192	7135.117	37.162	

\* Significant at the .05 level

The Tukey test was used for this purpose. The results are given in Tables XV and XVI. The results indicate that none of the treatment group means was significantly different from any other. This was true in both incongruity conditions. Hence hypothesis 2 could not be rejected for either condition of incongruity. Each treatment group mean, however, was found to be significantly different from the control group mean in each incongruity condition.

To test whether significant differences existed between mean source change and mean concept change, a t-test for correlated groups was used separately on high incongruity and low incongruity data. Since no attitude change was expected in the control group, the latter was excluded from this analysis. Table XVII shows the values of t, thus obtained. Both these values were found significant at the .05 level, indicating significant differences in mean source change and mean concept change in each condition of incongruity. Thus, hypothesis 3 was not supported. An inspection of the means, however, revealed that the mean concept change was less than the mean source change. Hence, the prediction that the concept changes would be greater than the source changes could not be supported.

Table XV.-

Values of Studentized Range Statistic (q)  
for Source Change in High Incongruity Condition,  
Derived by the Tukey Test

Groups Contrasted <sup>a</sup>		Value of q
High Intensity (11.48) <sup>b</sup>	- Medium Intensity (12.35)	-0.796
High Intensity (11.48)	- Low Intensity (9.94)	1.399
High Intensity (11.48)	- Control (2.52)	8.159*
Medium Intensity (12.35)	- Low Intensity (9.94)	2.195
Medium Intensity (12.35)	- Control (2.52)	8.954*
Low Intensity (9.94)	- Control (2.52)	6.759*

\* Significant at the .05 level

a N = 52 in each group

b Values in parentheses refer to mean source  
change for appropriate groups

Table XVI.-

Values of Studentized Range Statistic (q)  
for Source Change in Low Incongruity Condition,  
Derived by the Tukey Test

Groups Contrasted <sup>a</sup>		Value of q
High Intensity (5.77)	- Medium Intensity (6.02)	-0.296
High Intensity (5.77)	- Low Intensity (5.56)	0.248
High Intensity (5.77)	- Control (-0.13)	6.979*
Medium Intensity (6.02)	- Low Intensity (5.56)	0.544
Medium Intensity (6.02)	- Control (-0.13)	7.275*
Low Intensity (5.56)	- Control (-0.13)	6.731*

\* Significant at the .05 level

a N = 52 in each group

b Values in parentheses refer to mean source  
change for appropriate groups

Table XVII.-  
 Mean Source Change and Mean Concept Change  
 for the Three Treatment Groups in  
 High and Low Incongruity Conditions,  
 and Values of t for Significance  
 of Difference in these Means

Incongruity Condition	Source Change		Concept Change		Value of t
	Mean	SD	Mean	SD	
High	11.26	8.89	4.20	5.79	7.38*
Low	5.78	6.54	1.13	6.10	5.77*

\* Significant at the .05 level; df = 155 in each case

## 6. Calculation of Assertion Constant

It was predicted that the concept will change more than the source in both conditions of incongruity. But, in both conditions of incongruity, the source change was found to be significantly different from and larger than the concept change. An index of the magnitude of this difference, the assertion constant, was calculated, using the method of Osgood and Tannenbaum.<sup>4</sup> Since no attitude change had been predicted for the control groups, the data of only the treatment groups was used for this purpose. The values of assertion constants thus obtained are presented in Table XVIII.

The results of the analysis of research data presented in this chapter are summarized below.

- (i) Different levels of intensity of copula had no significantly different effects on source change or concept change in either condition of incongruity.
- (ii) Mean source change was found to be significantly different from and larger than the mean concept change within each incongruity condition.
- (iii) The control group mean source change was found to be significantly different from and less than each experimental group mean in both conditions of incongruity.

Table XVIII.-

Values of Assertion Constant for  
High and Low Incongruity Conditions

Incongruity Condition	Value of Assertion Constant*
High	1.35
Low	0.93

\* These values are in favor of source change

- (iv) The concept change was found to be differently affected by the different assertive combinations in both incongruity conditions.

A discussion of these results is presented in the next chapter.

## CHAPTER IV

### DISCUSSION OF RESULTS

The results reported in the preceding chapter suggest a number of theoretical implications and possibilities for future research. While it is not entirely possible to separate discussion of the results into discrete categories, the discussion will be taken up in two major sections corresponding to the two research hypotheses.

#### 1. Intensity of Assertive Copula

Separate analyses were performed on source change and concept change data. The results of these analyses (as shown in Tables XIII and XIV) indicate that in neither condition of incongruity was the concept change differently affected by the different levels of intensity of copula. The intensity of copula, however, had produced an overall significant source change. Results of the post hoc Tukey test on the source change data (as shown in Tables XV and XVI) indicated that the high, medium and low intensity copulas were not significantly different from each other in their effects on source change. However, the mean source change for each of these groups was significantly different from and larger than the mean source change for the control group, in each incongruity condition.

The first research hypothesis of the study could not be upheld for either condition of incongruity. Therefore, it can be speculated with some support that with other factors equal, in situations of incongruity, the use of high, medium or low intensity copulas will not significantly and differently influence the amount of attitude change toward the source or the concept.

The results of the study are consistent with the findings of the study conducted by McEwen and Greenberg.<sup>1</sup> The present study used incongruity situations similar to those used by McEwen and Greenberg. The difference, however, lay in the fact that, while McEwen and Greenberg used dissociative copulas of high and low intensities, the present study used associative copulas varied on high, medium and low intensity.

The results of both these studies, support the contention that, other things being equal in situations of incongruity, the use of copulas of different intensities will not produce different amounts of attitude change.

Further support to the findings of the present study is provided by Bettinghaus,<sup>2</sup> who found no significant

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<sup>1</sup> W. J. McEwen and B. S. Greenberg, "Effects of Communication Assertion Intensity", The Journal of Communication, 1969 19, p. 257-265.

<sup>2</sup> E. R. Bettinghaus, "The Operation of Congruity in an Oral Communication Situation", Speech Monographs, 1961, XXVIII, p. 131-142.

differences in attitude change due to different levels of intensity of copula.

These results can be considered partially consistent with Bowers' findings<sup>3</sup> if effective-ineffective delivery and strong-weak treatment of the concept used by him are accepted as factors contributing to the variable of intensity of copula. Bowers' findings of no significant differences between attitude changes due to high and low intensity speeches, in the "pro" speech situations, support the findings of the present study. However, in the "anti speech" situations, Bowers reported that the low intensity speech produced significantly larger attitude change than did the high intensity speech. This finding seems to contradict the findings of the present study. Yet due to the fact that Bowers' finding is based on the use of dis-associative copula while the present study used associative copula, the contradiction in the two findings loses much of its force.

The findings of the present study are further inconsistent with findings of McCarrey.<sup>4</sup> Whereas McCarrey

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3 J. W. Bowers, "Language Intensity, Social Introversion, and Attitude Change", Speech Monographs, 1963, XXX, p. 345-352.

4 M. W. McCarrey, Intensity of Assertion and the Congruity Principle, unpublished Master's Thesis, Faculty of Psychology and Education, University of Ottawa, 1967.

reported significant differences in mean concept change due to low intensity copula and high intensity copula, and between low intensity copula and medium intensity copula, such effects were not obtained in the present study. McCarrey's use of high positive sources and relatively neutral concepts, as compared with those used in the present study, might provide an explanation for the difference in the findings of these studies. This interpretation is supported by Carson<sup>5</sup> who reported that neutral concepts, as a result of their linkage with high positive sources were susceptible to greater attitude change than concepts evaluated as high positive or high negative.

Another possible reason for McCarrey's obtaining significant differences between attitude changes due to high and low intensity of copulas and also between attitude changes due to medium and low intensity copulas as contrasted with the results of the present study, may be his use of "is indifferent to" as the low intensity copula. This expression does not tell clearly whether the source was favorable or unfavorable toward the concept. It is plausible that the subjects' perceptions of this copula were either very close to neutral or slightly unfavorable. Thus, probably the difference between the intensity of this copula and either of the other two copulas

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5 E. R. Carson, "Attitude Change Through Modification of Attitude Structure", Journal of Abnormal and Social Psychology, 52, 2, 1956, p. 256-261.

was much larger than expected. This observation is further supported because McCarrey failed to find any significant difference between attitude changes accompanying high and medium intensity copulas. The difference between the perceived intensities of these two copulas possibly was as expected.

The findings of no difference in the effects of different levels of intensity of copula on attitude change are also inconsistent with the expectations of Osgood et al.<sup>6</sup> These authors expected that greater intensity of assertive copula would lead to greater attitude change.<sup>7</sup> Their contention could not be supported in the incongruous situations used in the present study.

The findings of the significant differences between the mean source change for each of the three treatment groups and the mean attitude change for the control group would appear to indicate that the subjects accepted the experimental assertive combinations as credible and hence changed their attitudes toward

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6 C. E. Osgood, G. J. Suci and P. H. Tannenbaum, The Measurement of Meaning, Urbana, University of Illinois Press, 1957, p. 216.

7 Ibid.

sources in the direction of congruity. However, the results of the post hoc procedures do not entirely support this interpretation. While the source changes for the treatment groups were each significantly greater than those for the control group, there was no significant difference between the mean concept change for the control group and that for any treatment group. This was true of both incongruity conditions.

The non-significance of differences in attitude change due to various levels of intensity of copula could result from a loss of credibility of assertive combinations on the part of the subjects for the high and medium intensity copulas. However, the possibility of the operation of such an effect in the present study is not supported. There were no significant differences in credibility scores when intensity of copula was the independent variable. This was true for both conditions of incongruity (see Tables IX and X).

One important result of analysis of credibility data was that in the high incongruity condition, there was a significant interaction between intensity of copula and assertive combinations. It suggests the possibility that the high, medium and low intensity copulas had different effects on the credibility of various assertive combinations.

In the low incongruity condition, credibility scores were found to be significantly different when assertive combinations were considered as the independent variable. This indicates that the subjects, while assuming the same intensity for each assertive combination, viewed the four assertive combinations with different levels of credibility. Since no reliability or validity of the credibility scale used in the study was established, these results can only be accepted with caution. Further research, using an instrument with established reliability and validity to measure credibility of assertive combinations is indicated.

The factor of contiguity of signs<sup>8</sup> (source and concept) of assertive combinations could be operative in a study such as the present one. In this case, it could have been responsible for the neutralization of effects of higher intensities of copulas. However, the contiguity of signs of each of the copulas, "gives 100% support to" and "very much in favor of" was different from that of the third copula "likes" used in the study. The finding of no significant differences in effects on attitude change due to either of the first two copulas mentioned above and the effects due to the third copula, does not support the above interpretation

Another explanation of the results, that different levels of intensity of copulas failed to produce significantly different attitude changes could be sought from the possible

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<sup>8</sup> Osgood et al., ibid., p. 212.

effects of intelligence on attitude change. However the non-significance of F values obtained to test the significance of correlation between intelligence and attitude change, as shown in Table VIII, does not seem to support this interpretation.

Another explanation of the results can be sought from subjects' personal involvement with the sources and concepts. It seems plausible that the subjects had greater personal involvement with the concepts as compared with their involvement with the sources. The subjects had little or no personal acquaintance with the sources. Hence the subjects' initial attitudes toward the sources were, possibly, based on the subjects' perception of the sources as having some form of identity of views on various topics. Thus, the subjects' involvement with the sources was, probably, based on the former's perception of the latter's personal involvement with various concepts.

The assertive combinations, used in the study, presented the sources as supporting concepts that the subjects themselves did not favor. It is plausible that, as a result of an exposure to these combinations, the subjects' initial perception of the sources was changed in the unfavorable direction and hence they rated the sources down as less favorable than before. At the same time, they did not change their attitudes towards the concepts appreciably.

Support to such an interpretation can be sought from a study conducted by Freedman<sup>9</sup> who concluded that high involvement theoretically expands the latitude of rejection and contracts the latitude of acceptance of persuasive communications.

It is suggested that the factor of subjects' involvement in the sources should be given due consideration in future studies on attitude change toward the source and the concept.

To conclude the section, it is indicated that the various levels of intensity of assertive copula do not produce different amounts of attitude change. This was true of both the high and the low incongruity conditions. Unless further evidence of the precise operation of the factor of intensity of assertive copula is brought forward by future research, it may not be possible to usefully incorporate this factor in making predictions of attitude change in situations of incongruity.

## 2, Comparison of Source Change with Concept Change

The difference between mean source change and mean concept change was found to be statistically significant at the .05 level. This was true of both conditions of incongruity.

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<sup>9</sup> J. Freedman, "Involvement, Discrepancy and Change", Journal of Abnormal and Social Psychology, 1964, 69, p. 290-295.

In the high incongruity condition, the mean source change of 9.08 units was significantly different from and larger than the mean concept change of 3.70 units. A similar trend was clearly evident from the results of the low incongruity condition. In this case, the mean source change of 4.30 units was found to be significantly different from and larger than the mean concept change of 0.97 units. Hence the second research hypothesis, that concept change will be larger than source change, was not upheld.

It is clear from the positive values of mean source change in both conditions of incongruity that the subjects' attitude toward the source changed in the direction of congruity. This supports the prediction of the congruity model, that as a result of a positive source's association with a negative concept, the source will lose in favorability.

However, in the present study, the finding of consistently larger mean source changes than mean concept changes in both conditions of incongruity is in direct contradiction with the results of the study conducted by Osgood and Tannenbaum.<sup>10</sup> Whereas Osgood and Tannenbaum reported concept changes to be consistently larger than source changes in situations predicting equal amounts of these changes, the

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<sup>10</sup> C. E. Osgood and P. H. Tannenbaum, "The Congruity Principle in the Prediction of Attitude Change", Psychological Review, 1955, 62, p. 42-55.

present study fails to confirm such results. The values of the mean difference between source change and concept change for each incongruity condition (as shown in Table XVIII) are much larger than that obtained by Osgood and Tannenbaum. Moreover, these values are in favor of source change.

One explanation of these results could be sought from the primacy-recency effect<sup>11</sup> in persuasion. The order of presentation of the persuasive assertions might have effects on the amount of attitude change.<sup>12</sup> The procedure, adopted in the present study, involved the rating of concepts in the first half of the Post-test Questionnaire, followed by the rating of sources in the second half of the booklet. It is plausible that the cumulative effect of exposure to incongruous assertive combinations produced greater derogation of the sources. A study using a random order of presentation of sources and concepts might provide an explanation.

Another explanation of these results can be sought from the possible differences in the subjects' personal

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11 H. Cromwell, "The Relative Effects on Audiences' Attitude of the Second Argumentative Speech of a Series", Speech Monographs, 1950, 17, p. 105-122.

12 C. I. Hovland, Ed., The Order of Presentation in Persuasion, New Haven, Yale University Press, 1957, p. 1-6.

involvement with the sources and the concepts. This possibility has already been discussed in the preceding section.

The findings of the present study are consistent with those of Bowers,<sup>13</sup> and Aggarwal,<sup>14</sup> who, in their respective studies, obtained greater source change than concept change. These studies, thus, provide a tangible support to the findings of the present study.

On the basis of results of analysis of variance, carried out separately on source change and concept change data, significant differences were noticed in the concept change when assertive combinations were considered as the independent variable. This was true of both conditions of incongruity. Source change was not found to be differently affected by different assertive combinations. The findings of significant differences in concept change due to various assertive combinations does not support the method of calculating the assertion constant by combining all assertive combinations as suggested and used by

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13 Bowers, op. cit.

14 Yash P. Aggarwal, A Critical Survey of the Consistency Theories of Attitude Change with Special Emphasis on the Congruity Theory, an unpublished Report, Faculty of Education, University of Ottawa, 1972.

Osgood and Tannenbaum.<sup>15</sup>

To conclude the section, the following observations of the study might be of interest to the users of assertion constant as a correction in the predictions of attitude change. First, the assertion constant may be in favor of source change rather than concept change. Secondly, the magnitude of the assertion constant may differ according to the magnitude of incongruity involved. Thirdly, the magnitude of the amount of concept change may differ from one assertive combination to another. Hence different values of assertion constant may be necessary for different assertive combinations.

These observations suggest that the assertion constant was not a constant in the correct sense of the word. It was rather a variable, the values of which are likely to vary from one situation to the other and maybe from one study to the other.

To conclude the discussion presented in this chapter, the study has demonstrated the following results. The variations in the intensity of assertive copula did not affect attitude change differentially. Source change was found to be significantly different from and larger than the concept change. This was true of both conditions of incongruity. Partial support

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15 Osgood and Tannenbaum, op. cit., p. 54.

for these results was forthcoming from the previous research. These results were viewed in the light of possible effects of various confounding factors. The factor of differences in subjects' personal involvement with sources and concepts was also considered. It was suggested that further research was needed to investigate the possible effects on attitude change, of differences in subjects' personal involvement in the sources.

The results of the study are such as to warrant caution in the choice of persuasive communications and information involving incongruity. In situations of incongruity, there is a possibility of the derogation of the source of communication. This further warrants extra caution in the selection of sources from the immediate educational environment of the students. It is suggested that sources with which the students have greater personal involvement may be used. These sources are likely to be more effective than those with which the level of students' personal involvement was much lower.

## SUMMARY AND CONCLUSIONS

The present study investigated two questions. The first question was whether variations in the intensity of assertive copulas would produce different amounts of attitude change. The second question was whether the recipient's attitude toward the concept of an assertive combination changed more than his attitude toward the linked source. Two types of incongruity situations were used. The high incongruity situations involved high positive sources associated with high negative concepts. The low incongruity situations had low positive sources associated with low negative concepts. The research population consisted of grade X and XI male students of three high schools administered by the Carleton County Board of Education.

Three levels of intensity of assertive copulas (high, medium and low) were established on the basis of scale values assigned, through the normalized rank method, to ten copulas ranked by a group of fifty-two subjects. The treatment material consisted of fabricated, although realistic appearing, news headings each varied on the intensity of assertive copula. The criterion measures were source change and concept change scores, based on the difference between the pre-test scores and the post-test scores taken on five evaluative scales of

the semantic differential. The number of subjects in each incongruity condition was 208. Measures of credibility of each assertive combination and measures of subjects' intelligence (DAT VR+NA) were also obtained.

For each incongruity condition, separate analyses of data were carried out by using a two factor analysis of variance on source change scores and concept change scores. A t-test of difference of means was used also. These tests were followed by various post hoc procedures.

The results showed that in neither condition of incongruity were the differences in attitude change due to high, medium and low intensity copulas, significant. This was true of source change as well as concept change. The mean source change was found to be significantly larger than the mean concept change in both conditions of incongruity. Hence the results of the analyses of research data did not provide support for either of the hypotheses of the study.

The possibility of the operation of incredibility of assertive combinations, subjects' intelligence and the contiguity of signs was considered. However, these did not explain the trend of the results obtained.

The significant differences between the mean source change and the mean concept change were further explained in

the light of the possible differences in subjects' personal involvement with the sources and the concepts.

The study concluded that, in situations of incongruity, other factors being equal, the use of high, medium and low intensity copulas may not significantly and differently influence the amount of attitude change toward the source or the concept. Another conclusion was that, in these situations, the source change would be significantly greater than the concept change.

Thus the study has demonstrated that, in situations of incongruity, intensity of assertive copula may not be a factor affecting attitude change toward the source or the concept. It has further shown that in these situations, source changes may be significantly larger than the concept changes.

It has been suggested that due consideration should be given to the factor of subjects' personal involvement with sources and concepts in future research on intensity of assertive copula and attitude change toward the source and the concept. How an exposure to persuasive communications of different intensities affects the subjects' perceptions of the source of the communication can also be investigated to gain further insights.

It was also observed that the assertion constant could not be legitimately called a constant. It was rather a variable whose values could differ from situation to situation, and would depend on many factors.

The implications of the findings of the study are such as to warrant caution in the choice of persuasive communications and information involving incongruity. In situations of incongruity, there is a possibility of the derogation of the source of communication. This further warrants extra caution in the selection of sources from the immediate educational environment of the students.

## BIBLIOGRAPHY

Bettinghaus, E., "The Operation of Congruity in an Oral Communication Situation", Speech Monographs, 1961, XXVIII, p. 131-142.

Bettinghaus tested the validity of congruity model in **an oral communication** situation. He confirmed that the subjects tended to shift their attitudes toward source and concept to more congruous positions. However, the study did not find any significant differences in attitude change due to variations in the intensity of assertions.

Bowers, J. W., "Language Intensity, Social Introversion, and Attitude Change", Speech Monographs, 1963, XXX, p. 345-352.

This is another attempt to test the validity of the congruity predictions in an oral communication situation. The study provides no support for these predictions. Bowers, however, found low intensity speeches to be more effective than high intensity speeches. He did not obtain any measures of intelligence of the subjects, or of credibility of the speeches used. His conclusion that an attempt to change attitudes presents a very complex situation involving several factors is an evidence of his failure to control for certain important variables.

Kerrick, J., "The Effect of Relevant and Non-Relevant Sources on Attitude Change", Journal of Social Psychology, 1958, 47, p. 15-20.

The study provided evidence that the congruity model was insufficient insofar as it does not include the variable of source-concept relevancy.

Kerrick, J., and McMillan, D., "The Effects of Instructional Set on the Measurement of Attitude Change through Communications", Journal of Social Psychology, 1961, 53, p. 113-120.

The study established the importance of keeping the subjects uninformed about the true purpose of the experiments in attitude change.

McCarrey, M. W., Intensity of Assertion and the Congruity Principle, unpublished Master's thesis, University of Ottawa, Faculty of Psychology and Education, 1967.

This study is of direct relevance to and a source of inspiration for the present study. The effects of intensity of assertive copula on attitude change were investigated. The study failed to incorporate such factors as the credibility of assertions, and subjects' intelligence. It was restricted to the situations involving highly favorable sources associated with relatively neutral concepts.

McEwen, W. J., and Greenberg, B. S., "Effects of Communication Assertion Intensity", The Journal of Communication, 1969, 19, p. 257-265

This study is, also, of keynote relevance to the present research. The authors observed greater congruity effects due to assertions involving highly favorable sources and concepts linked by copulas of high intensity. However, much of the weight of the findings of the study is lost because of the conceptual and methodological defects in the study.

Osgood, Charles E., Suci, George J., and Tannenbaum, Percy H., The Measurement of Meaning, Urbana, Illinois, the University of Illinois Press, 1957, vi-346 p.

This book presents a detailed discussion of the development of the congruity model and the semantic differential technique. It contains a great deal of data on the validity and reliability of the latter. Furthermore, suggestions as to the application of the semantic differential and the congruity model to various fields of research have been given. This book should be consulted by all those who wish to conduct a study using either the semantic differential or the congruity model.

Osgood, Charles E., and Tannenbaum, Percy H., "The Congruity Principle in the Prediction of Attitude Change", Psychological Review, 1955, 62, p. 42-55.

This article is based on the results of a doctoral study conducted by the second author. This study constitutes the first systematic effort to validate the congruity model. It provides support for the predictive power of the model. However, the study was not comprehensive enough to include various parametric conditions of the congruity model in its experimental design.

Snider, James G., and Osgood, Charles E., Eds., Semantic Differential Technique - A Sourcebook, Chicago, Aldine, 1969, xiv-682 p.

This book is an authoritative and systematic guide to the theoretical foundations and use of the semantic differential technique. The readings included in this first sourcebook on the subject provide basic studies of the origin, theoretical basis, methodology, validity, and specific uses of the technique. The exhaustive bibliography of more than 1400 entries adds to the usefulness of the book. This book will be an invaluable aid to everyone who is using or is interested in the uses of semantic differential as a vital scientific tool.

Tannenbaum, P. F., "Mediated Generalization of Attitude Change Via the Principle of Congruity", Journal of Personality and Social Psychology, 1966, 3, p. 493-500.

This study is of value to the present research because of its findings of generalization of attitude change from the concept to the source and to another linked concept. The study is an attempt to place the congruity model in the general theory of generalization of attitude change.

APPENDIX 1

SOURCE-CONCEPT SELECTION  
QUESTIONNAIRE

PUBLIC OPINION QUESTIONNAIRE

The purpose of this questionnaire is to find out how a large number of persons, like yourselves, feel about some persons and topics of the day. The questionnaire asks you to rate the way you feel about these persons and topics by placing an X at that point on the line which best shows the way you feel about the particular item. You can answer in the following manner:

If your first impressions are that the item (the person or topic) is highly desirable in all respects, as far as you are concerned, mark an X at 'Highly Favor':

<u>X</u>	<u>Highly Favor</u>	<u>Favor</u>	<u>Slight-ly Favor</u>	<u>Neutral</u>	<u>Slight-ly Dis-approve</u>	<u>Dis-approve</u>	<u>Highly Dis-approve</u>
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If you feel that the item (the person or topic) is quite good or desirable in most aspects, as far as you are concerned, mark an X at 'Favor':

<u>Highly Favor</u>	<u>X</u> <u>Favor</u>	<u>Slight-ly Favor</u>	<u>Neutral</u>	<u>Slight-ly Dis-approve</u>	<u>Dis-approve</u>	<u>Highly Dis-approve</u>
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If you feel the item is only slightly good or a little bit desirable in your eyes, (but not neutral) you should place your X at 'Slightly Favor':

<u>Highly Favor</u>	<u>Favor</u>	<u>X</u> <u>Slight-ly Favor</u>	<u>Neutral</u>	<u>Slight-ly Dis-approve</u>	<u>Dis-approve</u>	<u>Highly Dis-approve</u>
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If you feel indifferent or really couldn't care less one way or the other about the person or topic, you should place your X at Neutral:

<u>Highly Favor</u>	<u>Favor</u>	<u>Slight-ly Favor</u>	<u>X</u> <u>Neutral</u>	<u>Slight-ly Dis-approve</u>	<u>Dis-approve</u>	<u>Highly Dis-approve</u>
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If you feel the item is a little bit unfavorable or slightly undesirable on the overall as far as you are concerned, mark at 'Slightly Disapprove':

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
				X		

On the other hand, if you feel the person or topic is quite wrong or rather undesirable on the overall, mark an X on 'Disapprove':

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
					X	

If you feel the person or topic to be highly undesirable and you highly disapprove of him or it, place your mark at 'Highly Disapprove':

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
						X

NOTE: About some of the items you may know very little-- nevertheless please try to decide whether your general feelings tend to be a tiny bit favorable or unfavorable.

Some other points to remember:

- (1) Never put more than one check-mark for each item.
- (2) Answer each of the questions-- do not omit any.

Sometimes you may feel as though you've had the same item before on the questionnaire. In any event, do not look back and forth through the items. Do not try to remember how you checked similar items earlier in the questionnaire. Make each item a separate and independent judgment. Please try to convey your own opinions -- what these items mean to you. Do not worry or puzzle over individual items. It is your first impressions, the immediate "feelings" about the items, that we want. On the other hand, please do not be careless, because we want your true impressions.

Your Name \_\_\_\_\_  
(Please Print)

Your Age \_\_\_\_\_

What is your overall evaluation of:

Parental Domination

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Communism

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Use of audio-visual aids in teaching

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Premier William Davis

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Premier Kosygin

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Nancy Greene

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Expenditure on U.S. Moon Launchings

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Term Examinations

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

External Affairs Minister Mitchell Sharp

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Ban on Student Strikes in Schools

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Compulsory Military Training

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Ban on Younger People Going to Adult Entertainments

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Shooting of Civilians in Ireland

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

LeDain Commission on Drugs

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Carleton Board of Education

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Angelo Mosca

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Cassius Clay

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Prince Charles of England

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Restrictions on the Use of Marijuana

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Russ Jackson

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Opposition Leader Mr. Stanfield

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

U.S. Nuclear Tests

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

The Ottawa Citizen

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Lowering of Voting Age

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Parental Domination

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Ban on Rock Festivals

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Federal Government as Employer

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Bobby Orr

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

U.S. President Nixon

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Sex Education in Schools

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Teaching of Mathematics in Schools

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Russ Jackson

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

The Beatles

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Governor General Michener

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
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What is your overall evaluation of:

Prime Minister Heath

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

U.S. Involvement in Vietnam

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Showing of Violence on T.V.

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Restrictions on the Use of Marijuana

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Canadian Singer Anne Murray

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Restrictions on Drinking of Young People

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Prince Phillip of England

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Cuban President Fidel Castro

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Astronaut Neil Armstrong

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Religious Teachings in Schools

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Imposition of School Regulations regarding Hair, Clothes, etc.

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Divorce Laws

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

U.S. Ownership of Canadian Industries

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Prime Minister Trudeau

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

U.S. Senator Edward Kennedy

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

U.S. - China Friendship

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Compulsory Attendance in Classes

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Football

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Premier William Davis

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

U.N. Recognition of China

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Angelo Mosca

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Restrictions on Drinking of Young People

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Health Minister Mr. Munro

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

T.V. Program "Mannix"

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

The Pope

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

"Dear Abby"

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

What is your overall evaluation of:

Divorce Laws

Highly Favor	Favor	Slightly Favor	Neutral	Slightly Disapprove	Disapprove	Highly Disapprove
--------------	-------	----------------	---------	---------------------	------------	-------------------

APPENDIX 2

AGGREGATE SCORES OF TWENTY-SEVEN CONCEPTS  
AND TWENTY-SEVEN SOURCES ON  
SOURCE-CONCEPT SELECTION QUESTIONNAIRE  
(N=53, MAX. POSSIBLE SCORE=371,  
MIN. POSSIBLE SCORE=53)

AGGREGATE SCORES OF TWENTY-SEVEN CONCEPTS ON  
SOURCE-CONCEPT SELECTION QUESTIONNAIRE  
(N=53, MAX.POSSIBLE SCORE=371,  
MIN. POSSIBLE SCORE=53)

Concepts	Aggregate Score
*1. U. S. Nuclear Tests	91
*2. U. S. Ownership of Canadian Industries	101
*3. Imposition of School Regulations regarding Hair, Clothes, etc.	120
*4. U. S. Involvement in Vietnam	129
*5. Ban on Younger People Going to Adult Entertainments	133
*6. Restrictions on drinking of Young People	134 (142) <sup>a</sup>
*7. Ban on Rock Festivals	138
*8. Compulsory Military Training	142
*9. Divorce Laws	142 (148)
*10. Religious teachings in Schools	146
11. Communism	160
12. U. S. China Friendship	171
13. Ban on Student Strikes in Schools	189
14. Compulsory Attendance in Classes	198
15. Showing of Violence on T.V.	202
16. Shooting of Civilians in Ireland	207
17. Term Examinations	213
18. Restrictions on the Use of Marijuana	221 (232)
19. Parental Domination	239 (230)
20. Expenditure on U. S. Moon Launchings	248
21. Lowering of Voting Age	265
22. T.V. Programme Mannix	275
23. Sex Education in Schools	278
24. U. N. Recognition of China	285
25. Teaching of Mathematics in Schools	298
26. Use of Audio-Visual aids in Teaching	320
27. Football	327

a Figures in parentheses indicate score on retesting of a particular item

\* Items selected for inclusion in the Pre-test Questionnaire.

AGGREGATE SCORES OF TWENTY-SEVEN SOURCES ON  
SOURCE-CONCEPT SELECTION QUESTIONNAIRE  
(N=53, MAX. POSSIBLE SCORE=371,  
MIN. POSSIBLE SCORE=53)

Sources	Aggregate Score
1. Dear Abby	183
2. Cuban President Fidel Castro	187
3. The Pope	195
4. Governor General Michener	201
5. Carlton Board of Education	202
6. Prime Minister Heath	202
7. Prince Charles of England	215
8. Premier Kosygin	216
9. Angelo Mosca	222 (215) <sup>a</sup>
10. LeDain Commission on Drugs	232
*11. Health Minister Mr. Munro	240
*12. U. S. President Nixon	242
*13. Premier William Davis	245 (232)
*14. External Affairs Minister Mitchell Sharp	246
*15. Opposition Leader Mr. Stanfield	247
16. Federal Government as Employer	249
*17. Prime Minister Trudeau	250
18. Prince Phillip of England	250
*19. Cassius Clay	258
*20. Bobby Orr	259
*21. Canadian Singer Anne Murray	260
*22. Astronaut Neil Armstrong	211
*23. U. S. Senator Edward Kennedy	262
*24. The Ottawa Citizen	268
25. Nancy Greene	275
*26. Russ Jackson	283 (289)
*27. John Lennon	289

a Figures in parentheses indicate score on retesting of a particular item

\* Items selected for inclusion in the Pre-test Questionnaire

APPENDIX 3

PRODUCT MOMENT COEFFICIENTS OF  
CORRELATION FOR THREE SOURCES AND  
FOUR CONCEPTS REPEATED IN THE  
SOURCE-CONCEPT SELECTION  
QUESTIONNAIRE  
(N=53)

PRODUCT MOMENT COEFFICIENTS OF  
CORRELATION FOR THREE SOURCES AND  
FOUR CONCEPTS REPEATED IN THE  
SOURCE-CONCEPT SELECTION  
QUESTIONNAIRE  
(N=53)

Sources and Concepts	Correlation
<b>Sources</b>	
1. Premier William Davis	.93*
2. Angelo Mosco	.88*
3. Russ Jackson	.98*
<b>Concepts</b>	
1. Restrictions on the Use of Marijuana	.92*
2. Parental Domination	.95*
3. Restrictions on Drinking of Young People	.83*
4. Divorce Laws	.98*

\* Significant at .05 level

APPENDIX 4

INTENSITY OF COPULA  
QUESTIONNAIRE

JUDGING STRENGTH OF STATEMENT

When a person expresses his feelings about some topics or another person, he will use words that convey either strong feelings or mild feelings. These statements may fall anywhere between very strong to very mild. The purpose of this study is to get your ideas as to the relative strength of a number of such statements.

In the example given below, there are three different statements showing person A's feelings about topic B. We want to rank them from 1 to 3 according to the strength of expression of each statement giving a rank of 1 to the statement we feel expresses the strongest feelings, a rank of 3 to the statement that we feel expresses the mildest feelings and a rank of 2 to the one that seems to fall between these two. Now let us try:

In ranking the following three statements

- A favors B
- A is aware of B
- A completely supports B

If one felt the statement 'A completely supports B' shows stronger feelings than either 'A favors B' or 'A is aware of B', then he should rank it first by placing the number 1 beside that statement. Also if he felt 'A favors B' is a stronger statement than 'A is aware of B' then he should rank 'A favors B' second by placing a 2 beside it and rank 'A is aware of B' third by putting a 3 beside it. On completion of the ranks, the arrangement would look like this:

- 2 A favors B
- 3 A is aware of B
- 1 A completely supports B

As a trial-run rank the following statements in terms of the strength of feelings that each shows. Since there are four statements,

there will be four ranks, i.e. 1 to 4.

Be sure to look at all the statements before you begin to rank them. When you are sure of the ranks of all the sentences mark your numerals clearly just to the left of the sentence.

- A defends B
- A likes B
- A completely supports B
- A notices B

Now turn over to rank another list of statements.

In the following, be sure you rank every statement — do not omit any. Since there are ten statements, the ranks would be from 1 to 10.

For convenience in ranking, you may follow these steps:

1. Read through the entire list and select the statement that you consider expresses the strongest feelings; give it a rank of 1. Now select the mildest one and write a 10 beside it.
2. From the remaining eight statements, select the strongest and write a 2 beside it and put a 9 beside the one that you consider to be the mildest of these eight statements.
3. Now you are left with six statements. Again select the strongest out of this list and put a 3 beside it and an 8 beside the mildest of this group.
4. Now from the remaining four statements again select the strongest one and write a 4 beside it. Select the mildest of the four and put a 7 beside it.
5. Now from the remaining two, put a 5 beside the stronger of the two and a 6 beside the milder one.

If you are not sure just how to base your judgment, feel free to re-read the instructions.

Rank the following statements in terms of strength of feelings each shows: (If you wish to change the ranks you may erase and rewrite)

- A gives 100% support to B
- A likes B
- A defends B
- A fully supports B
- A absolutely and totally supports B
- A slightly supports B
- A supports B
- A is aware of B
- A favors B
- A is very much in favor of B

APPENDIX 5

EXPERIMENTAL AND FILLER SCALES  
OF THE SEMANTIC DIFFERENTIAL  
USED IN THE STUDY, WITH  
THEIR FACTOR LOADINGS

EXPERIMENTAL AND FILLER SCALES  
OF THE SEMANTIC DIFFERENTIAL  
USED IN THE STUDY, WITH  
THEIR FACTOR LOADINGS <sup>1</sup>

	Rotated Loadings on Factors*		
	Evaluation	Potency	Activity
Experimental Scales			
Evaluation:			
Good - Bad	.88	.05	.09
Nice - Awful	.87	-.08	.19
Valuable - Worthless	.79	.04	.13
Pleasant - Unpleasant	.82	-.05	.28
Fair - Unfair	.83	.08	-.07
Filler Scales			
Potency:			
Large - Small	.06	.62	.34
Strong - Weak	.19	.62	.20
Activity:			
Active - Passive	.14	.04	.59
Fast - Slow	.01	.00	.70

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<sup>1</sup> C. E. Osgood, G. J. Suci, and P. H. Tannenbaum, The Measurement of Meaning, Urbana, Illinois University Press, 1957, p. 37.

APPENDIX 6

PRE-TEST QUESTIONNAIRE

Name \_\_\_\_\_  
 Please print  
 Grade \_\_\_\_\_  
 Age \_\_\_\_\_

PUBLIC OPINION SURVEY I

The purpose of this study is two-fold -- to try to find out how students such as yourselves feel about certain issues and personalities in the news today, and secondly, to try out a novel instrument which we think can get at these feelings.

What you are asked to do is to judge a number of concepts (issues and personalities, etc.,) against a series of descriptive scales. There will be 26 such concepts to judge, and each will be judged against 9 scales. Thus, you will find at the top of each of the following pages the concept that is to be rated, and below it will be a series of 9 scales, each defined by a pair of adjectives. You will ALSO NOTE THAT EACH SCALE HAS SEVEN STEPS.

In order to illustrate how to use the scales and what each of the seven steps means, consider the following example:

Suppose you were asked to rate the concept of SMOKING and suppose further that one of the scales was

pleasing \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ annoying

Now, if you felt that the concept was very closely related to one end of the scale, you would check like this:

pleasing \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : X annoying

or

pleasing X : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ annoying

If you felt it was quite, but not very closely related, you would check like this:

pleasing \_\_\_\_\_ : X : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ annoying

OR

pleasing \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : X : \_\_\_\_\_ annoying

If you felt it was only slightly related to one side, you would check like this:

pleasing \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : X : \_\_\_\_\_ : \_\_\_\_\_ annoying

OR

pleasing \_\_\_\_\_ : \_\_\_\_\_ : X : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ annoying

If you felt it was equally related to both sides of the scale or if you felt it was completely unrelated, you would check like this:

pleasing \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ : X : \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ annoying

Some other important points to remember:

- (1) Never put more than one check-mark on each scale
- (2) Check each concept on every scale -- do not omit any
- (3) In making your check-marks, make sure they fall in the middle of the spaces and not on the boundaries between spaces:

THIS	NOT THIS
_____ : <u>X</u> : _____ : _____ : _____ : _____	_____ : _____ : _____ : _____ : <u>X</u> : _____

Sometimes you may feel as though you've had the same item before on the test. In any event do not look back and forth through the items. Do not try to remember how you checked similar items earlier in the test. Make each item a separate and independent judgment. Please try to convey your own opinions-- what these items mean to you. Do not worry or puzzle over individual items. It is your first impressions, the immediate "feelings" about the items, that we want. On the other hand, please do not be careless, because we want your true impressions.





















































APPENDIX 7

TAPED MESSAGE PLAYED TO THE  
SUBJECTS AT THE TIME OF  
PRE-TESTING

TAPED MESSAGE PLAYED TO THE SUBJECTS AT THE  
TIME OF PRE-TESTING

Good morning. Thank you very much for being here this morning. I am Yash Aggarwal, completing my doctorate in Education at the University of Ottawa. Without your cooperation, I will not be able to carry out my research. This is the reason of my being here this morning. You will be given one questionnaire and your answers will help me in completing my research. It is not a test of intelligence nor a test of your performance in any Course. There are no right or wrong answers. This is part of an opinion survey we are conducting in some of the schools of Carleton.

I wish to assure you that the results will be kept confidential and none of the participants in this survey will be identified in any report. We will now hand out the questionnaire to you and when everyone has a copy, I will read the instructions with you. But first, when you receive a copy of the questionnaire, please complete the information at the top of the page. Fill in your name, grade and age.

(Short break)

Now I will read the instructions with you.

(Reading of the instructions)

Now please turn over and begin.

APPENDIX 8

FREQUENCY DISTRIBUTION OF PRE-TEST ATTITUDE  
SCORES FOR FIFTEEN SOURCES AND  
ELEVEN CONCEPTS  
(N=411)

FREQUENCY DISTRIBUTION OF PRE-TEST ATTITUDE  
SCORES FOR FIFTEEN SOURCES AND  
ELEVEN CONCEPTS  
(N = 411)

Sources	Scores						
	5-10	11	12-17	18-22	23-28	29	30-35
1. Astronaut Neil Armstrong	0	0	13	22	152	23	201
2. Russ Jackson	17	1	22	46	122	20	183
*3. U. S. President Nixon	55	5	60	101	124	13	53
4. The Ottawa Citizen	11	2	19	69	179	31	100
5. Anne Murray	6	5	15	42	122	39	182
6. John Lennon	13	4	29	63	171	20	110
7. U.S. President Nixon	54	9	61	89	135	14	51
8. Prime Minister Trudeau	40	3	35	61	121	23	128
9. U.S. Senator Edward Kennedy	7	2	25	79	132	19	147
**10. Foreign Minister Mitchell Sharp	16	2	24	165	123	17	64
11. Bobby Orr	22	2	13	56	105	30	183
12. Opposition Leader Mr. Stanfield	36	12	47	84	153	12	67
13. Cassius Clay	33	4	43	104	116	19	92
14. Premier William Davis	26	2	27	76	132	15	133
15. Health Minister Mr. Munro	13	4	22	88	208	17	59
Concepts							
1. Restrictions on Drinking of Young People	73	1	100	83	117	9	28
**2. Restrictive Divorce laws	47	9	101	145	92	8	9
3. U.S. Involvement in Vietnam	232	23	72	56	21	5	2
*4. U.S. Ownership of Canadian Industries	182	35	110	55	22	1	6
5. Imposition of school regulations regarding hair, clothes, etc.	141	20	90	66	61	7	26
6. Ban on Younger people going to adult entertainments	151	15	147	54	35	1	8

FREQUENCY DISTRIBUTION OF PRE-TEST ATTITUDE  
SCORES FOR FIFTEEN SOURCES AND  
FLEVEN CONCEPTS  
(N = 411)  
(CONTINUED)

Concepts	Scores						
	5-10	11	12-17	18-22	23-28	29	30-35
7. U.S. Nuclear tests	241	15	67	53	29	3	3
8. Ban on rock festivals	192	2	87	63	40	4	22
9. Religious teachings in schools	118	22	88	102	52	3	26
10. Compulsory military training	141	20	78	87	62	5	18
11. U.S. ownership of Canadian industries	203	20	105	57	21	1	4

- \* Items repeated in the Pre-test Questionnaire  
\*\* Items repeated in the Post-test Questionnaire

## APPENDIX 9

### POST-TEST QUESTIONNAIRE

The Post-test booklet for a subject placed in high intensity copula group of the high incongruity condition is included in this appendix. Immediately following the booklet are

- (i) a blank sheet separating the booklet from (ii) below,
- (ii) two sheets depicting the use of medium intensity copula for the high incongruity condition,
- (iii) a blank sheet separating (ii) from (iv),
- (iv) two sheets depicting the use of low intensity copula for the high incongruity condition,
- (v) a blank sheet separating (iv) from (vi), and
- (vi) two sheets for the control group in the high incongruity condition.







































APPENDIX 10

TAPED MESSAGE PLAYED TO THE  
SUBJECTS AT THE TIME OF  
POST-TESTING

## APPENDIX 10

TAPED MESSAGE PLAYED TO THE SUBJECTS AT THE  
TIME OF POST-TESTING

Good morning! I am Yash Aggarwal from the University of Ottawa. I would like to thank you for your cooperation when I was here in January. Thanks to you, I was successful in the first phase of my study. Today, with your cooperation, we will conduct the final phase of this study. You will be given two questionnaires to answer. These are not tests of intelligence nor tests of your performance in any school subject. There are no right or wrong answers. Once again, I wish to assure you that your answers to the questionnaires will be kept completely confidential and none of the participants, in this survey, will be identified in any report.

We will now hand out the first questionnaire. The copies have been grouped by forms and classes. Within these groups the copies have been arranged alphabetically by surname. From the bundle of questionnaires that the teacher nearest you has, please pick up the copy with your own name on it. When everybody has his copy I will read the instructions with you.

(Short break)

(Reading out of instructions from Public Opinion Survey II)

APPENDIX 10  
TAPED MESSAGE (CONTINUED)

211

When you have completed this questionnaire, please remain quietly in your place. The completed questionnaire will be collected. When everyone is finished, a second questionnaire will be distributed. Now please turn the page and begin.

(Completion and collection of the Public Opinion Survey II)

Now we are going to hand out the second questionnaire to you. The arrangement of the copies of this questionnaire is, as before, in alphabetic order by form or class. Please pick up the copy of the questionnaire with your name on it. When everybody has a copy, I will read the instructions with you.

(Short break)

(Reading out of instructions from Public Opinion Survey III)

When you have completed this questionnaire, please remain quietly in your seats.

Now please begin.

## APPENDIX 11

### CREDIBILITY SCALE AND GENERAL-QUESTIONS-SHEET

Presented in this appendix is a copy of the Credibility Scale and General-Questions-Sheet for a subject in a particular assertive combination of high intensity copula group of the high incongruity condition

Name \_\_\_\_\_

Grade \_\_\_\_\_

PUBLIC OPINION SURVEY III

The purpose of this questionnaire is to assess how people in general feel about the truth or falsity of the statements given below. These statements have been taken from the newspaper clippings and magazine articles over the past few years. By truth or falsity of a statement we mean to what extent you feel each of these statements was believable. You are to assess the overall believability of each statement as a whole and put an x at the point that best represents your opinion.

1. **Governor General Mitchener denounces the showing of violence on TV**  
OTTAWA (CP) – His Excellency the Governor General

Highly believable	Believable	Slightly believable	Not certain	Slightly unbelievable	Unbelievable	Highly unbelievable
----------------------	------------	------------------------	----------------	--------------------------	--------------	------------------------

2. **Prime Minister Heath condemns shooting of civilians in Ireland**  
LONDON, ENGLAND (CP) – British Prime Minister

Highly believable	Believable	Slightly believable	Not Certain	Slightly unbelievable	Unbelievable	Highly unbelievable
----------------------	------------	------------------------	----------------	--------------------------	--------------	------------------------

3. **Bobby Orr gives 100% support to compulsory military training**  
TORONTO (CP) – Bobby Orr while talking to students of

Highly unbelievable	Unbelievable	Slightly unbelievable	Not certain	Slightly believable	Believable	Highly believable
------------------------	--------------	--------------------------	----------------	------------------------	------------	----------------------

4. **Edward Kennedy gives 100% support to ban on rock festivals**  
BOSTON (CP) – Edward Kennedy in a news conference

Highly believable	Believable	Slightly believable	Not certain	Slightly unbelievable	Unbelievable	Highly Unbelievable
----------------------	------------	------------------------	----------------	--------------------------	--------------	------------------------

1. How did you enjoy your participation in this study?

2. What are some of your impressions about it?

(i)

(ii)

(iii)

APPENDIX 12

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

HIGH INCONGRUITY CONDITION

HIGH INTENSITY COPULA GROUP

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
a) Assertive Combination 1.-								
1	5	11	6	35	35	0	1	52
2	5	5	0	30	16	14	2	67
3	10	15	5	35	35	0	7	45
4	5	11	6	30	24	6	3	57
5	5	21	16	35	30	5	2	47
6	5	5	0	31	15	16	6	53
7	5	10	5	35	10	25	3	64
b) Assertive Combination 2.-								
8	5	23	18	35	35	0	5	50
9	10	9	-1	30	19	11	3	73
10	6	5	-1	32	15	17	3	78
11	7	5	-2	30	16	14	2	42
12	5	5	0	34	20	14	3	58
13	10	20	10	30	22	8	3	38
14	7	15	8	35	31	4	4	22
15	6	5	-1	30	16	14	3	47
16	5	16	11	31	25	6	3	34
17	6	10	4	34	33	1	6	39
18	8	5	-3	31	23	8	5	49
19	5	8	3	30	23	8	7	56
20	10	14	4	30	15	15	7	44
21	10	16	6	30	16	14	6	29
22	5	15	10	30	15	15	4	38
23	7	14	7	34	17	17	2	54
24	5	10	5	30	32	-2	2	44
25	5	19	14	30	25	5	3	43
26	5	5	0	33	20	13	5	49
27	10	13	3	31	19	12	3	49

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

HIGH INCONGRUITY CONDITION (CONTINUED)

HIGH INTENSITY COPULA GROUP (CONTINUED)

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
c) Assertive Combination 3.-								
28	5	5	0	31	9	22	2	37
29	7	5	-2	31	6	25	1	31
30	9	11	2	33	35	-2	1	53
31	5	5	0	35	5	30	1	35
32	6	12	6	35	10	25	3	32
33	8	5	-3	30	6	24	3	50
34	5	15	10	30	15	15	6	48
35	10	12	2	32	23	9	4	34
36	9	6	-3	33	18	15	2	29
37	7	15	8	31	15	16	3	53
38	7	6	-1	31	33	-2	1	56
39	5	6	1	30	32	-2	1	32
40	5	5	0	30	29	1	6	62
41	5	5	0	32	6	26	7	54
42	5	5	0	35	5	30	6	55
43	5	9	4	31	31	0	2	54
44	8	12	4	32	24	8	6	42
45	5	14	9	35	14	21	1	34
d) Assertive Combination 4.-								
46	7	5	-2	35	5	30	1	38
47	8	12	4	31	11	20	6	38
48	10	8	-2	35	18	17	5	44
49	10	16	6	30	30	0	5	55
50	5	10	5	30	22	8	4	44
51	9	29	20	32	35	-3	6	29
52	7	17	10	34	30	4	6	30

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

HIGH INCONGRUITY CONDITION (CONTINUED)

MEDIUM INTENSITY COPULA GROUP

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
a) Assertive Combination 1.-								
53	5	14	9	35	35	0	2	49
54	8	18	10	34	10	24	7	42
55	5	5	0	30	5	25	7	54
56	7	5	-2	30	20	10	5	46
57	5	5	0	30	9	21	6	71
58	5	11	6	32	10	22	6	1
59	6	28	22	31	31	0	3	63
b) Assertive Combination 2.-								
60	10	19	9	30	20	10	2	35
61	10	16	6	31	18	13	6	49
62	6	6	0	32	7	25	4	44
63	7	18	11	31	22	9	6	30
64	7	13	6	32	30	2	2	45
65	5	13	8	34	28	6	4	40
66	6	8	2	34	30	4	6	53
67	10	7	-3	33	32	1	4	42
68	10	9	-1	30	10	20	3	45
69	10	15	5	34	21	13	4	38
70	6	22	16	31	32	-1	6	53
71	5	11	6	31	12	19	5	73
72	5	10	5	33	15	18	5	15
73	5	13	8	30	27	3	2	33
74	5	16	11	32	30	2	1	58
75	9	14	5	34	15	19	5	52
76	9	15	6	31	29	2	3	69
77	10	8	-2	31	16	15	6	50
78	8	7	-1	31	28	3	3	57
79	7	8	1	34	14	20	5	38

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

HIGH INCONGRUITY CONDITION (CONTINUED)

MEDIUM INTENSITY COPULA GROUP (CONTINUED)

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
c) Assertive Combination 3.-								
80	10	7	-3	31	8	23	3	48
81	10	6	-4	29	22	7	2	62
82	10	15	5	35	24	11	4	37
83	5	5	0	35	5	30	3	29
84	10	6	-4	30	23	7	2	56
85	5	5	0	33	25	8	1	41
86	10	11	1	32	29	3	2	30
87	10	12	2	30	28	2	6	52
88	10	26	16	34	28	6	5	44
89	10	10	0	30	10	20	6	50
90	5	5	0	30	27	3	4	30
91	5	5	0	33	15	18	4	47
92	10	5	-5	30	23	7	6	64
93	5	5	0	33	5	28	6	55
94	5	5	0	35	13	22	6	44
95	5	10	5	32	14	18	5	52
96	10	6	-4	34	28	6	3	46
97	5	7	2	31	13	18	3	37
d) Assertive Combination 4.-								
98	12	15	3	30	17	13	2	36
99	10	14	4	32	11	21	6	35
100	9	19	10	30	18	12	2	39
101	10	9	-1	32	9	23	1	58
102	10	29	19	32	26	6	2	36
103	9	5	-4	33	29	4	2	58
104	5	9	4	30	9	21	2	39

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

HIGH INCONGRUITY CONDITION (CONTINUED)

LOW INTENSITY COPULA GROUP

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
a) Assertive Combination 1.-								
105	5	18	13	35	24	11	2	49
106	5	8	3	35	35	0	1	61
107	5	20	15	35	35	0	4	53
108	5	15	10	32	29	3	2	43
109	5	9	4	33	28	5	5	28
110	5	22	17	35	25	10	4	42
111	5	10	5	33	35	-2	4	61
b) Assertive Combination 2.-								
112	9	17	8	33	28	5	2	31
113	5	5	0	31	15	16	2	68
114	7	10	3	30	16	14	5	40
115	8	14	6	33	19	14	2	26
116	5	19	14	35	26	9	4	36
117	9	5	-4	31	30	1	3	46
118	5	10	5	34	28	6	5	33
119	5	5	0	33	17	16	5	38
120	6	20	14	31	23	8	4	39
121	10	12	2	31	24	7	5	37
122	9	12	3	30	30	0	2	54
123	7	15	8	33	28	5	4	51
124	6	15	9	30	19	11	2	52
125	8	11	3	30	21	9	4	1
126	8	13	5	33	14	19	5	69
127	10	19	9	30	25	5	1	76
128	6	6	0	33	27	6	3	73
129	5	5	0	30	5	25	2	55
130	5	28	23	32	20	12	6	77
131	9	16	7	32	24	8	4	60

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

HIGH INCONGRUITY CONDITION (CONTINUED)

LOW INTENSITY COPULA GROUP (CONTINUED)

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
c) Assertive Combination 3.-								
132	5	9	4	33	35	-2	3	26
133	10	15	5	32	30	2	2	45
134	8	8	0	35	25	10	3	58
135	10	14	4	30	26	4	3	48
136	7	6	-1	32	5	27	3	27
137	5	13	8	31	24	7	5	49
138	6	7	1	30	5	25	6	49
139	10	12	2	33	22	11	7	18
140	5	8	3	35	16	19	6	28
141	8	23	15	31	30	1	4	45
142	7	8	1	34	26	8	5	55
143	5	7	2	35	5	30	3	31
144	10	6	-4	30	24	6	1	38
145	5	5	0	35	5	30	3	56
146	5	5	0	34	32	2	5	42
147	5	9	4	31	9	22	6	38
148	10	15	5	31	15	16	6	75
149	10	10	0	32	24	8	5	68
d) Assertive Combination 4.-								
150	5	12	7	35	24	11	5	49
151	6	5	-1	35	35	0	2	22
152	10	5	-5	31	33	-2	1	42
153	10	13	3	32	14	18	1	57
154	5	5	0	31	16	15	4	46
155	10	25	15	33	29	4	4	27
156	5	10	5	33	11	22	3	50

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

HIGH INCONGRUITY CONDITION (CONTINUED)

CONTROL GROUP

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
a) Assertive Combination 1.-								
157	10	17	7	35	33	2		42
158	5	5	0	30	35	-5		41
159	5	12	7	35	29	6		52
160	7	10	3	30	24	6		45
161	5	5	0	31	35	-4		32
162	5	7	2	30	31	-1		39
163	7	5	-2	35	33	2		70
b) Assertive Combination 2.-								
164	10	11	1	31	34	-3		34
165	5	7	2	30	22	8		49
166	5	7	2	31	30	1		46
167	5	6	1	32	30	2		60
168	5	8	3	30	27	3		41
169	10	6	-4	33	34	-1		47
170	10	5	-5	30	29	1		46
171	10	8	-2	35	35	0		61
172	8	9	1	33	30	3		68
173	9	10	1	34	32	2		57
174	8	12	4	32	24	8		39
175	10	11	1	33	30	3		57
176	8	18	10	30	25	5		44
177	5	5	0	35	35	0		25
178	5	6	1	31	32	-1		45
179	5	7	2	30	31	-1		35
180	5	16	11	31	21	10		44
181	10	14	4	33	35	-2		35
182	6	18	12	30	18	12		40
183	5	6	1	34	32	2		41

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

HIGH INCONGRUITY CONDITION (CONTINUED)

CONTROL GROUP (CONTINUED)

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
c) Assertive Combination 3.-								
184	5	5	0	31	35	-4		53
185	5	5	0	33	31	2		28
186	10	14	4	30	30	0		57
187	6	6	0	33	32	1		53
188	5	15	10	30	26	4		57
189	10	18	8	30	23	7		41
190	5	5	0	31	24	7		58
191	7	8	1	30	26	4		55
192	5	7	2	35	30	5		50
193	5	6	1	34	31	3		50
194	10	7	3	33	34	-1		58
195	5	11	6	35	25	10		49
196	7	13	6	30	27	3		65
197	5	9	4	35	35	0		57
198	5	5	0	34	33	1		22
199	10	9	-1	31	30	1		60
200	5	8	3	35	29	6		62
201	5	7	2	32	25	7		59
d) Assertive Combination 4.-								
202	10	10	0	33	32	1		55
203	10	12	2	35	34	1		65
204	8	7	-1	35	32	3		48
205	9	11	2	31	28	3		45
206	10	12	2	32	29	3		46
207	8	7	-1	35	32	3		54
208	7	5	-2	33	29	4		44

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

LOW INCONGRUITY CONDITION

HIGH INTENSITY COPULA GROUP

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
a) Assertive Combination 1.-								
1	12	13	1	23	20	3	2	77
2	14	10	-4	25	19	6	2	58
3	12	13	1	27	15	12	1	40
4	16	15	-1	23	28	-5	5	48
5	15	19	4	24	25	-1	5	38
6	17	23	6	26	28	-2	5	55
7	13	8	-5	24	10	14	6	69
b) Assertive Combination 2.-								
8	15	12	-3	27	26	1	2	68
9	16	17	1	25	22	3	3	49
10	15	24	9	25	30	-5	6	50
11	14	14	0	28	30	-2	6	73
12	13	22	9	24	26	-2	6	48
13	16	12	-4	23	11	12	1	35
14	17	13	-4	25	22	3	3	38
15	15	21	6	28	25	3	2	32
16	12	16	4	28	18	10	2	49
17	18	9	-9	25	5	20	5	49
18	15	10	-5	27	9	18	3	63
19	15	12	-3	23	11	12	5	61
20	12	18	6	26	20	6	5	52
21	16	17	1	23	23	0	3	51
22	15	15	0	22	15	7	2	41
23	17	5	-12	23	5	18	6	42
24	16	16	0	23	13	10	4	46
25	12	15	3	28	14	14	1	72
26	17	34	17	28	20	8	3	45
27	17	8	-9	25	21	4	6	66
28	15	9	-6	23	8	15	5	38
29	16	21	5	25	21	4	5	75

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

LOW INCONGRUITY CONDITION(CONTINUED)

HIGH INTENSITY COPULA GROUP (CONTINUED)

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		

c) Assertive Combination 3.-

30	12	5	-7	25	20	5	1	59
31	17	20	3	26	25	1	3	61
32	12	22	10	26	12	14	5	61
33	12	17	5	25	24	1	2	55
34	17	23	6	24	27	-3	2	41
35	16	8	-8	25	16	9	1	49
36	12	28	16	24	28	-4	7	46
37	12	18	6	27	20	7	6	34
38	12	6	-6	25	15	10	4	53
39	14	26	12	23	31	-8	6	37
40	17	26	9	24	14	10	6	39
41	14	15	1	26	16	10	5	58
42	12	21	9	25	24	1	4	72
43	12	25	13	28	25	3	2	69
44	12	11	-1	27	17	10	1	34
45	13	18	5	26	21	5	1	69
46	16	24	8	22	18	4	3	77

d) Assertive Combination 4.-

47	16	17	1	23	15	8	2	37
48	14	10	-4	25	11	14	6	38
49	17	11	-6	28	25	3	6	65
50	15	18	3	25	20	5	5	64
51	12	9	-3	27	24	3	5	58
52	13	23	10	24	18	6	6	40

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

LOW INCONGRUITY CONDITION (CONTINUED)

MEDIUM INTENSITY COPULA GROUP

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
a) Assertive Combination 1.-								
53	17	19	2	26	24	2	3	46
54	15	13	-2	27	28	-1	2	59
55	17	26	9	24	12	12	6	35
56	16	15	-1	26	18	8	6	66
57	14	5	-9	28	5	23	5	68
58	17	21	4	24	16	8	5	68
59	17	22	5	26	18	8	5	38
b) Assertive Combination 2.-								
60	15	30	15	26	30	-4	7	31
61	17	21	4	26	30	-4	6	31
62	17	13	-4	23	15	8	6	47
63	15	20	5	27	21	6	4	40
64	15	24	9	26	24	2	5	36
65	12	13	1	29	26	3	4	51
66	14	18	4	26	22	4	4	73
67	17	23	6	23	22	1	6	82
68	12	16	4	23	16	7	5	41
69	12	5	-7	25	26	-1	1	32
70	12	19	7	24	23	1	3	50
71	12	18	6	28	21	7	4	55
72	13	11	-2	23	25	-2	5	44
73	16	11	-5	23	11	12	6	41
74	15	9	-6	28	8	20	3	62
75	13	18	5	22	19	3	7	10
76	14	20	6	26	14	12	7	55
77	14	18	4	27	10	17	2	54
78	14	19	5	24	18	6	6	29
79	13	17	4	23	23	0	5	64
80	12	16	4	28	16	12	4	68
81	17	17	0	28	26	2	2	52

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

LOW INCONGRUITY CONDITION (CONTINUED)

MEDIUM INTENSITY COPULA GROUP (CONTINUED)

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
c) Assertive Combination 3.-								
82	17	25	8	24	26	-2	4	26
83	17	16	-1	28	14	14	1	40
84	16	14	-2	28	10	18	5	52
85	13	11	-2	23	5	18	2	25
86	17	22	5	24	20	4	3	22
87	12	20	8	28	9	19	6	18
88	12	9	-3	23	21	2	7	47
89	12	11	-1	24	10	14	1	45
90	16	13	-3	28	13	15	7	45
91	14	16	2	26	27	-1	5	46
92	17	17	0	24	22	2	7	44
93	12	5	-7	28	31	-3	6	47
94	12	18	6	23	22	1	1	44
95	16	26	10	26	28	-2	3	61
96	17	14	-3	23	10	13	3	60
97	12	16	4	25	18	7	4	43
98	12	18	6	26	24	2	5	60
d) Assertive Combination 4.-								
99	15	19	4	23	21	2	2	27
100	16	5	-11	24	13	11	1	35
101	12	8	-4	25	22	3	6	64
102	13	11	-2	27	25	2	6	43
103	15	20	5	25	20	5	4	59
104	17	16	-1	25	18	7	5	32

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

LOW INCONGRUITY CONDITION (CONTINUED)

LOW INTENSITY COPULA GROUP

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
a) Assertive Combination 1.-								
105	17	13	-4	26	19	7	5	49
106	16	12	-4	28	24	4	5	46
107	17	11	-6	28	15	13	4	29
108	12	19	7	26	24	2	6	58
109	17	12	-5	26	22	4	7	51
110	15	17	2	28	20	8	4	56
111	14	9	-5	26	15	11	3	47
b) Assertive Combination 2.-								
112	17	15	-2	23	15	8	6	61
113	19	9	-10	24	20	4	5	37
114	12	21	9	24	23	1	1	68
115	14	16	2	24	18	6	6	26
116	17	14	-3	24	25	-1	4	38
117	12	11	-1	28	21	7	5	46
118	12	7	-5	26	14	12	2	56
119	14	5	-9	28	35	-7	5	30
120	12	10	-2	28	10	18	6	46
121	12	15	3	24	17	7	5	61
122	15	15	0	23	25	-2	6	61
123	16	10	-6	28	21	7	4	53
124	17	16	-1	23	20	3	4	46
125	12	9	-3	24	26	-2	4	57
126	12	5	-7	25	29	-4	7	57
127	14	11	-3	28	12	16	5	15
128	17	24	7	28	28	0	5	46
129	17	15	-2	25	15	10	5	58
130	15	12	-3	23	15	8	6	50
131	16	17	1	24	23	1	5	63
132	12	20	8	27	26	1	6	73
133	18	12	-6	25	20	5	5	41

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

LOW INCONGRUITY CONDITION (CONTINUED)

LOW INTENSITY COPULA GROUP (CONTINUED)

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
c) Assertive Combination 3.-								
134	12	26	14	25	18	7	3	31
135	15	20	5	28	21	7	5	37
136	12	28	16	23	30	-7	3	35
137	12	15	3	25	14	11	1	53
138	17	29	12	28	15	13	1	53
139	14	5	-9	28	15	13	1	49
140	12	18	6	23	15	8	6	18
141	13	9	-4	28	12	16	2	45
142	17	12	-5	28	28	0	4	53
143	16	21	5	27	29	-2	4	65
144	15	9	-6	24	25	-1	7	33
145	14	8	-6	26	8	18	1	22
146	17	23	6	24	21	3	3	58
147	13	16	3	23	20	3	1	67
148	17	25	8	28	16	12	2	46
149	17	10	-7	26	28	-2	1	55
150	17	19	2	24	20	4	4	53
d) Assertive Combination 4.-								
151	15	11	-4	27	13	14	5	44
152	15	15	0	27	15	12	6	48
153	12	16	4	28	18	10	2	44
154	15	22	7	24	15	9	5	46
155	16	13	-3	24	16	8	6	67
156	13	11	-2	24	16	8	7	62

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N-208)

LOW INCONGRUITY CONDITION (CONTINUED)

CONTROL GROUP

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
a) Assertive Combination 1.-								
157	15	10	-5	28	27	1		78
158	17	24	7	22	22	0		30
159	12	18	6	26	16	10		44
160	12	13	-1	23	23	0		35
161	14	15	-1	25	30	-5		39
162	12	18	6	24	26	-2		77
163	13	16	3	25	25	0		74
b) Assertive Combination 2.-								
164	17	12	-5	23	17	7		29
165	12	7	-5	25	23	2		48
166	12	8	-4	22	19	3		39
167	13	15	2	28	32	-4		28
168	13	11	-2	23	30	-7		51
169	16	13	-3	28	31	-3		48
170	12	9	-3	26	21	5		48
171	16	9	-7	23	22	1		58
172	12	9	-3	28	34	-6		30
173	13	14	1	23	25	-2		55
174	12	9	-3	25	31	-6		33
175	17	19	2	27	32	-5		39
176	17	24	7	26	27	-1		32
177	17	16	-1	27	35	-8		44
178	16	9	-7	27	27	0		29
179	16	19	3	27	25	2		52
180	14	15	1	28	34	-6		69
181	17	19	2	25	23	2		28
182	12	9	-3	26	30	-4		76
183	12	7	-5	23	27	-4		45
184	12	20	8	26	24	2		49
185	17	19	2	23	22	1		50

PRE-TEST ATTITUDE, POST-TEST ATTITUDE,  
ATTITUDE CHANGE, CREDIBILITY AND  
DAT (VR+NA) SCORES  
(N=208)

LOW INCONGRUITY CONDITION (CONTINUED)

CONTROL GROUP (CONTINUED)

Student Number	C o n c e p t			S o u r c e			Credi- bility	DAT VR+NA
	Pre- test	Post- test	Change	Pre- test	Post- test	Change		
c) Assertive Combination 3.-								
186	12	15	3	28	26	2		76
187	12	20	8	27	21	6		45
188	13	25	12	23	25	-2		45
189	13	13	0	23	25	-2		25
190	13	5	-8	23	23	0		47
191	17	15	-2	23	12	11		72
192	17	17	0	23	21	2		75
193	15	18	3	23	15	8		61
194	13	10	-3	28	25	3		54
195	12	6	-6	28	33	-5		53
196	17	16	-1	22	27	-5		65
197	15	11	-4	25	26	-1		62
198	16	15	4	25	29	-4		45
199	17	19	2	28	34	-6		44
200	14	20	6	23	20	3		71
201	12	20	8	25	24	1		46
202	13	15	2	25	23	2		44
d) Assertive Combination 4.-								
203	16	25	9	23	22	1		59
204	15	23	8	24	20	4		47
205	12	15	3	25	25	0		45
206	14	10	-4	27	27	0		50
207	16	15	-1	24	20	4		45
208	13	8	-5	23	25	-2		40

APPENDIX 13

ABSTRACT OF

Intensity of Assertive Copula,  
Incongruity and Attitude Change -  
a Test of Osgood's Model

APPENDIX 13

ABSTRACT OF

Intensity of Assertive Copula, Incongruity and  
Attitude Change - a Test of Osgood's Model.1

This study was carried out to investigate the effects on intensity of assertive copula on attitude change, and to attempt a comparison of the amounts of source change and concept change. High incongruity and low incongruity situations were used to investigate these questions.

The subjects were grade X and XI male students of three high schools administered by the Carleton County Board of Education. The procedure of the study involved three different stages. In the first stage, the preliminary selection of the sources and concepts, and the quantification of assertive copulas were made. In the second stage, a Pre-test Questionnaire incorporating evaluative scales of the semantic differential, was given to assess subjects' pre-test attitudes toward sources and concepts selected in the first stage of the study. In the third stage, the subjects were exposed to treatment material which consisted of fabricated news headlines each varied on intensity of copula. This was followed by the post-testing.

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1 Yash P. Aggarwal, doctoral thesis presented to the Faculty of Education of the University of Ottawa, 1972, x-234 p.

Analyses of attitude change data were performed using a two factor analysis of variance for source change and concept change scores. A t-test of mean difference was used also. These analyses were followed by Tukey tests.

The results indicated that there was no significant difference in the amount of attitude change produced by the high, medium and low intensity copulas. This was true for the source change and the concept change in both conditions of incongruity. Source change was found significantly different from and larger than the concept change.

The study demonstrated that in situations of incongruity, intensity of assertive copula would not affect attitude change toward the source and the concept. It was further indicated that in these situations, the recipients' attitude toward the source may change more than their attitude toward the concept.

These results were viewed in the light of the possibility of the operation of incredibility of assertive combinations, contiguity of signs, subjects' intelligence, and order effects. Differences in the magnitude of subjects' personal involvement with sources and concepts were presented as another possible explanation of the significant differences between source change and concept change.