



ATTITUDES TOWARDS AUTHORITY
AMONG TERTIARY STUDENTS IN SOUTH AUSTRALIA

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SUMMARY

This study has two primary aims: to determine the degree to which attitudes towards authorities are generalised among tertiary students over a range of authority figures; and, secondly, to examine two hypotheses that have been proposed regarding the relationship between attitudes towards authorities and supposedly relevant personality variables.

A variety of relevant attitude scales were developed using data obtained from students at the South Australian Institute of Technology (S.A.I.T.) and the University of Adelaide (U. of A.). The scales included five balanced or approximately balanced Likert-type scales to assess attitudes towards the police, the army, teachers, the law and symbolic authority; a special type of test, the Independence Scale, to assess attitudes towards the authority of graduating students; and a Likert-type scale to measure the extent to which students were prepared to support proposals involving social change (the Radicalism Scale). The Likert-type scales were shown to possess a high degree of internal consistency; the Independence Scale was minimally satisfactory in this respect. In addition, Eleven-point Rating Scales were devised to provide an overall measure of feeling tone in relation to each of the particular authorities assessed by the Likert-type authority scales and also towards "authority in general".

The Likert-type attitude to authority scales proved to be significantly intercorrelated, using two groups of tertiary students, 180 from S.A.I.T. and 80 from the U. of A. The Eleven-point Rating scales, completed by the U. of A. subjects, also intercorrelated significantly. Concurrent validity was demonstrated for each of the Likert-type attitude to authority scales by means of significant correlations with relevant Eleven-point Rating scales.

The generality of attitude towards authority across the five authorities assessed by the Likert-type scales is therefore strongly supported. Correlations between the Independence scale and each of the Likert-type attitude to authority scales for 121 of the S.A.I.T. students were not significantly different from zero, but those between the Likert-type pro-authority measures and Radicalism were significant (in the negative direction) for both S.A.I.T. subjects and U. of A. subjects. The general nature of the attitude assessed by the Likert scales therefore appears to be unrelated to the non-institutionalised authority of graduating students, but closely associated with radicalism.

To provide a stable and general measure of attitude towards authority, scores from the Likert-type attitude to authority scales were standardised and combined to form a Composite Authority Scale (C.A.S.). The validity of this measure was supported by the confirmation of predictions relating to three types of criteria: (1) the Eleven-point Rating Scale assessing attitude to "authority in general"; (2) the personal assessments of orientation towards authority by close acquaintances; and (3) scores derived from autobiographical reports of relevant behaviour, such as taking part in demonstrations and attending Church. These criteria correlated in the predicted direction with the C.A.S.

In the second part of this study, two sets of hypotheses were formulated on the basis of suggestions in the literature on student radicalism and on authoritarianism concerning the relationship between attitudes towards authority and supposedly relevant personality variables. The first set of hypotheses postulated a linear relationship, with the more pro-authority students tending to be more intolerant of ambiguity, more dogmatic, more cognitively simple, less creatively independent and less emotionally activated.

The second set of hypotheses postulated a curvilinear relationship such that extreme pro- and anti-authority subjects resemble each other in being relatively intolerant of ambiguity, dogmatic, cognitively simple and low in both creative independence and emotional activation compared with persons who occupy intermediate positions on the attitude to authority continuum. These hypotheses were tested using groups of students from the S.A.I.T., and (with respect to the variables of creative independence and emotional activation only) a group of U. of A. students.

The following personality tests were administered: to assess intolerance of ambiguity, Budner's Intolerance of Ambiguity test, the Complexity sub-scale of the Omnibus Personality Inventory, and the Photo Ambiguity Test specially developed for this study; for dogmatism, Ray's Dogmatism Scale; for cognitive-simplicity, a modified version of Bieri's Cognitive Complexity test; for creative independence and emotional activation, Rump's Adjective Check List. Because of the extensive testing program involved, subgroups of subjects varied in the extensiveness of tests taken. A total of 87 S.A.I.T. students formed a core sample which completed all tests.

In general, the obtained relationships between the attitude and the personality measures were consistent with the linear hypotheses. Among the S.A.I.T. samples, all the correlations with the C.A.S. were significant and in the predicted direction, although not all the correlations with individual attitude scales were significant. The highest correlations with the C.A.S. were with the Complexity sub-scale of the O.P.I. ($r = -.47$) and with Ray's Dogmatism scale ($r = .40$). With the exception of Emotional Activation, all the correlations between the personality variables and Radicalism were significant and, as predicted, in the opposite

direction to those found with the pro-authority C.A.S. In a partial replication with U. of A. subjects, significant correlations in the predicted direction were found between Creative Independence and C.A.S. (and Radicalism), but correlations with Emotional Activation were not significantly different from zero for either C.A.S. or Radicalism. An examination of trends for curvilinearity provided no clear support among groups of S.A.I.T. subjects for the curvilinear hypotheses. Among U. of A. subjects the curvilinear hypothesis was supported with respect to the Emotional Activation variable only.

A factor analysis with rotation to an oblique factor solution was performed on the results of 87 S.A.I.T. students, for whom complete data were available. The two main factors extracted were: (1) a pro-authority factor, with positive loadings of greater than .40 for the Law Scale, the Army Scale, the Police Scale, the Teacher Scale and the Symbolic Authority Scale and a negative loading of -.64 for the Radicalism Scale; and (2) a personality factor, with loadings of .40 or greater for Budner's Intolerance of Ambiguity test, the Complexity sub-scale of the O.P.I. and Ray's Dogmatism Scale, and negative loadings of -.62 for Rump's Adjective Check List measure of Creative Independence and -.40 for Emotional Activation. This personality factor appears to reflect a strong dislike of uncertainty and a tendency to hold dogmatic beliefs, and to view oneself as not creatively independent or emotionally activated. The pro-authority factor and the personality factor correlated positively ($r = .48$), which is consistent with the linear hypothesis. A factor analysis of the correlations for S.A.I.T. students who completed at least two of the tests ($\bar{n}(h) = 168.3$) provided substantially similar results, confirming that the factorial structure of the larger set of data did not differ markedly from that obtained from the smaller complete set of results.

Throughout the study analyses were performed for each sex separately. In the development of the Authority and Radicalism scales slight but consistent differences emerged between the sexes. The Likert-type scales generally yielded higher indices of internal consistency for males, and subsequently the intercorrelations between the scales tended to be higher for males. It would appear that the scales, though valid for each sex, are somewhat more appropriate measures of attitude towards authority among males.

Comparisons between groups of students from the S.A.I.T. and the University of Adelaide indicate that in general the S.A.I.T. students were more favourably disposed towards authority than were the University of Adelaide students. An analysis of age trends at the two institutions on measures of attitude to authority in general failed to yield reliable or consistent trends.

The main results of this study, namely the predicted linear relationship between Attitude to Authority (and Radicalism) on the one hand, and Intolerance of Ambiguity, Dogmatism and Creative Independence on the other, have been replicated for both male and female tertiary students; and with respect to one measure of intolerance of ambiguity (the Complexity subscale of the O.P.I.) and two measures of Attitude to Authority (the Army and the Law Scale), the predicted linear relationship was found three years later (in 1975) with a sample of University of Adelaide students, despite significant shifts towards generally more favourable attitudes towards the Army, and less favourable attitudes towards the Law.

Finally, it is suggested that while existing psychological theory deriving from psychoanalytical sources and emphasising the ego-defensive function of authoritarian attitudes may account for the association between certain personality characteristics assessed

in this study and the strongly pro-authority tendencies of some students, it is inadequate to account for the attitudes of students with relatively anti-authority orientations. Such attitudes may perhaps be best understood in terms of a positive liking for novelty and complexity, the enjoyment of which authorities may be perceived as blocking.

STATEMENT

This thesis contains no material which has been accepted for the award of any other degree or diploma in any University and, to the best of my knowledge and belief, contains no material previously published or written by another person, except when due reference is made in the text.

Kenneth Rigby
November, 1976

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PREFACE

Due to the diversity of related issues that are explored in this study, it may be useful to explain the organisation and lay-out of this thesis. It is divided, for convenience, into three parts, with Part One being concerned with the topic of the generality of attitudes towards authority among tertiary students; Part Two dealing with the relationship between attitudes towards authorities and certain supposedly relevant personality variables; and Part Three presenting a brief review of the entire study and a consideration of its general significance.

Part One consists of four chapters. In Chapter 1 a critical review is presented of psychological studies related to the issue of the general nature of attitude towards authority, and this is followed by a discussion of those authorities included in the study. Chapter 2 deals with the development of attitude scales to measure attitudes towards the chosen authorities, and, for wider comparison, a radicalism scale. In Chapter 3 correlations between those scales are examined and the degree and extent of the generality is assessed for samples of students from the South Australian Institute of Technology (S.A.I.T.) and The University of Adelaide. Chapter 4 examines the validity of the scales in relation to a variety of validating criteria.

Part Two begins with a survey, presented in Chapter 5, of the psychological literature in which (a) personality characteristics have been attributed to student radicals, and (b) the supposed nature of pro- and anti-authoritarianism, have been discussed. In the light of this survey two alternative sets of hypotheses appear tenable, one suggesting a linear and the other a curvilinear (second-order) relationship between certain personality variables

and attitude towards authority. In Chapter 6 the personality variables are discussed in detail and operationally defined. To test the proposed hypotheses, in Chapter 7 the relevant correlations are examined for both male and female subjects in overlapping groups of S.A.I.T. students, and for a group of students at the University of Adelaide. In Chapter 8 the attitude-personality trends are examined in more detail for evidence of systematic curvilinearity. Chapter 9 provides factor analyses of sets of personality and attitude scale data obtained from male and from female S.A.I.T. students.

The replication of a major finding of the study, the linear relationship between intolerance of ambiguity and attitude to authority, is presented in Chapter 10. In Chapter 11 a comparison is made of results obtained for each sex and institution, and age trends on attitude to authority are examined. The implications of the results concerning the relationship between personality and attitude to authority are examined in Chapter 12. Finally in Part Three (Chapter 13) the results of the entire thesis are reviewed and their general significance evaluated.

PART ONE

THE GENERALITY OF ATTITUDE TOWARDS AUTHORITY
AMONG TERTIARY STUDENTS.

PART ONE

CHAPTER 1: ATTITUDES TO AUTHORITIES

1. (i) Psychological Studies of Attitudes to Authorities

It is commonly assumed, particularly among clinical psychologists, that there exists a generalised attitude towards authority. Freud (1940), Piaget (1951) and Adorno et al. (1950), are among the influential writers who have given support to this notion. Such an attitude is seen as arising within the family from parental authority, and the attitude is then generalised to subsequently encountered authority figures. The nature of the psychodynamic process that is suggested, varies. The Freudian explanation emphasises the consequences of conflicts with parents at the anal and phallic stages of development, each leading to characteristic ways of responding to authority: by "holding on" or "submitting" when a partial fixation occurs at the anal stage; or striving competitively with father, or giving up the struggle and identifying with him, in the course of attempting to resolve the oedipal situation. Adorno and his colleagues saw the degree of repression by parents as a major factor: children whose spontaneous likes and dislikes are repressed within the family come to "idealize" their parents and along with them other authorities, such as national leaders and legal authorities. Piaget (1951) conceptualised the process in cognitive terms. Personal schemata which develop in relation to the father during infancy are seen as influencing a person throughout life as he assimilates one authority after another to these schemata.

Each of these theoretical approaches accepts the notion of a unitary attitude towards authority, but some empirical studies have raised doubts as to its existence. Burwen and Campbell (1957)

administered 12 separate tests of attitude towards authority to 155 servicemen and found intercorrelations so low that they concluded: "evidence for a generalised attitude towards authority which encompasses father, symbolic authority and boss is totally negative, suggesting a need for reconsideration of commonly held theory in this area" (p.31). The tests favoured by these authors were mainly indirect ones (that is, lacking direct face validity), such as the Thematic Apperception Test and a test using facial photographs in which a preference for older or younger men (and, therefore, for or against authority) was inferred from the way in which certain faces were described. With considerable scope for subjectivity in interpretation, it is not surprising that the authors were unable to claim very high reliability for their tests. Average correlations between different tests relevant to the same authority figure were quite low: .35 for "father"; .15 for "symbolic authority"; and .09 for "boss". Three of the individual correlations were indeed negative. If measures of attitude towards specific authorities are employed which prove relatively unreliable and generally inconsistent, one would expect no marked correlations between such measures of attitudes towards different kinds of authorities. The failure of Burwen and Campbell to find support for a unitary attitude towards authority is partly offset by the results of a further study by Campbell and Chapman (1957), in which they found that 98 servicemen tended to describe their father significantly more like they described their boss than like they described a subordinate. The authors interpreted their results as tentatively supporting the notion of a common attitude towards authority encompassing at least the two authority figures, father and boss.

Lindgren and Lindgren (1960), and Sallery and Lindgren (1966), argue against the generality of attitude towards authority on the

grounds that such attitudes are very strongly influenced by cultural factors. Canadian, American and Arab teachers were found to differ significantly in their attitudes toward some authority figures. Arab teachers, for instance, in Sallery and Lindgren's study were significantly more hostile or less accepting towards "figures representing the government and affiliated institutions" such as "people in positions over one", "policemen", "government ministers", "judges" and "naval or army officers" than both the American and Canadian teachers; but the Arabs were less hostile towards "experts and authorities, i.e., learned men", from whom they expressed a willingness to accept criticism. Such results are held to "support the contention that attitudes towards authority are specific rather than general" (Sallery & Lindgren, 1966, p.29). It would be fairer to conclude that cultural influences may be operating in different ways in the different countries. Moreover, it might be the case that the Arab teachers who were most opposed to governmental authority were also least in favour of "learned" men: their analysis does not indicate the degree of consistency of individual differences. The test used in these studies was of the projective, sentence-completion type. As the senior author in the 1960 study, H.C. Lindgren had hypothesised on the basis of his experiences with Canadian and American students that the former were considerably more in favour of authority, the obtained results that gave significant differences in the opposite direction do not inspire much confidence in the validity of either the test or the author's judgement.

Flinner (1967) claimed to have investigated the hypothesised unitary attitude towards authority by comparing the assessments of authority and non-authority figures by authoritarians and non-authoritarians, as defined by membership of the upper and lower

quartiles of the California F scale and Rokeach's dogmatism scale (Form E). His tests of attitude towards authority included direct self-report scales: three semantic differential scales, an adjective check list and a rank-ordering scale. In general, authoritarians were not found to evaluate authority figures significantly more highly than non-authoritarians; nor did they rate non-authority figures significantly less highly. Flinner claims that his results are damaging to the unitary theory of attitude towards authority. His study, however, is open to certain criticisms and different interpretations. First, his choice of figures to be evaluated is odd; "postmaster", for instance, (despite its semantic implications) is used as a non-authority figure, and it is of interest that significant differences between high and low dogmatists were found in the non-predicted direction for this item. Surprisingly, Flinner does not report on whether there was any tendency among his subjects to rate the different kinds of figures in a consistent way. It is possible that evidence supporting the unitary nature of attitude towards authority might have emerged from an analysis of individual differences irrespective of the "authoritarian" group findings. It cannot, therefore, be said that the theory has been investigated in the study in a direct and satisfactory manner.

A number of studies have attempted to measure attitudes towards authority using attitude scales containing items that are broad in their implications or relate to different authorities, for example, Stagnar (1954), Bieri and Lobeck (1959), Rudin (1961) and Ray (1971). That such scales can be developed with a high level of internal consistency suggests that a general tendency to support or oppose authorities is common, at least among students, with whom the tests were developed. However, the range of authorities used as "targets" in particular scales tends to be somewhat limited, and some of them

contain assumptions that need to be questioned. In Stagnar's 10-item scale, the items are loaded mainly with references to the authority of the nation, with one item relating to "large industry" and another to "taking orders". In the 20-item scale used by Bieri and Lobeck, half the items relate to a supernatural authority, 4 to parental authority, 2 mainly to the nation and the rest more generally to the need for obedience. Six of these items were taken directly from the California F scale. At least some of the generality claimed, therefore, might be attributable to the personality characteristic of "authoritarianism", which should not be identified with "attitude towards authority". The main "target" in Rudin's 19-item scale is "teachers"; the "police" and "leaders" are also represented. This scale contrasts markedly with that of Bieri and Lobeck. Supporting these authorities is presumed to be "rational" and "healthy", and follows Fromm's (1941) distinction between "rational" and "irrational" authority. The scale correlates positively with a measure of intelligence and negatively with two measures of neuroticism, according to Martin and Ray (1972). Ray's own 28-item scale contains items relating to leaders, authoritarian institutions (particularly the Army) and "freedom versus regulation". It was developed in Australia and claims some "behavioural validity" on the basis of correlations with the ratings of pupils by their teachers. Though individually these scales tend to be limited in the range of authority figures employed, and may be influenced by somewhat dubious assumptions, collectively they do strongly suggest that the attitude measured by them is general in scope.

Further confirmation is provided by the results from the study of Wilson and Wadsworth (1972). The range of authorities used was comparatively wide and assumptions about the pathology or rationality of the attitude were notably avoided. These authors tested the

attitudes of 101 American college students towards a variety of groups, which included the following authority figures: the Nixon Administration, the military, the police, college administrators, parents, big business and college professors. Subjects were asked to rate persons in these groups on a 5-point scale to indicate how worthy of support or otherwise they were. Of the 21 Pearson product-moment correlation coefficients, 20 were positive and significant at the .05 level (one tailed test). The exception is the correlation between college professors and the Nixon Administration ($r = -.02$); which is quite possibly a consequence of outspoken criticism by some college professors of the American Government's policy at this time. Leaving aside college professors whose supposed liberality of viewpoint may well have offset their image as "authorities", correlations among the remainder range from .27 to .59 with a mean value of .40. Negative correlations were found between attitudes towards each of these groups and ratings of groups whose behaviour may appear to be attacking authority, namely campus militants (mean correlation of $-.37$) and Black Panthers (mean correlation of $-.29$). Thus, in general, this study provides strong support for the generality of attitude towards authority over a range of figures (including the theoretically important "parent group") as measured by direct tests. Even in this study, however, results were not obtained with properly constructed attitude scales. Moreover, they were not found with Australian subjects, and in view of the considerable emphasis placed upon cultural influences on attitude towards authority by Lindgren and Lindgren (1960), Lindgren and Sallery (1966) and Kagitcibasi (1970), it is uncertain whether one should generalise from one country to another.

Australian attitudes towards authority are enigmatic. The popular view seems to be that Australians are implacably opposed to authority. Donald Horne (1964) in "The Lucky Country" (p. 38)

informed us that "the normal posture of the Australian towards authority is one of ridicule.... Bosses of all kinds lament lack of discipline, but as far as the ordinary Australians are concerned they can go jump in the lake". Craig McGregor (1966) in his "Profile of Australia" wrote that "the average Australian views the Police as enemies, army officers as traitors to democracy, the boss as a barely necessary evil and anyone who gives an order as deeply suspect". On the other hand, some people with experience of education and students have thought differently. The educationalist J.R. Lawry (1965) considered the authoritarianism that permeates Education Departments as stemming "largely from the unquestioning acceptance of authority in the community" (p.80). A study by Leon Mann (1973) of Australian reactions to the My Lai massacres in Vietnam supports this impression. Among his cross-section of Australian subjects, Mann found a substantial minority of people (30%) who were prepared to follow orders and shoot civilians in circumstances similar to those in which Lieutenant Calley was placed at My Lai. Mann concludes that Australian reactions on this issue were generally similar to those obtained in an American survey, and that there is "a surprisingly high level of obedience ideology in Australia" (p.21). A large-scale survey of the needs of American and Australian students undertaken by Wheeler (1969) using the Edwards Personal Preference Schedule suggested that Australians are higher on both "autonomy" and "abasement" than American students. Wheeler believes this surprising combination to be consistent with the judgement of Taft and Walker (1958) who regarded the Australian attitude towards authority as "one of the more basic ambivalences underlying Australian values, a passive dependence upon authority combined with a contemptuous and even aggressive attitude towards it" (p.146).

Quite apart from the national differences between Australia and the U.S.A., one has obviously to reckon with the very considerable concern that students in both countries have had with authority over the last decade or so. One of the leading authorities on student political activities in the U.S.A., Flacks (1967) saw "anti-authoritarianism" as a major factor characterising the contemporary student movement. It is hard to disagree with him. Morgan (1970) in a Current Affairs Bulletin describing the student movement in Australia had this to say: "Our Western Societies are divided into two inimical groups. On the one hand are the monsters, the old conservative Right Wingers, who rule our capitalist societies by subtle tyranny. Included in this group are the military, the Police, the Returned Serviceman's League, Mr. Santamaria and the Democratic Labour Party (horror of horrors), university administrators, all governments, the churches, the business world and parents" (p.114). On the other hand, as Morgan saw it, there were the forces of freedom and humanitarian concern, and with these forces the student radical identified. The details differed from place to place, but the theme was universal. However, while it is clear that such anti-authoritarianism flourished on the campus, by no means all tertiary students appeared to support it. Student leader, Lynn Arnold (1970), in a paper delivered at the University of Adelaide seminar on Social Order and the Right to Dissent, stated that "statistical analysis has revealed that a surprisingly large number of students are basically supporters of the status quo" (p.1). It would seem reasonable to regard this period as one in which there was a high degree of polarisation of attitude towards authority. Consequently, one would expect a general attitude, if it exists, to be observed more readily.

For the purpose of this study authority was conceived as that which is generally recognized as having some sort of institutionalised right to be obeyed. It was uncertain whether a general attitude towards authority in this sense would extend to cover non-institutionalised authority as well, such as the authority of experts or senior people who are not generally thought to have a right to expect obedience. Nor was it clear whether attitude towards authority, as defined above, was different from the radical-conservative dimension as it is currently understood among students. A subsidiary purpose in this study was to define more closely the nature of any generality that might emerge, by including tests to help to resolve those uncertainties.

The choice of authority figures and authorities was further influenced by the desire to use, as targets, authorities which would have a high degree of salience for most subjects. This could be done by choosing figures that might appear significant to students on account of their recent, current or potential involvement with persons filling such roles. Alternatively, figures could be chosen by students as symbolising for them the exercise of authority or opposition to authority. Both methods were, in fact, used.

1. (ii) Authorities included in the Study

The following "authorities" were chosen as targets, for which tests were developed: Police, Army, Law, Teachers, Symbolic Authority and Graduating Students.

The police may be regarded as the most conspicuous of authority figures, the visible guardians of law and order. The studies of Chappell and Wilson (1969) have left little doubt that in Australia a considerable amount of hostile feeling is commonly directed towards them. Their survey shows that respect for the

police is probably much lower than it is in the United Kingdom. Only 60% of Canberra respondents as against 83% of U.K. respondents said they had "great respect for the Police". Among University staff and students the proportion was only 20%. It seems likely, then, that the police provide a prime target for the expression of hostility towards authority, especially among students.

Students have all had considerable experience of teachers, normally stretching from Infant School to matriculation year in High School, some eleven years or so, and in most cases quite recent contact. It can be assumed that a high proportion of tertiary students would have had relatively successful experiences: they were at least able to reach certain desired educational goals. Over about eleven years they would have observed a wide variety of types of teachers in situations where "keeping control of others" was important. Some generalised attitude towards the teacher as an authority figure seems likely to have been formed.

As an institution, the army is, as Ray (1971) rightly asserts, par excellence, the institution notable for the exercise of authority. In Ray's measure of "Attitude towards Authority" (Subset 2), eight of the eleven items relate to the army. As these constitute the most reliable set in his total scale, he feels justified in his view that the "army is the most salient authority institution in the community" (p.36). For many of the subjects in this study the possibility of being conscripted for service in an unpopular war in Vietnam must have heightened the significance of this authority, and personalised and sharpened the issue of whether such an authority should be obeyed.

As an authority, "the law" is broader and more abstract than the previous attitude objects. It may be conceived by the pro-authority type of person as the expression of a moral, and even supernatural, force which rightly demands our obedience, whatever

its specific content at a particular time may be. Alternatively it may be viewed by people who are "against authority" cynically, and even with contempt, as a means of advancing the self-interests of those who formulate particular laws (the rulers) and as according with the prejudices of those selected to carry them out (the judges). An intermediate position would be one that views the law in general as deriving from certain acceptable and impersonal notions of justice and, as such, generally superior to individual codes of conduct, but with the clear perception that individual laws may be unjust and difficult to square with one's conscience. It is assumed that feelings about "the law" and positions on such a scale would be related to attitude towards particular laws, for example, those relating to conscription, and to a subject's orientation towards authority in general.

"Symbolic authority" constitutes a target which is, like the law, general and abstract, but is based upon reactions to a range of specific images which are judged to embody this quality. Burwen and Campbell (1957) employ the term without defining it, simply giving an example of how a measure may be derived from responses to pictures of older persons. Apart from problems of interpreting such responses, and establishing whether they are in relation to the "authority aspect" of the stimulus or not, the salience of such "authority" must surely be quite limited. Salience can be increased by using a sample of the population to select pictures that seem to symbolise authority or opposition to authority; in relation to these symbolic pictures, an operational definition of attitude towards symbolic authority can be devised.

As a non-institutionalised authority, "graduating students" are obviously highly salient for more junior students. They can be regarded as successful in their progress towards a goal normally

shared with the subject, as relatively knowledgeable (at least within certain areas), and in general as older than most students. One might expect their knowledge and judgements to be regarded as authoritative. The extent to which junior students yield to such judgements may indicate the degree of positive attitude towards this authority.

1. (iii) Radicalism

Since authorities are commonly thought to be obstructive to progressive radical policies, one would expect supporters of such policies to be opposed to authorities, in general. One may ask therefore whether there is a general psychological dimension of conservatism-radicalism that is closely related to attitude to authority among tertiary students.

The views of psychologists as to whether there is such a general dimension are varied. Eysenck (1954) based his judgement upon a factor analysis of questionnaire data relating to a wide range of social attitudes, and concluded that there was indeed one major factor which he labelled "conservatism-radicalism". Eysenck's Radicalism questionnaire has been extensively validated and has been shown to be related to left-wing political preference. In 1971 Eysenck reported a replication of his earlier finding, and concluded that there had been "no systematic changes in the structure of social attitudes in this country (i.e. Britain) in the 20 years that have elapsed since the research published in the 'Psychology of Politics' was carried out" (p. 201). Wilson and Patterson (1970) developed a Conservatism or C Scale, and on the basis of a factor analytical study using New Zealand data Wilson (1973) claimed that one common factor was predominant. According to

Wilson, this scale reflected a personality dimension broader than left-right political orientation. However, he conceded that, despite the predominance of a general factor, it was still possible to interpret several other factors derived from the C Scale, such as Realism (versus Idealism), and Religion - Puritanism.

Other investigators have preferred to emphasise the multi-factorial nature of Radicalism or Conservatism questionnaire data. Ferguson (1941) found two major orthogonal factors underlying social attitudes, which he called "humanitarianism" and "religionism"; Anderson and Western (1967) using their own Inventory with Australian students found two main factors, one containing "political" and "economic" items and the other "social" and "moral" ones. Bagley (1970), Boshier (1972) and Feather (1975) have been able to identify respectively 5, 4 and 11 factors on Wilson and Patterson's C Scale. Such differences between the supporters of unidimensional and multidimensional interpretations of the structure of attitude scales appear to depend largely upon the nature of the factor analysis used (see Comrey and Newmeyer, 1965), and the intentions of the researcher in seeking to emphasise a common factor or, alternatively, a number of group factors.

Some investigators have claimed that in certain groups a single dimension underlying social attitudes does not occur. Kerlinger (1967) has argued that some respondents tend to organise their social thinking around the concept of "favourability to innovation", while others may structure their thinking around the value of "traditional institutions and procedures"; and when this happens Conservatism or Radicalism Scales will not be bipolar and will not form a single continuum. Kohn (1972) employed a so-called "Authoritarian-Rebellion Scale" which failed

to provide evidence of a continuum among a group of Canadian students.

Notwithstanding evidence that social thinking is not always ideologically structured mainly along a single major dimension, one may reasonably expect that a valid Radicalism scale can be constructed which is appropriate for tertiary students. Whilst such a scale may not be factorially "pure", at least a high degree of internal consistency should be sought if the scale purports to measure a general attitude.

Direct evidence that Radicalism is closely related to Attitude to Authority is lacking. Considerable attention has been given to the question of how conservatism is related to authoritarianism, and there is much agreement that they are very closely related: see Adorno et al. (1950), Lipset (1960), McClosky (1958), Wilson and Patterson (1968), and Ray (1973). On the other hand, Rokeach (1960) and Peabody (1961) have raised doubts concerning the linearity of the relationship. The attitude to authority scales that have been constructed for this study have deliberately avoided the theoretical assumptions implicit in the general concept of authoritarianism. Whether they correlate highly with a reliable Radicalism scale is one of the questions to be examined further in this thesis.

Finally, it is recognized that holding so-called radical opinions may result from the pressures of particular social situations in which people find themselves. Opposing the draft for the Vietnam war in 1971 could in some cases of potential drafters have reflected a desire not to be personally conscripted. Similarly, a desire to see marihuana legalised could derive from specific peer-group pressures that had led to certain students smoking "pot" (Rigby et al., 1975). Any radicalism scale should therefore sample opinions over a wide range of issues, and an analysis of its results should provide indications of the degree of consistency in responding.

CHAPTER 2: DEVELOPMENT OF THE ATTITUDE SCALES

2. (i) General Nature of the Scales

In view of the relatively low reliability of indirect tests used in the measurement of attitude towards authority by Burwen and Campbell (1957), and the high degrees of internal consistency of direct scales demonstrated in studies by Stagnar (1954) and Ray (1971), the latter type was favoured in this study. To minimise the possibility of significant correlations being attributable to a single methodology being used for all tests, varied kinds of direct scales were constructed. For institutionalised authority, both Likert and simple rating scales were used; for non-institutionalised authority, a special ranking type of test was employed. A Likert-type scale was used for assessing radicalism. The presentation of pictorial items for the Symbolic Authority Scale provided a further variation in method. It was hoped that the employment of several measurement techniques would increase the generalisation possible from the results.

To control for response bias, the Likert scales measuring attitude to authority were balanced or approximately balanced with respect to positively- and negatively-keyed items, a precaution that is specially justified in the light of repeated suggestions from Cohn (1953), Bass (1955), Couch and Keniston (1960), Berkowitz and Wolkon (1964), Cloud and Vaughan (1970), that authoritarians (and quite probably therefore pro-authority persons) tend to adopt an acquiescent set in answering questionnaires.

2. (ii) Development of Particular Scales

The development of scales used in this study to establish the degree and nature of the generality of attitude towards authority

will be described in five sections corresponding to the procedures adopted with particular scales or groups of scales:

- A. The Police Scale;
- B. The Army, Law and Teacher Scales;
- C. The Symbolic Authority Scale;
- D. The Independence Scale;
- E. The Radicalism Scale.
- F. Eleven-point Rating Scales.

A. The Police Scale. The development of a scale to measure attitude towards the police was begun during 1970 when items were collected from the writer's First-Year Psychology class at the South Australian Institute of Technology (S.A.I.T.), which were regarded as reflecting favourable or unfavourable attitudes towards the police. After eliminating items which discriminated least well between upper and lower quartiles among class members (N=48), a 26-item Likert scale was prepared for use with a larger sample of S.A.I.T. and Western Teachers' College students (N=112). The scale was administered to assess attitudes towards the police shortly after the Adelaide Vietnam Moratorium March of September 1970. This event was notable for the unprecedented scale (in modern Adelaide) of clashes between police and marchers, of whom a high proportion were students. Subsequently, there was much public controversy over the justification or otherwise of police actions. It was in this atmosphere that the tests were completed.

The instructions for answering the questionnaire were as follows: "Below are some statements that have been made about the Police in S. Australia. Would you please indicate your personal reactions to each one of them by placing an appropriate sign in the boxes". The 5-point response scheme is shown below, together with

the scoring system which was not, of course, shown on the questionnaire:

<u>Strength of Attitude</u>	<u>Response</u>	<u>Score</u>	
		<u>Positively keyed items</u>	<u>Negatively keyed items</u>
If you agree strongly	+ +	5	1
If you agree	+	4	2
If you are uncertain	0	3	3
If you disagree	-	2	4
If you disagree strongly	- -	1	5

This format was used for all subsequently described Likert-type scales assessing attitude towards authority.

An analyses of the 26 items based upon item-total product-moment correlations led to the elimination of 2 items with coefficients of less than .3, the rest having very satisfactory values. Subsequent applications of the scale to S.A.I.T. students in 1971 and 1972 (Sample B) and to University of Adelaide students in 1972 (Sample C), produced somewhat lower intercorrelations among items; almost certainly because of the high level of polarisation of attitudes that occurred at the time of first sample. Consequently, in the following Tables 1 and 2 statistics on the 24 item scale are provided for each of the 3 samples separately. The item-total correlations have been corrected for the arithmetic contribution of the items to the total, a procedure that has been adopted in all such analyses in this study.

Consistent with the assumption that a greater polarisation of attitudes towards the police was prevalent in 1970, the results in Table 2 show larger standard deviations for the results of Sample A compared with Samples B and C. Using Bartlett's test of homogeneity of variance (Winer, 1971, pp.208,209), the variances for the three samples were found to be significantly different:

$\chi^2 = 6.17$, $df = 2$, $p < .05$. Following up this significant heterogeneity, it was found that the variance for Sample A was significantly greater than that for Sample B ($F = 1.36$; $df = 111, 260$; $p < .05$), and also significantly greater than that for Sample C ($F = 1.62$; $d.f. = 111, 81$; $p < .05$). Although the item-total correlations are generally lower subsequent to 1970, they are still satisfactorily high, the lowest for either sex being .23. Appendices 1a and 1b, giving inter-item correlation matrices for the two more recent applications, show that only one inter-item correlation is in the non-predicted direction ($r = -.03$) and this is in the smaller Sample C. Cronbach's (1951) alpha coefficient, which may be regarded as an index of reliability, is in each case greater than .9, reflecting a high level of reliability in the scale for both sexes.

Table 2 shows that the mean scores per item are generally slightly above 3 (the theoretical mid-point on the scale); that is, on the whole, subjects appeared to be slightly favourably disposed towards the Police, though for University males "attitudes" on average appear to be very close to neutral ($\bar{X} = 3.03$). However, with standard deviations ranging from 12.34 to 18.80 on the total scale, it appears likely that both strongly pro-police and strongly anti-police attitudes have been sampled using this scale.

In the development of the scale, it was considered desirable to check the effects of the attempt to balance positively and negatively keyed items. This appeared important in view of the possibility suggested by Martin and Ray (1972) that an attempt to balance for acquiescent set might actually result in the emergence of two distinct and almost independent sub-scales. In their analysis of the results from Rudin's (1961) attitude to authority scale, slight negative correlations between the positively and negatively keyed sub-scales were found. Intercorrelations between the negative and positive part of the present Police Scale ranged from .74 to .87.

One method of cross-validating the Scale is to compare the coefficients of reliability (Alphas) for different applications. In the absence of a conventional method of estimating the significance of differences between Alpha values, it was decided to use a formula for confidence limits recently suggested by Kristof (1972). The method is explained fully in Appendix O.a. The 5% confidence interval for each Alpha value on three independent applications of the Police Scale was obtained. The intervals were compared to see if they overlapped. The absence of any overlap between confidence intervals is taken here (and subsequently) to indicate a significant difference in Alpha values. The results for successive applications of the Police Scale are given in Appendix O.b. In fact, there was no overlap between the 5% confidence intervals for Alpha values for Sample A (.942 - .972) and that of Sample B (.898 - .937). This suggests that the Scale was indeed slightly more reliable when it was first administered in a situation of extreme polarisation of attitudes, although this might be an artefact of the deletion of two poor items since such an effect is commonly found on cross-validation. The results for sample B and C are similar, having the same Alpha value (.92), indicating considerable reliability still for both these cross-validation samples. (Sample C consisted of 82 subjects, of whom 80 completed all the other attitude scales. Results for the analysis of results for these 80 subjects are given in Chapters 3, 4, 7 and 8).

It is concluded from the above discussion and from the data given in Tables 1 and 2 that this Scale is highly reliable, internally consistent, and suitable for the measurement of attitudes towards the police among students at different tertiary institutions and for subjects of either sex.

Table 1. The Police Scale: item-total correlations (corrected).

(Samples: A. 1970 S.A.I.T. and Western Teachers College students.
 B. 1971-2 S.A.I.T. students.
 C. 1972 University of Adelaide students).

ITEM	Scoring key	Males			Females			Both sexes		
		A	B	C	A	B	C	A	B	C
		N=32	N=164	N=34	N=80	N=97	N=48	N=112	N=261	N=82
1. The Police in South Australia are generally courteous and respectful towards members of the public.	+	64	66	34	71	66	63	69	66	49
2. The Police let power go to their heads.	-	70	63	73	75	63	61	73	63	66
3. The Police in S. Australia are pretty trustworthy.	+	85	59	59	81	51	70	82	56	65
4. The Police deserve the contempt people have for them.	-	90	68	61	70	67	78	76	68	70
5. The Police are lazy.	-	46	51	59	74	49	54	65	51	57
6. The Police are generally quite impartial and fair in the way they carry out the law.	+	79	58	73	69	59	43	72	59	56
7. The Police use their "badge" as an excuse to push people around.	-	75	66	78	80	64	60	78	66	66

Table 1 (continued)

	Scoring key	Males			Females			Both sexes		
		A	B	C	A	B	C	A	B	C
		N=32	N=164	N=34	N=80	N=97	N=48	N=112	N=261	N=82
8. The good work of the Police ought to be better recognized.	+	58	43	40	51	41	55	53	43	49
9. Policemen like to bully people.	-	84	72	75	76	69	68	77	71	71
10. Policemen are generally conscientious types.	+	70	49	35	53	33	55	59	45	45
11. You rarely find a Policeman with high principles.	-	58	43	47	54	30	65	56	40	58
12. The Police are less intelligent than most citizens.	-	74	43	31	64	59	67	67	48	53
13. The Police have a hard job which they carry out well.	+	72	64	71	79	71	63	77	66	67
14. Policemen don't respect the laws they enforce.	-	62	57	62	66	41	48	64	53	55
15. The Police are quite unfair in their treatment of certain groups in society.	-	72	53	40	72	58	69	72	54	56
16. The Police pay too much attention to the protection of property rather than people.	-	74	40	64	65	58	22	67	45	41
17. Policemen lack initiative in fulfilling their duties.	-	64	47	67	68	35	33	66	44	48
18. The Police are just as crooked as the people they arrest.	-	66	63	70	63	43	68	64	56	69

Table 1 (continued)

	Scoring key	Males			Females			Both sexes		
		A	B	C	A	B	C	A	B	C
		N=32	N=164	N=34	N=80	N=97	N=48	N=112	N=261	N=82
19. The Police have the public's good at heart.	+	80	47	67	62	62	37	67	51	50
20. The Police commonly distort the truth when they are giving evidence.	-	74	52	72	71	60	64	72	55	67
21. By and large the police carry out their duties efficiently.	+	60	43	61	68	61	37	65	48	47
22. The Police help the weaker members of society.	+	58	49	58	52	37	39	54	45	46
23. Policemen are unnecessarily violent in handling people they dislike.	-	71	66	64	73	60	23	72	64	43
24. The Police are usually vigilant and alert.	+	52	53	47	49	45	49	50	51	47

Table 2. The Police Scale: Means, Standard Deviations and Internal Consistency.

(Samples: A. 1970 S.A.I.T. and Western Teachers College students.
 B. 1971-2 S.A.I.T. students.
 C. 1972 University of Adelaide students).

Samples of subjects	Positively keyed items (10 items)		Negatively keyed items (14 items)		Total Scale (24 items)		Correlation between two parts	Coefficient alpha*
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.		
A: Males (N=32)	3.39	7.40	3.36	12.01	3.37	18.80	.87	.96
A: Females (N=80)	3.44	6.59	3.33	10.85	3.38	16.89	.87	.95
A: Both (N=112)	3.42	6.83	3.34	11.20	3.37	17.46	.87	.96
B: Males (N=164)	3.40	6.71	3.22	10.27	3.30	15.92	.75	.92
B: Females (N=97)	3.44	5.65	3.38	8.24	3.40	13.11	.77	.93
B: Both (N=261)	3.42	6.34	3.28	9.62	3.34	14.99	.75	.92
C: Males (N=34)	3.09	6.07	2.97	9.24	3.03	14.33	.74	.94
C: Females (N=48)	3.15	5.51	3.23	8.48	3.21	13.11	.77	.91
C: Both (N=82)	3.12	5.76	3.13	8.90	3.13	13.72	.75	.92

*Cronbach's (1951) Coefficient of Internal Consistency.

8. The Army, Law and Teachers Scales. These scales were devised at a later stage, and developed with the aid of large samples of Adelaide University first-year students of Psychology. First, 32 items were written to reflect favourable or unfavourable judgements on each of these 3 authorities. Half the statements were positively and half negatively worded. The sources of the items varied. Some were taken or adapted from earlier "Attitude towards Authority Scales". For the Army Scale, 6 items were taken from Ray's (1971) scale. The Law Scale is indebted for certain items to scales developed by Katz (1931), Rundquist and Sletto (1936) and Gregory (1939). For radical judgements about teachers, "Caution, School Power in Australia" by Peter Coleman (1970) provided usable material. Army Recruiting publications provided a number of items reflecting favourably on the Army. Other items resulted from conversations with students to elicit judgements about these authorities. Some were the writer's invention. The provisional scales were submitted to an initial sample of over 300 first-year Adelaide University students, who were instructed to give their reactions to each statement according to the 5-point scale described previously. To ensure that each statement was perceived unambiguously by subjects as being for or against the authority in question, subjects were afterwards asked to rate each item on an 11-point scale from extremely unfavourable (1) to extremely favourable (11). The instructions were as follows: "Consider each of the following statements again. How would you rate the attitude towards the Army (or Law or Teachers) of a person making such a statement? Would he have a favourable or unfavourable attitude?" The items were presented once more with boxes adjacent to them in which a number between 1 to 11 corresponding to the subject's judgement could be placed. Some subjects clearly

misunderstood the instructions to this part of the test and gave their own personal reactions again. Such data were not used.

Analysis of the distribution of responses for the remainder of the data indicated that three items had been given an unusually variable rating or even produced a slightly bimodal distribution. These items were eliminated (two from the Law Scale and one from the Teacher Scale), on the grounds that the analysis suggested that they had an ambiguous meaning or were perhaps irrelevant to the institution under consideration. Item-total correlations within each scale were next computed and items associated with relatively low correlation coefficients were withdrawn.

The revised Scales were later given to 80 first year Psychology students from the University of Adelaide. (These subjects, described in Table 14, provided results which were used, in further analyses in Chapters 3,4,7 and 8). The Alpha values were all high, from .89 to .91 (see Appendix 0.b). To test whether these scales differed in reliability for different samples of subjects, Alpha values for the original applications used in scale construction (minus the withdrawn item) were compared for each scale with those obtained in the later application. The results (see Appendix 0.b for details) show that while the Alpha values tended to be, as expected, slightly lower on the second application, there was in each case some overlap for the 5% confidence intervals, and it may be concluded that the reliability of the Scales did not differ significantly between applications. A cross-validation for the Army, Law and Teachers Scales can therefore be claimed. As the results for different applications of the same scale were so similar, the scores for the two samples were pooled. The final scales are given in Tables 3, 5 and 7, together with the item-total corrected correlations, based on the pooled data. (In addition, complete inter-item correlation matrices are given in Appendices 2, 3 and 4).

Table 3. The Army Scale: item-total correlations (corrected).
(Decimal points have been omitted).

ITEM	Scoring key	Males (N=192)	Females (N=168)	Both sexes (N=360)
1. Two years in the Army would do everyone a world of good.	+	67	57	63
2. I disagree with what the Army stands for.	-	60	61	61
3. You can be sure that Army procedures are good, because they have been tried and tested.	+	55	46	51
4. The Army provides a way of life that satisfies only the most stupid.	-	60	66	63
5. The Army produces a perfect outlet for bullies and sadists.	-	60	62	61
6. The Army is very good for straightening men out and smartening them up.	+	60	60	60
7. The Army deadens the conscience.	-	65	60	63
8. Civilians could learn a lot from the Army.	+	56	50	54
9. Army methods do ensure that things get done, and this is a very important consideration.	+	56	49	53
10. It's a man's life in the Regular Army.	+	65	48	57
11. The existence of military organisations is an affront to human dignity.	-	56	53	55
12. People should feel proud to serve in the Army.	+	74	55	66
13. The Army makes unreasonable demands for obedience upon its members.	-	62	61	61
14. Military drill helps to improve a person's character.	+	64	53	59

Table 3 (continued)

	Scoring key	Males (N=192)	Females (N=168)	Both sexes (N=360)
15. Military intelligence is a contradiction in terms.	-	48	41	46
16. There is too much "bull" in the Army.	-	70	63	68
17. The Army brutalises people.	-	52	41	48
18. A nation that has an efficient army is generally worthy of respect.	+	55	44	51
19. I expect that army officers rise to positions of authority because they are worthy of respect.	+	57	49	53
20. The kind of person who rises to the top in the Army is generally arrogant and narrow minded.	-	69	61	66
21. I expect there is a good reason for most rules and regulations in the Army.	+	56	58	57
22. It is right that the Army should seek to preserve its time-honoured customs and traditions.	+	61	60	60
23. There is little point in the remembrance of "great" military events in a nation's past.	-	46	47	47
24. The Army reduces men to robots.	-	70	66	68
25. Army discipline is based upon reason, understanding and cooperation between those who give orders and those who carry them out.	+	66	62	64
26. The Army teaches people <u>not</u> to think for themselves.	-	72	60	67
27. I would dislike having to salute an Army officer.	-	68	60	64
28. The Army develops initiative.	+	72	60	67

Table 3 (continued)

	Scoring key	Males (N=192)	Females (N=168)	Both sexes (N=360)
29. The Army helps a person to acquire personal integrity and a sense of responsibility.	+	67	68	68
30. There is something wrong with anybody who likes to wear a military uniform.	-	50	55	52

Table 4. The Army Scale: Means, Standard Deviations and Internal Consistency.

Sex	N	Positively keyed items (15)		Negatively keyed items (15)		Total Scale (30 items)		Correlation between the two parts	Coefficient alpha*
		\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.		
Males	192	2.55	11.58	2.75	12.37	2.65	22.43	.75	.95
Females	168	2.69	10.05	2.86	11.43	2.74	19.16	.59	.94
Both	360	2.62	10.94	2.80	11.97	2.71	21.05	.69	.95

*Cronbach's (1951) Coefficient of Internal Consistency.

Table 5. The Law Scale: item-total correlations (corrected).
(Decimal points have been omitted).

ITEM	Scoring key	Males (N=178)	Females (N=179)	Both sexes (N=357)
1. The Law is superior to individual codes of conduct.	+	48	45	47
2. We would be better off without any laws at all.	-	48	34	43
3. The law is just another name for tyranny.	-	65	39	54
4. A man should obey the laws, no matter how much they interfere with his personal ambitions.	+	62	43	54
5. It is difficult to break the law and keep one's self-respect.	+	50	47	49
6. The law is an ass.	-	65	57	62
7. The sanctity of the law should be taught in all schools.	+	53	47	50
8. A person who reports minor law violations is only a trouble maker.	-	26	21	24
9. Obedience to the law constitutes a value indicative of the highest citizenship.	+	61	41	52
10. The functioning of the law results only in the satisfaction of the purposes of those who make and enforce the law.	-	53	38	48
11. All laws should be strictly obeyed, because they <u>are</u> laws.	+	57	45	51
12. The law is the embodiment of Justice and Equality.	+	70	51	61
13. Obedience to the law in modern societies is more often a vice than a virtue.	-	44	34	40
14. The law should take its course, no matter how individuals may suffer.	+	48	32	40

Table 5 (continued)

	Scoring key	Males (N=178)	Females (N=179)	Both sexes (N=357)
15. A person should obey only those laws that seem reasonable.	-	55	49	53
16. The law is a means of enslaving the mass of humanity for the benefit of a small minority.	-	66	60	64
17. The law rightly claims the allegiance of every citizen at all times.	+	67	51	60
18. Laws are so often made for the benefit of small, selfish groups that a man cannot respect the law.	-	70	49	62
19. The law represents the wisdom of the ages.	+	60	52	57
20. The law is the enemy of freedom.	-	61	38	51
21. The individual who refuses to obey the law is a menace to civilization.	+	63	45	55
22. It is all right for a person to break the law if he doesn't get caught.	-	39	27	34
23. On the whole, judges are honest.	+	53	40	47
24. The sentences of judges in court are determined by their prejudices.	-	46	40	44
25. The law is designed so that the greatest number will derive the most good when it is universally obeyed.	+	65	59	62
26. When an individual disagrees with the law, he should not be expected to obey it.	-	48	50	47
27. The law punishes the bad and protects the good.	+	53	53	52
28. Personal circumstances should never be considered as an excuse for law breaking.	+	42	33	37

Table 6. The Law Scale: Means, Standard Deviations and Internal Consistency

Sex	N	Positively keyed items (15)		Negatively keyed items (13)		Total Scale (28 items)		Correlation between the two parts	Coefficient alpha*
		\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.		
Males	178	2.72	9.97	3.38	8.77	3.03	16.91	.63	.93
Females	179	2.83	8.24	3.50	7.96	3.14	13.24	.34	.88
Both	357	2.77	9.18	3.42	8.41	3.09	15.26	.50	.91

*Cronbach's (1951) Coefficient of Internal Consistency.

Table 7. The Teacher Scale: item-total correlation (corrected)
(Decimal points have been omitted)

ITEM	Scoring key	Males (N=178)	Females (N=181)	Both (N=359)
1. Normally a teacher provides a model of exemplary behaviour for his students to follow.	+	48	41	44
2. A teacher's primary concern is to make students obey rigid and ridiculous rules.	-	38	34	37
3. Teachers are genuinely concerned with the needs of individual children.	+	58	49	54
4. Teachers rarely display the professional competence that is expected of them.	-	34	40	37
5. Teachers far too frequently try to instil opinions and values which students should not have forced upon them.	-	44	41	43
6. An important motive among teachers is the desire to dominate people who seem weaker than themselves.	-	56	53	55
7. It is only natural that a teacher should be looked up to on account of his position.	+	44	34	40
8. Teachers sincerely believe in the value of what they teach.	+	30	37	33
9. It is rare for a teacher to allow a student to challenge his judgements, even on questions which are really a matter of opinion.	-	55	50	53
10. In our uncultured society the fine work of teachers in seeking to raise standards is not properly appreciated.	+	30	22	25
11. Teachers frequently resort to sarcasm and ridicule in unfairly trying to subdue independently minded students.	-	55	57	55

Table 7 (continued)

ITEM	Scoring key	Males (N=178)	Females (N=181)	Both (N=359)
12. The happiness and emotional welfare of the individual student is usually of little or no concern to the average teacher.	-	55	52	54
13. Love of children plays an important part in the motivation of most teachers.	+	46	45	45
14. Students ought to respect teachers for their knowledge.	+	31	29	30
15. Teachers seldom have "a sense of proportion".	-	56	57	57
16. In this day and age students should not be expected to call a teacher "sir".	-	48	27	38
17. Most teachers will give students a fair hearing even when they do not agree with them.	+	59	55	57
18. Students are all too often discriminated against by teachers who are prejudiced against them.	-	57	38	48
19. The disciplinary measures taken by teachers are usually well considered and desirable.	+	67	48	58
20. Teachers are often irrelevant in the education of a student.	-	46	43	44
21. A teacher is a somewhat ridiculous figure, posing as an authority on the important things in life, when, in fact, he is often ignorant and immature himself.	-	64	57	61
22. It has been said that "he who can does; he who cannot teaches". There is some truth in this.	-	35	40	36

Table 7 (continued)

ITEM	Scoring key	Males (N=178)	Females (N=181)	Both (N=359)
23. There may be some exceptions, but on the whole teachers are hypocrites since they do not believe in the values they instil in others.	-	45	49	46
24. Teachers should be commended for the way in which they seek to enforce acceptable standards of behaviour among students.	+	58	44	51
25. Despite the conflicts that may arise between teachers and students, a person may be expected to look back on his teachers with appreciation.	+	58	42	49
26. Teachers are usually ready to take quite seriously whatever it is that students feel in earnest about.	+	60	48	55
27. If teachers had their way students would be submissive and "spineless".	-	58	60	59
28. Teachers freely acknowledge and respect the rights of students.	+	68	62	65
29. It is reasonable to say that as a rule teachers work in the best interests of their students.	+	56	61	59
30. Teachers do not respect the individual personalities of the students.	-	63	59	61

Table 8. The Teacher Scale: Means, Standard Deviations and Internal Concistency.

Sex	N	Positively keyed items (N=14)		Negatively keyed items (N=16)		Total Scale (30 items)		Correlation between the two parts	Coefficient alpha*
		\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.		
Males	178	3.19	8.85	3.12	10.01	3.16	16.73	.57	.92
Females	181	3.26	8.45	3.20	10.17	3.23	15.13	.32	.90
Both	359	3.23	8.66	3.17	10.11	3.19	15.98	.45	.91

*Cronbach's (1951) Coefficient of Internal Consistency.

From Tables 3, 5 and 7 it is clear that for each scale satisfactory item-total correlations were obtained for all items and for each sex. For both sexes combined these correlations ranged from .46 to .68 (Army); from .24 to .64 (Law); and from .25 to .65 (Teachers). From the full inter-item correlation matrices for both sexes (Appendices 2, 3, 4) it may be noted that all of the inter-correlations among items are positive. Reliability coefficients (Cronbach's alpha) for the total sample were high, ranging from .91 to .95. Correlations between the positively and negatively keyed parts of the scales were moderately high: .45 for the Teacher Scale, .50 for the Law Scale, and .69 for the Army Scale. The different scales tended to elicit responses of different degrees of favourability, with "Teacher" tending to evoke slightly favourable responses on average and "The Army" generally unfavourable responses. Responses to "The Law" tended to be more neutral. But in each case the range of responding was such as to tap relatively extreme attitudes. This is especially true of the Army scale. It is concluded that each of these scales is a reliable and internally consistent scale suitable for the assessment of attitudes towards the 3 types of authorities among tertiary students.

C. Symbolic Authority Scale. This new, experimental test, justified in part by the need to vary the methodology of assessment, owes much to the rationale provided to their Conservatism Scale by Wilson and Patterson (1970). They argue that "items presented in the form of detailed propositional statements can never provide a satisfactory basis for the measurement of attitudes" (p.4). Such statements, they argue, produce responses which are the complex outcome of cognitive processes. For Wilson and Patterson it is the emotional response reflecting the affective or evaluative reaction of the subject that best characterises a person's "attitude".

Ideally, perhaps, a direct recording of physiological changes, as suggested by Hess (1965) and McGuire (1969) should be used, but in practice these appear to be too cumbersome or unreliable in their measurement at present to replace the use of verbal response. Their Conservatism Scale involves the presentation of single words, e.g., "Chastity" and "Royalty" to which the subject is instructed to give a quick "yes", "no" or "?" reaction. The innovation employed in the present study is to use pictures which may make a more direct and dramatic impact and record reactions to each on a 5-point scale (as used in the previous Likert scales). If McLuhan's (1964) view of the greater power of pictorial communication to the younger generation is right, the test has an additional merit.

Sixty slides were originally made from photographs or drawings in magazines, journals and newspapers. Twenty were considered by the writer to symbolise in some way the exercise of authority; twenty were thought to have anti-authoritarian implications; and twenty were intended as filler items and were probably irrelevant to the issue of authority. For the preliminary investigation of the adequacy of the items included, the slides were projected on to a screen during practical-class sessions attended by groups of First Year Adelaide University psychology students to give 299 subjects in total. The following instructions were given:

"You will shortly be presented with a series of pictures of people in different situations. You will have just 10 seconds to look at each one. During that time you should record how the central person makes you feel. In some cases your feelings may be 'favourable' in others 'unfavourable'. Try hard to ignore how you ought to feel. Give your real, honest, impressions. Use the following key to indicate your feelings:

++ very favourable

+ favourable

- 0 uncertain or neutral
- unfavourable
- - very unfavourable

After responding in this way, the subjects were asked to act as judges to choose slides which were to be used in further analyses. The slides were viewed again (with a 10-second exposure). The instructions were as follows:

"In viewing the slides some of them probably struck you as symbolising authority in some way, others perhaps opposition to authority. Still others may have seemed irrelevant to authority. You will shortly be shown the slides again. This time you are asked to categorise them by placing a tick in the appropriate column, according to how you judge each to be."

Three columns were provided, headed (a) "Authority", (b) "Irrelevant to Authority", and (c) "Anti-Authority". Out of the 60 slides presented, 25 met the following criteria: more than two-thirds of the subjects agreed that the slide fell into category (a) or into category (b); and less than 5% judged the slide was in the opposite category. One item with the lowest item-total correlation coefficient was eliminated to provide a balanced set of items, 12 positive and 12 negative ones. In addition, 12 filler items which were judged to be "irrelevant to Authority" were interspersed among the other items.

The Scale was later administered to 83 first year University of Adelaide Psychology students, 80 of whom completed all the other attitude scales. (Results for the 80 students are analysed further in Chapters 3,4,7 and 8). The Alpha value for this sample of .82 was compared with the value of .86 obtained from the initial sample used in scale construction

Table 9. The Symbolic Authority Scale. Item-total correlations (corrected).
(Decimal points have been omitted).

ITEM DESCRIPTION	Scoring key	Males (N=193)	Females (N=189)	Both sexes (N=382)
1. Girl giving peace sign (Jane Fonda)	-	27	27	28
2. President Nixon	+	40	32	35
3. Man in crowd, fist raised	-	60	37	48
4. Slogan, "Smash the bosses"	-	53	40	49
5. Priest	+	23	41	31
6. Army officer saluting	+	55	48	53
7. Screaming girl	-	57	50	55
8. Speaker with symbolic eagle in the background	+	59	39	51
9. Air pilot	+	28	29	30
10. Nude displaying himself	-	55	44	52
11. Men confronting tanks	-	37	32	38
12. The Pope	+	43	28	37
13. Sailor saluting	+	58	56	58
14. Demonstrators marching	-	50	43	47
15. Girl student in gown, with fist on her back	-	65	57	61
16. Queen Elizabeth I	+	11	25	21
17. Policeman on traffic duty	+	11	26	17
18. Cartoon figures shouting anti-technology slogans	-	48	33	42
19. Middle aged man sitting in a chair	+	21	27	24
20. Girl in prison (Angela Davis)	-	60	31	46
21. Man with Bible (Edgar Hoover)	+	36	33	34
22. Defiant gesture of a man in a crowd	-	44	29	39
23. Judge	+	37	29	35
24. Schoolgirl demonstrators chanting "We want action"	-	31	31	31

(with the non-usable items withdrawn).

An overlap for the 5% confidence intervals was found for the two applications (see Appendix D.b), indicating that the applications did not differ significantly in reliability, and that cross-validation had been achieved. Accordingly, results for the two samples were pooled for further analyses. A description of the items, together with item-total correlations (corrected) is given in Table 9, and the complete inter-item correlation matrix is given in Appendix 5.

It should be noted that some of the items were simply pictorial representations of the "target" used in the other Likert-type authority scales: in particular, items 6 (Army officer), item 17 (Police) and item 23 (Judge). That these items should yield scores that correlate significantly with the total Scale scores supports the view that this Scale is related to attitudes towards the targets used in the other three scales. The conception of "anti-authority" implicit in the choice of such items by the students, and the correlation between them and the other positively keyed items suggest that "student protests" may be regarded as being to some extent against authority as such; or, at least, they may be regarded as opposing a range of authority figures, as indicated by the positively keyed items. The item-total correlations in Table 9 are not quite as high as those obtained for the other Likert Scales. They range, for the total sample, from .17 to .61. However, inspection of the correlation matrix (Appendix 5) reveals that only one inter-item correlation is in the non-predicted direction ($r = -.02$).

The means of the application of the test to the first year Adelaide students are given in Table 10.

Table 10. The Symbolic Authority Scale: Means, Standard Deviations and Internal Consistency.

Sex	N	Positively keyed items (N=12)		Negatively keyed items (N=12)		Total Scale (24 items)		Correlation between the two parts	Coefficient alpha*
		\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.		
Males	193	2.62	6.87	2.94	8.19	2.78	12.57	.39	.86
Females	189	2.84	6.54	3.12	7.12	2.98	10.65	.21	.82
Both	382	2.73	6.84	3.03	7.75	2.88	11.91	.33	.85

*Cronbach's (1951) Coefficient of Internal Consistency

The Symbolic Authority Scale shows a reasonable degree of reliability (alpha coefficients of .85 for sexes combined); the negative and positive halves are not as highly correlated as in the case of other scales, but nevertheless the correlation for the total sample is highly significant ($p < .001$, 2 tailed test). Again, the mean score for each item is approximately 3, with individual scores on the whole scale ranging widely (S.D. = 11.91) over pro- and anti-authority parts of the hypothesised continuum.

Overall the test appears to be relatively consistent and reliable. Moreover, it has merits which the other Likert Scales in this study lack. It has more intrinsic interest than others and although it is an unusual test, out of over 600 subjects who have now completed the test only one subject has objected to doing it. (This subject said that he would not make snap emotional judgements of people). By using the same intervals for exposure of pictures a greater uniformity in conditions can be guaranteed from one session to another. (Wide variations in the time required to complete other questionnaires were found). Finally, in contrast to other Likert tests whose purposes were quite transparent, this test is relatively disguised. To test the degree of effectiveness of the concealment, the 83 First Year University students after completing the test were asked to say what they thought it was aimed at assessing. Following the procedure suggested by Orne (1966), subjects were urged to guess if they felt unsure. Five subjects provided either no answer or indicated that they could think of none. Of the remainder, only 12 subjects judged correctly that it aimed at assessing attitude toward authority; in 2 cases this was given among other things. For at least 86% of these subjects, then, the test would appear to have been successfully disguised. It seems likely that for

some of the "correct" judges, the purpose of the test may have become clear on reflection afterwards, and may not have been evident at the time of completing the test. A wide range of incorrect answers was given, for example "tolerance", "prejudice", "first impression of people", "reactions to facial expressions", "personality", "emotionality", "social awareness", "alertness", "involvement", "strength of conviction", "ideals", "opinions towards society", "reactions to human situations", "conformity", "certain themes", "feelings about violence", "aggression", "flexibility", "attitudes towards life".

The diversity and the frequent vagueness of the answers, e.g. "reactions to different things", "effects of people in general", "attitude to environmental activities", suggests that the test is unlikely to arouse any consistent set, and provide, in Orne's term, "demand characteristics", which as Orne has shown, may be the real determinant of an experimental outcome.

D. Independence Scale. The method used in the assessment of attitude towards graduating students was suggested by a series of experiments by Sherif (1947), Crutchfield (1955), Asch (1956), Milgram (1965) and more recently Hudson (1968). The procedure was to present the subject with the judgements or opinions of others in a situation in which he was asked to make a decision himself in such a way that his degree of "yielding" or "independence" could be measured. As an "attitude to authority" test rather than a "test of conformity", it is essential to use as a source of the given judgements one that is likely to produce the respect that is normally due to "a superior". Further, the issues upon which judgements are to be elicited should be ones upon which the subject is unlikely to have a strong personal feeling or opinion - to maximise his vulnerability to pressure.

Finally to minimise the "rationality" of going along with the authority, the issues should not be ones upon which the authority would normally be accepted as an expert.

Hudson's test would appear to have these qualities. His subjects were 6th form Grammar School boys in England, and for them the "authority" consisted of University graduates whose opinions on a series of questions had been elicited and presented in terms of their order of preference (1-6). The degree of acceptance of authority was inferred from the positions of the alternatives selected by each subject: the closer to the alternative presented as having highest preference, the more influenced by this authority the subject was assumed to be. A subject's score in a test of this type is obtained by summing the ranked positions of his choices, so that the lower the total score the more pro-authority the subject is presumed to be.

The test was amended in two ways. First, the "authority" chosen was that of "graduating students at the S.A.I.T." (where the tests were used) rather than "graduates". Secondly, some of the questions were changed so as to be more appropriate for Australian subjects (questions 6, 7, 8, 9, 10) or because they had been criticised by Hudson (question 22, 23, 24) as producing preferences too strongly.

Following Hudson's procedure the questions were first given, together with randomly arranged alternative answers, to a group of "authorities", which consisted of 31 Third Year Social Work students. It was on the basis of their preferences that the "answers" were subsequently re-arranged for the new test. (See Appendix 6a and 6b).

Hudson (1968) provides no evidence of the reliability or validity for his scale. In this study the reliability of this

kind of scale was assessed in the same way as the Likert-type scales, that is, alpha coefficients and item-total correlations (corrected) were computed for samples of subjects. The results of four samples of S.A.I.T. students were examined.

- Sample A. 106 males (56 first year and 50 later year)
- Sample B. 69 females (44 first year and 25 later year)
- Sample C. Sample A + Sample B
- Sample D. A sub-sample of Sample C: 100 first year students (56 males and 44 females).

Table 11. The Independence Scale: Means, Standard Deviations and Internal Consistency.

	\bar{X}	S.D.	Coefficient Alpha*
Sample A	62.68	9.12	.65
Sample B	58.64	10.84	.62
Sample C	61.09	10.03	.54
Sample D	59.32	10.09	.54

*Cronbach's (1951) Coefficient of Internal Consistency

It may be noted that coefficient alpha is considerably lower for each of the four samples of Independence scores than it is for the Likert-type attitude scales. The alpha coefficient for Sample C (N=175), the largest sample, is only .54, and it is of interest that the coefficient for Sample D, consisting of first year students for whom the scale might be thought to have the greatest salience, is not higher. The relatively poor reliability of this scale is reflected by low item-item and item-total correlations (see Appendix 6c and 6d). Inspection of the correlation matrix for Sample C shows that a substantial proportion of the correlations are in fact negative, and item-total

correlations for this sample range from .01 to .27. It must be concluded that the reliability of the type of scale is quite low and that it is not any more reliable when applied to the most junior students.

E. The Radicalism Scale. The degree of radicalism may be inferred from a person's willingness to support or oppose certain proposals that were thought to be in the direction favoured by a large proportion of so-called radicals at that time. The term "radical" is commonly used to describe people who want to change the "status quo" in some important way, and this may involve the restoration of some earlier regime, or the creation of a new one; broadly, these aims correspond to those of Right Wing and Left Wing radicals. The opposition of Left and Right Wing thinkers is such that one would certainly not expect them to agree on specific proposals. Hence, it was decided to choose items which were likely to be endorsed by the more common type of radical: that of the left. The scale therefore must be regarded as a measure of left-wing radicalism.

A major difficulty lies in the transitory nature of radical aims. What appear to be radical proposals at one time and in one place may be regarded at another or elsewhere as irrelevant to radicalism or even conservative. Thus the items in Eysenck's radicalism scale (1954) which forms part of his Social Attitudes Inventory were regarded by the writer's First Year Social Work students in 1970 as very much outdated. One might suppose that such a scale would be more enduring than most, as it is conceived somewhat narrowly in socio-economic terms and, as such, relates to inequalities that persist in most societies and may evoke broadly predictable reactions from the "haves" and "have-nots". Where radicalism is conceived as relating to a broad spectrum of social

and political issues (and with the reduction of gross socio-economic differences this would appear to be more justified) the problem of the transitoriness of relevant item content is particularly acute. Consider, for instance, the Conservatism Scale of Wilson and Patterson (1970) which is intended to cover a wide range of issues in relation to which "technological and social evolution" has resulted in some attitude systems lagging behind. As a means of tapping radicalism it already seems dated. On the face of it "co-education" and "chaperones" are hardly items that seem likely to differentiate between the relative backwardness of modern students; nor do "jazz", "pyjama parties" and "beatniks" have the "trendiness" once suggested by these terms. The general conception of Wilson and Patterson, however, in viewing radicalism as an evolutionary process is a useful one. The emphasis is upon "responsiveness" to what modern technological and social evolution are thought to be making increasingly desirable. Whether the proposed changes are in fact desirable is besides the point. Radicalism is to be inferred from reactions to proposals that have been put forward as appropriate for today's world, by people whose rationale for doing so is evolutionary.

To develop a test of radicalism, 16 proposals which may be considered radical in the sense of having been put forward as appropriate for today's world were presented to a group of 40 first year Social Work students (12 males and 28 females). The respondent was asked to say whether he or she would strongly support, moderately support, be quite neutral about, moderately oppose or strongly oppose each of the proposals. The instructions accompanying this test were as follows:

"It has been claimed that modern technology and social evolution are making it increasingly desirable that there should be certain changes made in our society today.

Below are some proposals that have been put forward as being appropriate for today's world.

Answer in the boxes at the end of each statement using the following system:

- +2 If you strongly support the proposal
- +1 If you moderately support the proposal
- 0 If you are quite neutral about the proposal
- 1 If you moderately oppose the proposal
- 2 If you strongly oppose the proposal. "

They were scored on a 5-point scale (1-5) in the direction of endorsement of these radical proposals; that is, the scale was not balanced, since interest was in how strongly respondents would support (or oppose) proposals in a particular direction (of left-wing radicalism), rather than support (or oppose) proposals in directions conceived as opposite. Item-total correlations were calculated and 2 items with the lowest coefficients (less than .40) were eliminated. These were: "Sever links with the British Monarchical system" and "Decentralise power and authority in society".

The 14 item scale was subsequently given to 80 University of Adelaide first year Psychology students (33 males and 47 females). The results for these subjects were used in further analyses. (See Table 14 for details of the respondents). The "proposals" used in the scale are given in Table 12A, together with details of the subjects' responses to each one of them. Item-total correlations (corrected) are given in Table 12B.

TABLE 12A

DISTRIBUTION OF RESPONSES ON THE RADICALISM SCALE FOR UNIV. OF ADELAIDE SUBJECTS (N = 80)

Item	Numbers of respondents with percentages in brackets					Item \bar{X}	Score S.D.
	Strongly opposing	Moderately opposing	Quite neutral	Moderately opposing	Strongly opposing		
1. Abolish the so-called White Australis Policy	7 (9)	13 (16)	3 (4)	22 (28)	35 (44)	3.81	1.37
2. Work towards the establishment of a true equality for women in our society	1 (1)	3 (4)	9 (11)	26 (33)	41 (51)	4.29	.90
3. Treat criminals as sick people to be helped rather than evil-doers to be punished	3 (4)	9 (11)	3 (4)	39 (49)	26 (33)	3.95	1.07
4. Legalise the use of "harmless" drugs such as marihuana	9 (11)	22 (28)	10 (13)	21 (26)	18 (23)	3.21	1.36
5. Establish student control over educational institutions.	12 (15)	24 (30)	8 (10)	30 (38)	6 (8)	2.93	1.25
6. Oppose apartheid in S. Africa	1 (1)	7 (9)	3 (4)	14 (18)	55 (69)	4.44	1.00
7. End the draft	2 (3)	3 (4)	10 (13)	13 (16)	52 (65)	4.38	1.00
8. Abolish censorship in all its forms	3 (4)	16 (20)	7 (9)	27 (34)	27 (34)	3.74	1.22
9. Withdraw Australian support for the war in Vietnam	1 (1)	6 (8)	8 (10)	12 (15)	53 (66)	4.38	1.02
10. Establish democratic control over industries by the workers	7 (9)	17 (21)	14 (18)	24 (30)	18 (23)	3.36	1.28
11. Aim at the over-throwal of capitalism and its replacement by a free society	11 (14)	19 (24)	13 (16)	18 (23)	19 (24)	3.19	1.39
12. "Recognize" Red China	3 (4)	2 (3)	11 (14)	31 (39)	33 (41)	4.11	.99
13. Abolish remnants of traditional power such as the Legislative Council in S. Australia.	5 (6)	14 (18)	15 (19)	25 (31)	21 (26)	3.54	1.22
14. Support the struggle of people against Imperialism	4 (5)	6 (8)	19 (24)	32 (40)	19 (24)	3.70	1.07
TOTAL	69 (6)	161 (14)	133 (12)	334 (30)	423 (38)	53.01	10.29

Table 12B The Radicalism Scale: item-total correlations
(corrected). (Decimal points have been omitted).

Proposals	Males (N=33)	Females (N=47)	Both sexes (N=80)
1. Abolish the so-called White Australia policy.	77	35	54
2. Work towards the establishment of a true equality for women in our society.	68	55	60
3. Treat criminals as sick people to be helped rather than as evil-doers to be punished.	57	24	37
4. Legalise the use of "harmless" drugs such as marijuana.	89	57	70
5. Establish student control over educational institutions.	66	36	49
6. Oppose apartheid in South Africa.	62	43	51
7. End the draft.	59	52	55
8. Abolish censorship in all its forms.	66	44	50
9. Withdraw Australian support for the war in Vietnam.	38	47	42
10. Establish democratic control over industries by the workers.	70	58	63
11. Aim at the overthrowal of capitalism and its replacement by a free society.	85	64	73
12. "Recognize" Red China.	69	36	49
13. Abolish remnants of traditional power, such as that of the Legislative Council in South Australia.	66	60	62
14. Support the struggle of people against Imperialism.	84	39	63

On the whole the proposals elicited generally favourable responses (and the Scale may to some extent reflect an acceptance of what were fashionable opinions of students at that time). However, several proposals were not supported by the majority of the students, such as item 4 on the legalisation of marihuana, item 5 advocating student control over educational institutions, and item 11 urging the overthrowal of capitalism. As Table 12B shows, the item-total correlations for these three items, as well as the others, are quite high, being respectively .70, .49 and .73. It should also be noted that the Scale allowed for degrees of acceptance or rejection of the proposals, as Radicalism was conceived as determining the strength with which radical proposals are endorsed or rejected.

The mean score on the Radicalism Scale for males was 53.67 with a standard deviation of 11.84; for females the mean was 52.55 with a standard deviation of 9.02; for both sexes the mean was 53.01 with a standard deviation of 10.29. Item-total correlations for both sexes combined range from .42 to .73; Cronbach's (1951) coefficient alpha is .93 for males, .80 for females and .87 for both sexes combined. All inter-correlations are in the predicted direction (see Appendix 7). On the basis of these results the scale may be regarded as highly reliable and internally consistent, particularly for males. (The implications of such sex differences are examined further in Chapter 11 (vi).)

It has already been noted in Chapter 2 that radical opinions may arise as a consequence of situational constraints. However, in view of the diversity of issues sampled and the relatively high consistency of the responding, it is concluded that individual attitude was a major determinant, rather than specific situational factors, with regard to scores on the Radicalism Scale.

The Radicalism Scale has considerable face validity. Five of the fourteen proposals used in the Scale are ones which were strongly and explicitly supported at that time by the Australian Labour Party (proposals 6, 7, 9, 12 and 13). Though less obviously, one might expect the A.L.P. to be more sympathetic towards the remaining proposals than a more right-wing group, such as the Democratic Labour Party. The transitoriness of this scale is evident when one considers that by the end of 1972 proposals 7, 9 and 12 had ceased to be ones upon which radical support was needed. The victory of the A.L.P. at the polls meant the end of the draft, the recognition of the People's Republic of China and the end of direct involvement in the war in Vietnam.

F. Eleven-point Rating Scales. A final type of scale used in this study is a straightforward rating scale method. The form in which the scales are presented is similar to that of the semantic differential tests of Osgood et al. (1957), in which the respondent is able to indicate the extent to which a given attitude object has a meaning for him similar to that of certain bipolar adjectives. In the present test the attitude objects are authorities: the army, teachers, the law, the police and authority-in-general. The

respondent is asked to indicate where on an eleven-point scale extending from pro- to anti-authority he judges himself to be in relation to each of the authorities. (The scales and the instructions for subjects are given in Appendix 8).

The results of the application of the scales to 74 First Year Adelaide University students in 1972 are as follows:

Table 13. Eleven-Point Rating Scales: Means* and Standard Deviations.

Scale	Males (N=32)		Females (N=42)		Both sexes (N=74)	
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.
Army	2.84	2.80	2.95	2.29	2.81	2.52
Police	4.75	2.60	5.86	2.43	5.38	2.56
Teachers	6.59	2.50	7.40	2.05	7.05	2.29
Law	5.84	2.40	6.79	2.12	6.38	2.29
Authority-in-general	4.66	2.63	5.43	2.45	5.09	2.56

*The scales are scored in a pro-authority direction, between 0 and 10.

It may be noted that for "authority in general" the mean score for both sexes combined is 5.09, which is close to the theoretical mid-point of the scale, which is 5.0. An obtained standard deviation of 2.56 suggests that the attitudes of people judging themselves both pro- and anti-authority were being sampled. One may also note that there is considerable variation in the regard with which the different authorities appear to be held, with the army arousing the greatest hostility and teachers the least. It is apparent that a wide range of authorities has been sampled with respect to the intensity and direction of feelings they arouse among tertiary students.

2. (iii) Summary of Measurement Techniques

In summary, five Likert-type balanced or approximately balanced scales were developed for the measurement of attitudes towards authority. Item-total correlations, Cronbach alpha coefficients and correlations between positively and negatively keyed parts of the scales were calculated for males, females and both sexes of samples of tertiary students. The results indicated that each of the scales is reliable and internally consistent, and that the balancing (or approximate balancing) of the scales to control for acquiescence did not result in the emergence of poorly correlated sub-scales. In addition, each one of these scales has been cross-validated, in terms of its Alpha value. A different type of test devised by Hudson (1968) was adapted to assess attitudes towards graduating students. Item-total correlations and Cronbach alpha coefficients calculated for this so-called Independence Scale indicated that it was considerably less reliable than the others. As a measure of radicalism (of the left) a scale was developed to assess the degree to which proposals aimed at changing the political "status quo" would be supported or opposed. Item-total correlations and Cronbach's alpha coefficient were quite high for this scale for males, females and both sexes. Lastly, eleven-point rating scales were constructed for use in relation to the five main representations of authority to give a direct measure of the subject's overall feeling tone towards each of the authorities and towards "authority in general". Mean scores for these scales varied on either side of the theoretical midpoint, indicating that the authorities sampled tended to arouse feelings differing in both intensity and direction.

CHAPTER 3: THE GENERALITY OF ATTITUDE TO AUTHORITY

3(i) Aim

It may be maintained that the fact that a number of internally consistent scales relating to attitudes towards authority among tertiary students can be developed is in itself support for some generality of the attitudes. Since the computed indices of reliability and consistency are higher in every scale for males than females this type of generality would appear to be more definite for males. This finding justifies the analysis of results separately for the sexes. The claim of generality for these attitudes would be greatly strengthened if it were found that attitudes towards different authorities, variously assessed, inter-correlated significantly for both males and females and for different kinds of tertiary students. The aim of this part of the study is to examine the degree of intercorrelation amongst the attitude scales and the radicalism scale in order to determine the extent and nature of the generality.

3(ii) Subjects and procedures

Subjects used in this study were students of Psychology attending either the South Australian Institute of Technology or the University of Adelaide during 1971 or 1972.

The Institute subjects were from classes in Psychology in one or other of the following courses: the General and Social Psychology Course for the first year Social Work students; Psychology (S) for first year Physiotherapy, Occupational Therapy and Library Studies students; General Elective Psychology, for students electing to take Psychology as an option during one of the years of their diploma course; and Business Psychology taken by Second Year Business Studies students. The University of Adelaide subjects were from first year Psychology tutorial classes.

Both sets of students received the five Likert-type Scales measuring attitudes towards authorities and the Radicalism Scale. In addition, the Institute subjects completed the Independence Scale and the University subjects completed the five Eleven-point Rating Scales.

The Scales were administered in most cases over two sessions, together with certain personality tests (to be described later). Subjects were asked to provide the following additional information: sex, date of birth, year of course, whether attendance was full-time or part-time, and an identification letter-number combination by means of which they, and they alone, could discover their scores on the tests when they were eventually fed back to them. (Some of these subjects were used to provide results for the cross-validation of the scales. See Appendix 24 for the details).

There was a marked falling off in attendance, particularly among General Elective students at the Institute, and some of the Scales were not completed by those who attended. The number of students completing particular tests therefore varies. A description of the Institute subjects for whom individual test scores have been computed is provided in Appendix 14, and corresponding inter-correlation matrices are given in Appendix 15 & 16. In this chapter interest is in the results derived from subjects completing all of the relevant scales. Accordingly, the subjects involved in each of the analyses will be described in the results section that follows.

3. (iii) Results

A. The main Attitude Scales and Radicalism

The results of subjects completing each of the five Likert-type Attitude towards Authority Scales and the Radicalism Scale at the two educational institutions are described in Table 14.

Table 14. Age and Mode of Attendance of subjects completing all the Likert-type attitude scales at S.A.I.T. and the University of Adelaide.

South Australian Institute of Technology (S.A.I.T.)

Groups	Mean Age	S.D.	Full-time Attendance	Part-time Attendance	Total Subjects
Male	23.62	6.34	58	35	93
Female	18.84	4.33	80	7	87
Both sexes	21.31	5.95	138	42	180

University of Adelaide

Groups	Mean Age	S.D.	Full-time Attendance	Part-time Attendance	Total Subjects
Male	19.30	2.56	27	6	33
Female	18.74	3.93	41	6	47
Both sexes	18.98	3.45	68	12	80

The two samples differ principally in that the S.A.I.T. males are significantly older ($t = 3.80$; $p < .001$).

The results of the application of the Scales are as follows:

Table 15. Means and Standard Deviations for subjects completing the Likert-type Attitude Scales and the Radicalism Scale.

South Australian Institute of Technology						
Scale	Males N=93		Females N=87		Both Sexes N=180	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Symbolic Authority	70.91	11.02	73.77	9.95	72.29	10.62
Teachers	99.17	16.91	93.90	15.37	96.62	16.40
Army	87.65	22.84	83.99	19.80	85.88	21.50
Law	89.52	15.16	89.52	13.91	89.52	14.57
Police	80.06	15.49	81.00	12.75	80.52	14.24
Radicalism	47.63	10.09	51.45	8.80	49.48	9.68

University of Adelaide						
Scale	Males N=33		Females N=47		Both Sexes N=80	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Symbolic Authority	66.48	11.49	72.81	9.17	70.20	10.66
Teachers	93.18	14.94	93.68	13.65	93.48	14.20
Army	76.03	20.88	79.60	16.58	78.13	18.56
Law	81.00	15.45	83.68	16.03	82.58	15.85
Police	71.91	15.64	75.98	13.22	74.30	14.41
Radicalism	53.67	11.84	52.55	9.02	53.01	10.29

It may be noted that the mean scores for the authority scales are lower in every case for the University subjects; that is, the University subjects show a more anti-authority tendency. They also have higher mean radicalism scores.

(These differences are examined in further detail in Chapter 11)

Intercorrelations between the Likert-type Scale scores are given below, together with correlations with Radicalism scores and the ages of the subjects.

Table 16. Correlation matrices for the Authority Scales, Radicalism and Age: South Australian Institute of Technology (S.A.I.T.) and University of Adelaide (U. of A.) subjects.

In each case correlation coefficients for S.A.I.T. subjects are given to the top right of the diagonal line and University of Adelaide results to the bottom left of it.

(a) Males (U. of A.: N=33; S.A.I.T.: N=93)

	Symbolic Authority	Teachers	Army	Law	Police	Radicalism	Age
Symbolic Authority		.43	.55	.62	.47	-.62	.16
Teachers	.65		.52	.58	.52	-.44	.16
Army	.83	.68		.70	.54	-.58	.05
Law	.83	.53	.78		.66	-.62	.06
Police	.81	.58	.71	.73		-.48	.01
Radicalism	-.75	-.56	-.69	-.81	-.63		.00
Age	.08	-.14	-.02	.06	-.06	-.21	

Critical values for $\alpha = .05$ (1 tailed test) : $r = .17$ (S.A.I.T.)
and $.29$ (U. of A.)

Table 16 (continued)

(b) Females (U. of A.: N=47; S.A.I.T.: N=87)

	Symbolic Authority	Teachers	Army	Law	Police	Radicalism	Age
Symbolic Authority		.19	.65	.56	.56	-.59	.06
Teachers	.32		.36	.39	.28	-.30	.18
Army	.65	.46		.65	.58	-.57	.11
Law	.48	.47	.69		.49	-.56	.20
Police	.59	.51	.71	.62		-.40	.07
Radicalism	-.52	-.32	-.67	-.51	-.39		-.04
Age	-.25	-.10	-.21	-.05	-.06	.21	

Critical values for $\alpha = .05$ (1 tailed test): $r = .18$ (S.A.I.T.) and $.24$ (U. of A.).

(c) Both sexes (U. of A.: N=80; S.A.I.T.: N=180)

	Symbolic Authority	Teachers	Army	Law	Police	Radicalism	Age
Symbolic Authority		.30	.57	.59	.51	-.56	.08
Teachers	.46		.46	.49	.41	-.40	.17
Army	.74	.56		.67	.55	-.58	.17
Law	.63	.50	.73		.55	-.58	.19
Police	.70	.54	.71	.67		-.44	.08
Radicalism	-.63	-.44	-.68	-.64	-.52		-.09
Age	-.14	-.11	-.14	-.02	-.07	.13	

Critical values for $\alpha = .05$ (1 tailed test) : $r = .12$ (S.A.I.T.) and $.19$ (U. of A.).

It will be seen from the above tables that the correlations between the attitude towards authority scales are positive and significant for both the S.A.I.T. and the University of Adelaide subjects. In addition, the correlations are significant when the results are examined for each sex separately.

In view of the different methodology used in assessing attitude to authority with the Symbolic Authority Scale, correlations between the results for this scale and the others are of particular interest. In the following table mean correlation coefficients between the Symbolic Authority Scale and other scales are given for each sex and for both sexes combined, and these may be compared with the corresponding mean values of the correlations between the other Likert-type attitude to authority scales.

Table 17. Mean correlation coefficients for two sets of Attitude to Authority Scale results for different samples of subjects: S.A.I.T. and U. of A.

- (a) Between the Symbolic Authority Scale and each of the 4 other Likert-type authority scales.
- (b) Between each of the 4 Likert-type authority scales excluding the Symbolic Authority Scale, (i.e. the mean of the 6 correlation coefficients).

Coefficients for (b) are given in brackets.

Sample	Males	Females	Both sexes
S.A.I.T.	.52 (.59)	.49 (.46)	.49 (.52)
U. of A.	.78 (.67)	.51 (.58)	.63 (.62)

Note: the subjects were those described in Table 14.

As the means of the correlation coefficients for the two sets are quite similar, it seems unlikely that the moderately high coefficients obtained between the attitude to authority scales are dependent upon a particular methodology.

It may be noted also that there are small but consistent differences between the correlation coefficients describing the relationship between the results of subjects from the S.A.I.T. and those from the University of Adelaide and also between males and females. First, the correlation coefficients are in each case higher for the University subjects (results for both sexes combined), and, secondly, there is a tendency (more pronounced among the University subjects) for the coefficients to be higher for male subjects. These results suggest that both the nature of the institution from which the subjects were drawn and the sex of the subject are factors affecting the generality of the attitude. Age appears to be relatively unimportant, with only small correlations being obtained between age and the Authority Scales: positive in the case of the S.A.I.T. and generally negative for the Adelaide University subjects.

Finally, one must examine the relationship between the scores on the Radicalism Scale and those on the Authority Scales. All the correlation between the Radicalism and each of the attitude towards authority scales are significant for both males and females. The mean of the correlation coefficients between the Radicalism Scale and the authority scales is $-.51$ for the S.A.I.T. subjects and $-.58$ for the University of Adelaide subjects. These results are strikingly similar in magnitude to those obtained for the authority scales themselves: the mean correlation coefficient among authority scales is $.51$ for S.A.I.T. subjects and $.62$ for the University of Adelaide subjects. Clearly, it cannot be argued on the basis of such results that attitude towards authority as measured by these scales is distinct from "radicalism" as inferred from agreement or disagreement with so-called "radical proposals".

B. Eleven-point Rating Scales

Of the 80 University of Adelaide subjects who completed the Likert-type scales, 74 of them also received scores on the Eleven-point rating scales which were administered on the following week. The means and standard deviations for these subjects on the Rating Scales have already been given (Table 13). Here the correlations among these Rating Scales and Radicalism are examined.

Table 18. Correlation matrices for the Eleven-point Rating Scales and Radicalism for University of Adelaide subjects.

Correlation coefficients are given for male subjects (N=32) to the top right of the diagonal, coefficients for females (N=42) are given to the bottom left.

(a) Intercorrelation matrices for female and male subjects

	Army	Police	Teachers	Law	Authority in general	Radicalism
Army		.80	.43	.49	.69	-.74
Police	.47		.60	.62	.78	-.75
Teachers	.43	.51		.65	.62	-.45
Law	.43	.70	.33		.81	-.64
Authority in general	.47	.67	.59	.59		-.70
Radicalism	-.67	-.27	-.19	-.19	-.24	

Critical values for $\alpha = .05$ (1 tailed test) are $r = .30$ (for males) and $.26$ (for females).

(b) Intercorrelation matrices for both sexes combined (N=74)

	Police	Teachers	Law	Authority in general	Radicalism
Army	.62	.43	.46	.58	-.71
Police		.57	.67	.73	-.52
Teachers			.51	.61	-.34
Law				.70	-.43
Authority in general					-.48

Critical value for $\alpha = .05$ (1 tailed test) is $r = .19$

Intercorrelations among these measures provide a similar pattern to those obtained using Likert-type scales. All the correlations are significant, with the coefficients for males again tending to be higher than those for females: the mean correlation coefficient for males is .65; for the female subjects it is .52. Overall, scores on the Eleven-point Scales correlated slightly less positively with each other than those provided by the Likert-type Scales using University subjects. However, the similarity is pronounced, and provides further support for the generality of this attitude.

Radicalism is significantly correlated with each of the attitude towards authority measures using results for both sexes combined and results for males only. For females, however, only one of the 5 correlations is significant. Generally, this supports the conclusion based upon the results of the Likert-type Scales that attitude towards authority cannot be considered as distinct from radicalism, at least among males.

C. The Independence Scale

Results are available for 121 of the S.A.I.T. subjects who also completed the Likert-type scales.

Table 19. Means and Standard Deviations of scores on the Independence Scale and the Ages of subjects, together with Mode of Attendance.

Subjects	Independence Scale		Age (years)		Attendance (number)	
	Mean	S.D.	Mean	S.D.	Full	Part
Males	63.95	8.26	22.98	5.35	32	23
Females	59.28	9.85	18.23	1.00	63	3
Both sexes	61.41	9.49	20.39	4.38	95	26

The mean ages and proportions of male to female, and part- to full-time are only slightly different from those of the main sample of 180, of which this is a sub-group (see Table 14).

Table 20. Correlations of scores on the Independence Scale with other Authority Scales and Age.

Subjects	Likert-type attitude to authority scales				
	Symbolic Authority	Teacher	Army	Law	Police
Males (N=55)	.06	-.03	.11	.03	-.10
Females (N=66)	.16	-.08	.10	.02	.02
Both sexes (N=121)	.08	-.02	.13	.02	-.02

Critical values for $\alpha = .05$ (1 tailed test): $r = .22$ (males); $.20$ (females); $.15$ (both sexes)

To be consistent with the hypothesis that the generality of attitude towards authority extends to encompass the authority implied by this scale, negative correlations are required between the Independence Scale and the other attitude towards authority scales.

In only 5 cases are such correlations found and none of them are significant. Correlations with Radicalism, for which positive correlations were expected, are negative in the case of females ($r = -.23$) and for both sexes combined ($r = -.11$). The positive correlation for males ($r = .14$) is not significant. Such results clearly suggest that attitude towards authority as assessed by the Independence Scale is unrelated to the attitudes tapped by the other scales.

However, it could be argued that the Independence Scale was more appropriate for first year subjects for whom graduating students might indeed prove to be a more impressive and influential authority. An analysis of the scores of first and second year subjects gives support to this argument.

Table 21. Means and Standard Deviations of scores on the Independence Scale for First and Second year subjects separately.

Subjects	First year of attending			Second year of attending			t	p (one-tailed)
	Mean	S.D.	N	Mean	S.D.	N		
Males	61.64	10.37	61	65.50	11.14	46	1.84	<.05
Females	57.07	11.14	76	62.48	10.23	21	1.97	<.05
Both sexes	59.10	10.17	137	64.55	10.95	67	3.49	<.001

Since for both males and females there was significantly more yielding to the judgements of "graduating students" by first year students than by second year students, it appears that a better test of the relationship between this and other scales of attitude towards authority would make use of first year data only. Accordingly, the following analysis used first year data only.

Table 22. Correlations of scores on the Independence Scale with other Authority Scales and Age. (First year results only)

Subjects	Likert-type attitude to authority scales				
	Symbolic Authority	Teacher	Army	Law	Police
Males (N=24)	.08	-.23	.01	-.04	-.20
Females (N=53)	.11	-.04	.07	-.01	.09
Both sexes (N=77)	.08	-.07	.11	.01	.02

Critical values for $\alpha = .05$ (1 tailed test) : $r = .33$ (males) ;
.23 (females), and .19 (both sexes).

Using this stricter test of the relationship between the authority scales, it is again evident that the Independence Scales does not yield scores that correlatesignificantly with those of the other Scales. Correlations with the Radicalism Scale are also not significant: for males $r = .27$; for females $r = -.17$; for both sexes combined $r = -.10$.

The results indicate that a limitation must be placed upon the generality that may reasonably be claimed for attitude to authority. This measure relating to a non-institutionalised authority appears to be unrelated to the other measures.

3. (iv) The Composite Authority Scale (C.A.S.).

The results presented in this section appear to justify the derivation of a composite authority scale based upon scores obtained on the individual scales. Such a scale would have the advantage of relating to a variety of authority figures, towards which tertiary students demonstrably tend to have similar attitudes. It was envisaged that it was in relation to such a measure, broad in scope and more stable than the individual scores, that hypotheses about the relationship between certain personality characteristics and

attitudes towards authority could be tested in the second part of this inquiry.

The scales used for this purpose were the Likert-type Scales measuring attitudes towards Symbolic Authority, Teachers, the Army, the Law and the Police. Although Radicalism had been found to be correlated significantly with each of the authority scales, it was not included on the grounds that the rationale for its construction was different. In view of the very low, non-significant correlations between Independence and the Authority Scales, this measure was, of course, not included.

To provide the Composite Authority Scale the results obtained from the different authority scales were pooled. As the scales were of different lengths and had different means and variances, each score was converted to a z score, using all the available data for the particular scales. Where all the data was completed for the 5 scales, the z scores were summed for each subject, the distribution again normalised and each score expressed as a T score. Thus for each group (S.A.I.T. and the University of Adelaide) the mean is 50 and the S.D. is 10. The relationship between each of the scales and this Composite Authority Scale, (C.A.S.) is given below.

Table 23. Correlations between the Composite Authority Scale and individual Likert-type measures.

(a) S.A.I.T. sample

	Symbolic Authority	Teachers	Army	Law	Police
Males (N=93)	.76	.76	.83	.89	.79
Females (N=87)	.78	.59	.85	.81	.76
Both sexes (N=180)	.76	.68	.83	.85	.78

(b) University sample (U. of A.)

	Symbolic Authority	Teachers	Army	Law	Police
Males (N=33)	.93	.78	.91	.88	.87
Females (N=47)	.75	.70	.87	.83	.86
Both sexes (N=80)	.84	.73	.89	.84	.87

The coefficients associated with the authority scales above reflect the centrality of the contributions of the various scales to the C.A.S., rather than the extent of the correlations between each scale and the remainder of the scales. The contributions are of a similar magnitude, ranging from .68 to .85 for the S.A.I.T. sample and from .73 to .89 for the University Sample. The Teacher Scale appears to be the least central of the scales, but the disparity between this scale and the others is not so pronounced as to justify unequal weighting.

Correlations between the C.A.S. and age were as follows. For the S.A.I.T. sample the correlation was .18, which is significant at the .05 level (2 tailed test); for the sexes taken separately the correlations were .22 and .12 for males and females respectively. For the University sample, the correlation was -.11, which is not significant; for male subjects r was -.02 and for females r was -.16. Thus for both samples the correlations with age are quite small, and for one group (S.A.I.T.) they are positive and for the other (University of Adelaide) they are negative.

Finally, it may be noted that the C.A.S. is strongly correlated with the Radicalism Scale. For the S.A.I.T. sample the correlation is -.65, with the correlations for males and females respectively -.68 and -.64. For the University of Adelaide sample $r = -.69$, with correlations for males and females of -.78 and -.60 respectively. All these correlations are significant at the .001 level (2 tailed

test) and indicate that the kind of left wing radicalism reflected by the Radicalism Scale is closely related to the general measure of attitude towards authority assessed by the C.A.S.

3. (v) Summary and Implications

In Chapter 2 it was established that internally consistent Likert-type scales could be developed to measure attitudes towards authority in relation to the police, the army, teachers, the law and symbolic authority for a sample of tertiary students of both sexes. It was concluded that this is evidence of the generality of attitude towards authority in relation to each of these particular kinds of authorities. In this chapter the generality that may be claimed has been broadened to extend across each one of these authorities. The evidence for this statement may be reviewed briefly.

1. Significant correlations between the Likert-type scales relating to teachers, the army, the law, the police and symbolic authority were obtained for samples of subjects of each sex at two different tertiary institutions.

2. Correlations between scales for which different methods of testing were used, that is, the Symbolic Authority Scale and the other scales, were significant for both samples of tertiary students of each sex.

3. Significant correlations were obtained between scores derived from Eleven point Rating Scales measuring attitudes towards 5 different authorities for each sex using a sample of first year University subjects.

A limitation of the extent of the generality that may be claimed for the attitude being measured in this study is apparent from the results of correlations with the Independence Scale. For both male and female subjects at S.A.I.T., even among first year

subjects for whom the Scale may be presumed to be most salient, there are no significant correlations between the scores on the Independence Scale and the scores on any of the Likert-type attitude towards authority scales.

The evidence is quite strong that attitudes towards authority as assessed by both the Likert-type scales and by the Eleven-point Scales are closely related to radicalism as it has been assessed in this study.

1. For both sexes and at both institutions all the correlations between the Likert-type scales and the Radicalism Scale are significant. Moreover, the magnitude of the coefficients is generally similar to those obtained between the authority measures themselves.

2. Correlations between the self-ratings of the University subjects on the Eleven-point Rating Scales assessing attitudes towards authorities and the Radicalism Scale are significant for males and females combined and for males alone. For females the relationship is less certain: although all the correlations are positive only one of them is significant.

It is evident that attitude towards authority as assessed by the Independence Scale is not only unrelated to the other authority scales: it is also unrelated to the measure of radicalism, since none of the correlations reach significance for either sex or for either of the samples.

It may be concluded that among tertiary students at the two different educational institutions during 1971 and 1972 it was reasonable to speak of a generalised attitude towards authority extending over these attitude objects: symbolic authority, teachers, the army, the law, and the police. There is evidence that this is true for both sexes, but the generality appears to be more pronounced and conclusive in the case of the male subjects.

It seems to be unrelated to attitude towards "graduating students" as assessed by the Independence Scale, though this is the least reliable of the scales employed. It is suggested on the basis of these results that attitude towards authority may not extend into the area of non-institutionalised authority. The general attitude that has emerged appears to be related to a political or ideological consciousness among students, since each of the Likert-type authority scales is associated with "radicalism", which is conceived here primarily in "left-wing" political and social terms, and is concerned very much with how institutions ought to behave. Such a conclusion is consistent with the results of the American study of Wilson and Wadsworth (1972) discussed in Chapter 1 (page 5) but has the additional merit of being based upon developed scales.

Finally, it is thought that these results justify the derivation of a Composite Authority Scale using scores obtained from the five Likert-type attitude to authority scales. This composite scale, broad in scope and more stable than the individual scales, is used subsequently in the testing of hypotheses about the nature of attitude towards authority.

CHAPTER 4: VALIDITY OF THE ATTITUDE SCALES

4. (i) The importance of validity

A test may be reliable and internally consistent (as each of the Likert-type scales has been shown to be) but nonetheless be an inaccurate measure of what it purports to measure: that is, it may not be of high validity. Further the test may prove to be unconnected with some kinds of behaviour with which it is expected to be associated. One may be uncertain of its nature or significance.

In order to demonstrate whatever validity the developed attitude scales may possess, a number of predictions were made and tested statistically. These may be grouped according to the validation criterion used to test the prediction. The criteria include other test measures of attitude to authority; personal assessments amongst close acquaintances and autobiographical reports on relevant behaviour.

4. (ii) Correlations with the Eleven-point Rating Scales

Seventy-four first year Psychology students at the University of Adelaide completed both the Likert-type authority scales and (a week later) the set of Eleven-point Rating Scales. The following predictions were made about the relationship between the scores on the two different measures of attitude towards authority:

1. That each Likert-type scale measuring attitude to authority would correlate highly with the corresponding Eleven-point Rating Scale.
2. That each Likert-type attitude scale would correlate most highly with the Eleven-point Rating Scales measuring attitude towards the same authority, compared with scales relevant to other authorities.

Correlations between the scales, including the Composite Authority Scale, are given in the following tables.

Table 24. Intercorrelations between the Likert-type scale measures of attitude towards authority and the corresponding Eleven-point Rating Scales for the Adelaide University subjects.

(a) Males (N=32)

<u>Likert-type scale</u>	<u>Eleven-point Rating Scale</u>				
	Teachers	Army	Law	Police	Authority in general
Symbolic Authority	.42	.78	.62	.81	.76
Teachers	.72	.58	.61	.60	.69
Army	.53	.79	.65	.69	.75
Law	.49	.65	.77	.73	.66
Police	.49	.69	.55	.80	.64
Composite Authority	.60	.80	.72	.83	.79

Critical value for $\alpha = .05$ (1 tailed test) : $r = .30$

(b) Females (N=42)

<u>Likert-type scale</u>	<u>Eleven-point Rating Scale</u>				
	Teachers	Army	Law	Police	Authority in general
Symbolic Authority	.44	.44	.40	.63	.59
Teachers	.65	.41	.11	.41	.49
Army	.34	.75	.41	.60	.59
Law	.14	.43	.33	.37	.42
Police	.35	.39	.30	.64	.51
Composite Authority	.47	.61	.39	.66	.65

Critical value for $\alpha = .05$ (1 tailed test) : $r = .26$

(c) Both sexes (N=74)

<u>Likert-type scale</u>	<u>Eleven-point Rating Scale</u>				
	Teachers	Army	Law	Police	Authority in general
Symbolic Authority	.45	.60	.54	.73	.68
Teachers	.68	.50	.36	.50	.59
Army	.45	.77	.54	.65	.67
Law	.31	.53	.53	.53	.53
Police	.44	.54	.44	.72	.58
Composite Authority	.56	.70	.57	.75	.73

Critical value for $\alpha = .05$ (1 tailed test): $r = .19$

From the above tables it can be seen that Prediction (1) is confirmed. Product-moment Correlations between the pairs of comparable scales using the results for both sexes combined were as follows: Teachers, .68, $p < .001$; Army, .77, $p < .001$; Law, .53, $p < .001$; Police, .72, $p < .001$. Symbolic Authority correlates significantly with the roughly equivalent "Authority in general", $r = .58$, $p = < .001$. The Composite Authority Scale also correlates significantly with "Authority in general", with $r = .73$ $p < .001$. It may also be seen from the tables showing results for males and female data separately that the predictions are also confirmed for each sex separately.

Prediction (2) is mainly supported. For the Teachers, Army and Police Scales no higher correlations are found with other authority scales for either sex. The Law Scale is an exception for females only; for this the Army Rating Scale ($r = .43$) has the highest correlation coefficient. It might have been expected that both the Symbolic Authority Scale and the Composite Authority Scale would correlate highest with the roughly equivalent "Authority in General". However, for both male and female subjects correlations are slightly higher with the Police Scale. These results may be regarded as emphasising the salience of the "police" as a target symbolising or representing general authority, to students at least.

In general, then, these results provide support for the specific validity of the Likert-type scales developed in relation to particular authorities. It should, however, be noted that this indication of specific validity does not contradict the complementary aspect of the results, that the individual scales to a large extent reflect a common "attitude towards authority" as demonstrated in Chapter 3.

4. (iii) Relationships with Personal Assessments amongst
Close Acquaintances

A weakness of the concurrent test method of validating scales derives from the questionable quality of the validating scale. It may quite reasonably be asked which test is validating and which validated. Each obviously draws some support from the other. But neither conceivably may be effective in predicting how people will be judged on the basis of their observed behaviour. To provide more direct evidence of behavioural validity, judgements were elicited from a small group of subjects who had ample opportunity of observing each other's behaviour with respect to attitude towards authority. These were 15 male subjects who had attended tutorials together once a week for one and a half terms. (These subjects were Second Year Business Studies students at the S.A.I.T.).

Each of the subjects completed the 5 Likert-type scales from which the standardised Composite Authority Score was derived (using data from the total S.A.I.T. sample). A week later they were asked to provide two types of assessment. (a) To indicate the position in the group they judged themselves to occupy with respect to being for or against authority. (Subjects were seated at a large semi-circular table so that it was possible for each subject to have other members of the group before him as he considered his own position in the group). (b) To select the person in the group they thought was most in favour of authority, and the person they judged to be most against authority. (To facilitate recording each person was assigned a number).

The following predictions were formulated to test the validity of the Composite Attitude to Authority Scale:

- (1) The rank position of scores on the Composite Authority Scale would be correlated positively with the ranking obtained from the

judgements of individuals with respect to their own positions in the groups.

- (2) The C.A.S. scores of persons judged by others to be the most in favour of authority would be higher than the scores of those judged to be most against authority.

Both predictions were confirmed. With regard to prediction (1) the Spearman rank-order correlations was .69 ($p < .01$, one-tailed test) for the 15 subjects, indicating that personal judgements of their own positions with respect to attitude towards authority accorded closely with those obtained from the C.A.S. With regard to prediction (2), 4 persons were judged by at least two subjects to be "the most pro-authority" in the group, and three were judged to be "the most anti-authority". The two sub-groups had mean C.A.S. scores of 52.5 and 36.8 respectively. There was no overlap between their two sets of scores: in every case the "pro-authority" subjects scored higher than any of the "anti-authority" subjects. The difference may be conveniently tested by the Mann-Whitney: $U = 0$, $p < .05$ (one-tailed test). The C.A.S. therefore yields results that are closely related to the judgements made by students of their peers and of themselves in relation to their peers, and on these grounds receives substantial support as a valid measure of attitude towards authority.

4. (iv) Associations with Reported Behaviour

An attempt was made to assess the relationship between the C.A.S. (and also the Radicalism Scale) and certain pro- and anti-authority tendencies that might be inferred from answers to a Biographical Report Questionnaire (see Appendix 9a) administered to 80 first year University Psychology students (43 females and 37 males). The Questionnaire requested fairly factual information about the students' past and present behavioural interactions with various authority figures.

It is emphasised that this measure of behavioural tendencies is dependent on the accuracy of self-reports. There is a possibility that the inferences made may be derived from what has been misremembered, misjudged, or distorted so as to make the "facts" consistent with the attitude the subjects have chosen to reveal. However, it is considered that the nature of the Questionnaire and its anonymous presentation allow it to be treated as a validation criterion, despite the possibility of some biased reporting.

Certain misgivings have been expressed concerning the likelihood of a relationship between attitude and behaviour. A common view is that of Wicker (1969) whose survey of the literature on the relationship between attitude and behaviour led him to conclude that "it is considerably more likely that attitudes will be unrelated to behaviour than that attitudes will be related to action" (p.65). It is clear that various determinants may influence the degree of consistency between attitude and behaviour. Fishbein (1967) suggested the importance of social norms, expected consequences of behaviour, personality characteristics and situational variables in influencing behaviour, in addition to any effect of the relevant attitudes.

The reasons for expecting some relationship between the attitude scales and reported behaviour in this study relate to the relative homogeneity of the sample chosen and the nature of the attitude being assessed. First, in a relatively closed institutional environment such as a university, social norms may be expected to operate on individuals approximately evenly. Beliefs about the consequences of taking certain actions, for instance, the censure or punishment that may result from taking part in a demonstration, may not vary all that widely among a similarly educated group of people drawn predominantly from similar social backgrounds. Further,

it seems likely they will all have encountered certain kinds of situations (in most cases quite recently) in which a predisposition to respond "for or against authority" may well have been a crucial determinant of action: for instance, in classroom situations at school or in the proximity of demonstrations in Adelaide. By choosing as indices of behaviour, evidence of reactions in situations or choices that are likely to have been confronted or experienced by most, if not all students, variations due mainly to the situational factor may be minimised.

Secondly, there are reasons to expect that attitude towards authority may, under some circumstances, bear a close relationship to behaviour. Ray (1971) provided support for the validity of his attitude towards authority scale by examining the scores of children who were picked out by their teachers as tending to follow instructions without critical thought and acting submissively towards teachers. This criterion reflects "behaviour", even though it relies on observations of uncertain reliability. More direct experimental evidence, however, was provided by use of Milgram's (1965) procedure to measure a subject's degree of obedience through his manifest readiness to administer levels of potentially lethal shocks to victims in an experimental task when commanded to do so. Elms and Milgram (1966) were able to show that people high on the F Scale measure of authoritarianism were significantly more likely to obey the experimenter than people with lower scores. Finally, Izzett (1971) found that students not attending classes on the day of a moratorium on the Vietnam war in 1969 had significantly lower F scale scores than those who attended classes. The non-attenders were also shown to be significantly more opposed to the government (authority) line on the Vietnam war issue as reflected by their scores on an attitude scale. There is, then, empirical evidence

that attitude towards authority and authoritarianism may both be related, in some circumstances, to overt behaviour.

The sample of subjects for whom results derived from the Likert-type scales and the Biographical Report Inventory are available is described in Table 14 in Chapter 3. The Biographical Report Inventory (see Appendix 9a) was completed anonymously by 33 males and 47 female students from the University of Adelaide.

Results from the Questionnaire may conveniently be considered under the following headings:

- A. Participation in demonstrations.
- B. Attendance at Church.
- C. Relations with the Police.
- D. School Experiences.
- E. Relationship with Parents.
- F. Positions of Authority.

To assess the direction and extent of the relationship between the C.A.S. (or the Radicalism Scale) and the various items of reported behaviour, the product-moment correlation was used. However, the behavioural variables were in several cases in the form of binary categories only and when there were more than two categories the form of the underlying frequency distribution was uncertain. Because of this, the significance of the relationship was established by means of the nonparametric chi square technique, with the C.A.S. (or Radicalism) scores being split at the median in each case. For the results discussed below, the r value, the chi square value and its associated probability level are given for the main findings. The detailed contingency tables from which chi square values were calculated are given in Appendix 9b; and detailed correlations with individual attitude scales are shown in Appendix 9c. To calculate chi square Yates (1934) correction has been used for the 2×2

contingency tables and cell frequencies have in some cases been combined to provide expected cell frequencies of sufficient size, as recommended by Siegel (1956). Responses to some parts of the Questionnaire were in multiple-choice rather than numerical form. For the calculation of correlations, the scores allocated to each response category are indicated in parenthesis below. Finally, when any expected frequency was < 5 , Fisher's Exact Test was used.

A. Participation in Demonstrations

Taking part in demonstrations may generally be regarded as a specific act of disapproval directed against some significant authority. If the authority scales are valid one would expect that the anti-authority type of person would be more likely to report having participated.

Subjects were first asked to list the demonstrations in which they had taken part - see question 5, Appendix 9a. In all, sixteen different demonstrations were identified. The most commonly mentioned, by twenty-two subjects, was the Vietnam Moratorium march, followed by South African Rugby Tour, mentioned by ten subjects. Nine students took part in both of these. Other demonstrations were given as being directed against the draft, racial discrimination, the inadequacy of aboriginal rights, American Imperialism, the carrying out of French nuclear tests in the Pacific, pollution (e.g. the March on Coca Cola Ltd., and the Friends of the Earth demonstrations), abortion laws, government inaction regarding aid to Biafra and Bangladesh, the subordination of students in education (student power), a S.A. gerrymander, and the opening of two shops in town (an "auction shop" and a "sex shop"). It is clear that with such a diversity of "causes" some variation in motives would apply, but for most of these demonstrations participation may be taken as a behavioural indication of some negative attitude towards some form of authority. Particular demonstrations might be joined for different reasons: in some cases "more in sorrow than in anger",

reluctantly out of a conviction that the demonstration provides an indispensable means of furthering certain moral goals; in other cases, the demonstrations might be regarded as an opportunity for hitting out at "Them", the authorities, because they were authorities. It might be expected that the more demonstrations a person took part in the more likely he would fall into the latter category. Taking part in potentially more violent demonstrations such as a South African Rugby Tour demonstration and the Vietnam Moratorium marches, might also attract the more anti-authority type.

Four predictions were tested:

- (1) That the number of demonstrations reported is negatively correlated with the (pro-authority) C.A.S.
- (2) That taking part in both a Vietnam Moratorium March and a South African Tour Demonstration (scored 2), in either of these two demonstrations (scored 1) and neither (scored 0) is negatively correlated with the C.A.S.
- (3) That the number of demonstrations reported is positively correlated with the Radicalism Scale.
- (4) That taking part in both a Vietnam Moratorium march and a South African Tour demonstration (scored 2), in either of these two demonstrations (scored 1) and neither (scored 0) is positively correlated with Radicalism.

The results for the C.A.S. were as follows. For Prediction (1) a significant correlation, as predicted, was found, with $r = -.54$, $\chi^2 = 19.88$, $p < .001$; for males and females separately, the correlation was $-.58$ and $-.49$ respectively. For Prediction (2) a significant correlation was also found, with $r = -.54$, $\chi^2 = 19.77$, $p < .001$; for males and females separately, the correlation was in each case $-.54$.

The results for the Radicalism Scale also confirmed the predicted relationship. For Prediction (3) a significant correlation was found with $r = .59$, chi square = 36.13, $p < .001$; for males and females taken separately the correlations were also .59. For Prediction (4) the correlation was significant with $r = .56$, chi square = 25.40, $p < .001$; for males the correlation was .55 and for females .57.

It is clear from these results that the Composite Authority Scale derives considerable validity from its association with both indices of participating in demonstrations. It is also evident that the Radicalism Scale is closely associated with the same reported behaviour.

B. Attendance at Church

Historically Churches have tended to support "properly constituted authorities" and the "rendering unto Caesar the things that are Caesars". It is true that individual Church leaders have, at times, considered it a matter of conscience to oppose certain state practices, for example, apartheid and conscription. But, in general, the main emphasis of Church teaching in the secular area has been on the duty of obedience - to parents, teachers, the law, etc.

Accordingly, two predictions were tested: that reporting that one never attended Church (scored 0), occasionally attended Church (scored 1) or frequently attended Church (scored 2) would be positively correlated with the pro-authority C.A.S. (Prediction 1), and negatively correlated with the Radicalism Scale (Prediction 2).

For Prediction (1) a significant correlation, as predicted, was found, with $r = .46$, chi square = 9.29, $p < .001$, for males and females separately the correlation was .42 and .46 respectively. For Prediction (2) a significant correlation was also found in the predicted direction, with $r = -.30$, chi square = 3.38, $p < .05$; for

males and females separately the correlations were .41 and .21. For both C.A.S. and Radicalism it is clear that the predictions are well supported with respect to the combined data.

C. Relationships with the Police.

It has already been suggested that the police are perhaps the most conspicuous authority figures in society and their salience has been underlined by the results previously reported (p.72) which indicated that both the C.A.S. and the Symbolic Authority Scale correlated highest with the Eleven-Point Rating measure of attitude towards the police. It seems reasonable to suppose that this is the authority with which the more anti-authority type of person is more likely to come into conflict. This may be because he chooses the police as a target for his hostility, or, alternatively, because his anti-authority activities provoke police attention towards him.

Four predictions were tested:

- (1) That reporting being "picked on" by the police "never" (scored 0), "occasionally" (scored 1) and "frequently" (scored 2) would be negatively correlated with the (pro-authority) C.A.S.
- (2) That reporting being "roughly treated" by the police "never" (scored 0), "occasionally" (scored 1) and "frequently" (scored 2) would be negatively correlated with the C.A.S.
- (3) That reporting being "picked on" by the police "never" (scored 0) "occasionally" (scored 1) and "frequently" (scored 2) would be positively correlated with Radicalism.
- (4) That reporting being "roughly treated" by the police "never" (scored 0), "occasionally" (scored 1) and "frequently" (scored 2) would be positively correlated with Radicalism.

For Prediction (1) a significant correlation, as predicted, was found, with $r = -.24$, chi square = 6.90, $p. < .01$; for males and females separately the correlations were $-.25$ and $-.12$.

For Prediction (2) the correlation was significant and in the predicted direction ($r = -.19$). Due to the small number of students reporting having been roughly treated by the Police (and the consequential low expected frequency for one of the cells), Fisher's Exact Test (see Siegel, 1956 p.96) was used. The association tested in this way was significant, with $p = .05$. For males and females taken separately, the correlations were $-.16$ and $-.19$ respectively.

With respect to the Radicalism Scale, Prediction (3) was not confirmed. For this prediction, the correlation was only $.09$, and the corresponding chi square value of 0.25 was not significant. For males and females separately, the correlations were $.12$ and $.00$ respectively. For Prediction (4), although the correlation ($r = .15$) was not significant, some slight support for the Prediction may be claimed, in that the corresponding contingency table indicated a significant association using Fisher's Exact Test with $p < .05$. For males and females taken separately the correlations were $.13$ and $.19$ respectively.

It may be concluded that at least with respect to the C.A.S., reported interactions with the Police involving "being picked on" and "being roughly treated" are associated significantly with students' attitudes, and these results provide support for the validity of the Composite Authority Scale.

D. School Experiences

Since all the subjects would have experienced interactions with teachers as authority figures during their schooldays, it was thought that their reported experiences would relate to their attitudes towards authority and degree of radicalism.

Behaviour at school was inferred from reports concerning the amount of "strife" they got into with teachers, the amount of punishment they received, and whether or not they sought to disrupt

or sabotage lessons. (See questions 1, 2 and 3 in the Biographical Questionnaire). To assess the amounts of "strife" and "punishment", the subjects were asked to make an assessment of their own experiences in relation to that of other students. It was assumed that this could be done realistically and that the judgements would be made in the contexts of similar groups and were therefore comparable. It was further assumed that the extent to which the student was in strife or received punishment at school bore a close relationship to his actual behaviour with respect to the "school authorities". Certainly there may have been other factors operating, unrelated to "attitudes to authority"; for instance, "strife" and "punishment" could result from an inability to respond effectively to certain educational demands. Among these students, however, (successful matriculants) this factor seems unlikely to have been an important one. To gain a more positive indication of anti-authoritarian behaviour, students were asked to say whether they had ever worked towards "sabotaging or disrupting lessons" and (if so) to estimate how often.

Although in some cases such behaviour may be indicative of boredom or a reaction to injustice, it seems likely that it is among students with the least respect for authority that such behaviour would be expressed most frequently. The indices chosen are clearly not "pure" in the sense of invariably identifying individuals who tended to act for or against authorities at school. All that may be claimed is that the procedure probably enables one to differentiate between broadly different types of students: those who tended to be relatively "well behaved" and those who were "not so well behaved" in the school settings.

The following predictions were made:

- (1) That reporting being "in strife" with teachers much less than

most students (scored 1), rather less than most students (scored 2), about the same as most students (scored 3), rather more than most students (scored 4) and much more than most students (scored 5) is negatively correlated with the (pro-authority) C.A.S.

(2) That reporting being punished by teachers less than average (scored 1), about the same as most students (scored 2), and more than average (scored 3), is negatively correlated with the C.A.S.

(3) That reporting having worked towards sabotaging or disrupting lessons "never" (scored 0), "occasionally" (scored 1), "quite often" (scored 3), and "most of the time" (scored 4) is negatively correlated with the C.A.S.

Similar predictions were made with respect to the Radicalism Scale, except positive correlations were predicted with the same indices of "being in strife" (Prediction 4), "being punished" (Prediction 5) and "working towards sabotaging and disrupting lessons" (Prediction 6).

The results relating to the validity of the C.A.S. were as follows. For Prediction (1) a significant correlation, as predicted, was found, with $r = -.34$, chi square = 14.39, $p < .001$; but the correlations for males and females separately are quite different: for males $r = -.01$, chi square = .02 (n.s.), and for females $r = -.57$, chi square = 6.14, $p < .01$. For Prediction (2) the correlation for the sexes combined was not significant: $r = -.11$, chi square = .80 (n.s.); but again for females the correlation was significant: $r = -.53$, chi square = 4.77, $p < .05$; for males the correlation is in the non-predicted direction: $r = .11$. For Prediction (3) the correlation for both sexes combined was not significant: $r = -.11$, chi square = 2.61 (n.s.); for males, however, a significant relationship was obtained: $r = .25$, chi square = 2.82, $p < .05$; for females the correlation is in the non-predicted direction $r = .02$. Thus both Prediction (1) and (2) are supported for

females only and Prediction (3) for males only.

For the Radicalism Scale Prediction (4) was confirmed, with $r = .16$, chi square = 8.67, $p < .01$; however, for the sexes taken separately neither correlation (.02 for males and .26 for females) was significant. For Prediction (5), the correlations were not significant, with $r = .17$, and chi square = .22: for males and females taken separately the correlations were .03 and .29 respectively. For Prediction (6) the correlations were not significant, with $r = -.10$. Thus, apart from Prediction (4) for both sexes combined, the predictions were not supported with respect to the Radicalism Scale.

E. Relationships with parents

In view of the central position relationships with parents have in the theory of attitudes towards authority, it was thought that interaction with parents would be reported as more satisfactory by the more pro-authority type of student.

The following predictions were made:

That reporting "getting on" with parents better than most people do (scored 3), about the same as most (scored 2), and worse than most people do (scored 1), would be positively correlated with the (pro-authority) C.A.S., (Prediction 1), and negatively correlated with Radicalism, (Prediction 2).

Neither prediction was confirmed. For Prediction (1), (in relation to the C.A.S.), the correlation was .16, with chi square = 1.88 (n.s.); the correlations were for males .11, and for females .19. For the Radicalism Scale, the correlation was -.07, with chi square = .02 (n.s.); correlations were -.16 and .03 for males and females respectively.

F. Positions of Authority.

Finally it was thought that being in favour of authority would be associated with having occupied positions of authority. Apart from any qualities that may have made his or her choice or acceptance seem reasonable by those over, or on behalf of whom, he or she may exercise authority, it seems likely that through the experience of seeking to fulfil such a role a person may to some degree identify more with others in authority positions.

The relationship between the attitude scales and indices of occupancy of authority positions was tested in two ways. First, information was elicited as to whether the student had been a prefect at school. Secondly, the student was asked to make a list of voluntary organizations to which he had belonged and then (with the organizations fresh in mind) to indicate what positions of authority they had occupied with respect to any of them. There was a wide range of authority positions given: president, leader, assistant leader, chairman, captain, treasurer, coach, executive, secretary, editor and public relations officer. The most common area in which the authority was exercised was sport (football, tennis, basketball, badminton, hockey and squash). Authority positions were also reported in organised "hobby" type activities, such as chess, poetry, the theatre and debating. Others were in Youth and Scouts groups, community service activities (such as Red Cross and St. John's) and in political organizations.

The predictions made were as follows:

- (1) Reporting having been a prefect at school (scored 1) or never having been a prefect (scored 0) would be positively correlated with the (pro-authority) C.A.S.
- (2) The number of authority positions reported as having been occupied would be correlated positively with the (pro-authority) C.A.S.

(3) Reporting having been a prefect at school (scored 1) or never having been made a prefect (scored 0) would be negatively correlated with the Radicalism Scale.

(4) The number of authority positions reported as having been occupied would be correlated negatively with the Radicalism Scale.

For the C.A.S. the results were as follows. For Prediction (1) the correlation was .19, with chi square = .82 (n.s.), for males the correlation was .03, chi square = .02 (n.s.), for females the correlation was .30, chi square = 4.91, which was significant at the .05 level. For Prediction (2) the correlation was .00; for males it was -.01 and for females .02.

For the Radicalism Scale the results were as follows. For Prediction (3) the correlation was .04, with chi square = .03 (n.s.); the correlations for the sexes separately were .16 for males and .16 for females. For Prediction (4) r was -.01 with chi square = .22 (n.s.); the correlation for males was .05 and for females -.14.

Thus with the single exception of Prediction (1), which was supported for female students only, these predictions were not supported.

It would be useful at this point to summarise the results of the validity studies using the biographical reports. The predictions relating to taking part in demonstrations and attending Church were strongly supported for both the C.A.S. and the Radicalism Scale. Those relating to interactions with the police give some support to the validity of the C.A.S., but none to the Radicalism Scale. The predictions concerning interactions with teachers receive some support, particularly with respect to the C.A.S., but the support tends to be limited to either male or female students for particular indices. Predictions relating to occupancy of positions of authority

are supported for one of the two indices, that of "being a prefect" at school, but this is limited to the C.A.S. for female students only. There is no support for the prediction that the C.A.S. or the Radicalism Scale is related to an index used to assess how students "get on with" their parents. In general, the predictions associated with the C.A.S. tend to receive more support than those associated with the Radicalism Scale.

Finally, it is also of interest to consider the extent to which the attitude scales and the Radicalism Scale taken as an ideally weighted combination predict the particular kinds of reported behaviour. To this end multiple correlation coefficients were computed using the results for the 80 Adelaide University students on each of the 6 scales, although it is admitted that the scaling of dependent variables (the behavioural indices) is not ideal for such a parametric technique of two behavioural indices. Not all the correlations were in the predicted direction (see Appendix 9c), and for these multiple correlations were not computed. The remainder are presented in Table 25.

In general, the multiple Rs are only slightly higher than the correlations obtained with the C.A.S. This is not surprising in view of the substantial intercorrelations between the predictors and the high degree of "linear constraint" that is thereby generated (see Guilford, 1954, p.404). However, the table of multiple R coefficients provides a useful summary of the results derived from all the predictor variables, and, in particular, indicates the extent to which particular kinds of reported behaviour may be predicted on the basis of the attitude test results.

Table 25. Multiple Correlation Coefficients for the 5 attitude scales and the Radicalism Scale as predictors of the reported behaviour indices for 80 University of Adelaide subjects.

<u>Reported Behaviour Index</u>	<u>Multiple R</u>	<u>Significance Level</u>
1. Number of Demonstrations participated in.	.65	.01
2. Participating in the Vietnam Moratorium and/or the South African Football Tour Demonstration.	.61	.01
3. Attending Church.	.49	.01
4. Having been picked on by the Police.	.39	.05
5. Being in strife with teachers.	.37	.05
6. Getting on well with parents.	.29	n.s.
7. Being punished by teachers.	.27	n.s.
8. Working towards sabotaging and disrupting lessons, etc.	.23	n.s.
9. Being a prefect at school.	.20	n.s.

4. (v) Discussion

This attempt to provide evidence of the validity of measures of attitude towards authority has concentrated mainly on the most general measure of attitude towards authority developed in this study, the Composite Authority Scale (C.A.S.). This scale is the product of five distinct attitude to authority scales, each using a different target, and including 136 items in all. Inevitably it must, to some extent, reflect notions about the nature of authority as understood by the writer. It may reasonably be asked whether the C.A.S. is really concerned with what is generally understood by "attitude towards authority". The evidence suggests that it does. The concurrent validity of the

scale was determined through correlations with a scale which does not make any particular assumptions about the nature of the attitude, apart from its bipolarity. Further, predictions based upon the C.A.S. agree well with the judgements of students as to what constitutes pro- or anti-authoritarianism among their close acquaintances.

In attempting to derive validity for this scale from correlations with criteria obtained from autobiographical reports, the results were in some areas strongly supportive, in some areas supportive to a limited extent, and in some areas not supportive.

It may be argued that the most direct and reliable indices of pro- and anti-authority behaviour used in this study relate, respectively, to taking part in demonstrations and attending Church, since these relate to specific actions that may or may not have been undertaken by respondents, rather than experiences or judgements from which inferences regarding behaviour can be made with less confidence. It is, in fact, in these areas that the correlations between attitudes and validating criteria are highest. It may be noted also that the significant correlations with "taking part in demonstrations" are in agreement with a similar study conducted in America by Izzett (1971) to which reference was made on page 76.

Where evidence of the nature of interactions with authority figures has been used to provide validating criteria, the results have been less satisfactory. Nonetheless, one of the indices of interactions with the police ("being picked on"), and one of the indices of interactions with teachers ("being in strife with"), do provide significant correlations, as predicted, with the C.A.S. using results for the sexes combined. As far as interactions with teachers are concerned, however, the correlations

with particular indices tend to be strikingly different for the two sexes. It seems possible that some of the indices are more appropriate for one sex than the other. Assuming that there is, indeed, a link between anti-authoritarian behaviour by students in school and their attitudes towards authority (as subsequently assessed), the results suggest that such behaviour may be indicated among females by their reports of "being in strife" with teachers and "being punished" by them more often than others were, and indicated by males by their reports of seeking "to disrupt and sabotage lessons" more frequently than others.

In view of the emphasis that has been placed on relationships with parents as a determinant of attitude towards authority, the failure to obtain a significant positive correlation between "getting on with parents" and the C.A.S. is perhaps surprising. However, it is consistent with the results of a recent American study by Thomas (1971) who found that "rather than rebelling against parents' political orientations, activists appear to be carrying on a family tradition of political concern and participation" (p.314). The oedipal rebellion theory of student anti-authoritarianism is clearly not supported by such results.

Lastly, there is an almost total failure to obtain significant correlations between the C.A.S. and the occupancy of authority positions. The exception relates to the experiences of females at schools: it is the more pro-authority types who tend to report having been prefects. A possible explanation for this general failure may have been that the authority positions were frequently held in anti-authority organizations - but an examination of the actual organizations in which positions were held indicates that only two "left" organizations were included, and that these were more than offset by the number of, presumably, pro-authority-type Church organizations.

It may be that the assumption that occupying positions of authority in voluntary organizations tends to be associated with a general pro-authority sentiment is mistaken; alternatively it is possible that the C.A.S. is, in fact, poorly related to attitudes towards authorities which are relatively lacking in political or ideological implications. The failure to obtain significant correlations between the Likert-type authority scale and the Independence Scale (assessing attitudes towards the non-institutionalised authority of graduating students) suggests that the second possibility may be true.

An examination of the predictions relating to the Radicalism Scale indicates that these were confirmed in areas in which the C.A.S. also has significant correlations, namely "taking part in demonstrations", "attending Church", and "being in strife with teachers". This finding strengthens the conclusion based upon earlier results (Chapter 3) that the Likert-type measures of attitude towards authority and left-wing radicalism are closely related. However, the scope of the C.A.S. appears to be rather more extensive than that of the Radicalism Scale, in that the C.A.S. has additional significant correlations in the areas of interactions with the police and teachers.

4. (vi) Summary of validity investigations

The validity of the Likert-type attitude scales has been investigated through predictions which relate to validating criteria obtained in three areas: from the results of comparable measures; from the judgements of students of their close acquaintances; and from biographical reports of relevant behaviour.

Individual Likert-type attitude to authority scales were examined only in relation to comparable attitude measures.

Concurrent validity was established for each of the five scales, in that each one correlated positively and significantly with corresponding Eleven-point Rating Scales devised in relation to the same or similar authorities using a sample of 74 University of Adelaide students who completed both sets of scales. In general, the highest correlation coefficients were found between scales having the same attitude object.

The main investigation related to the validity of the Composite Authority Scale. Its validity is supported by the following results:

1. The C.A.S. correlates significantly, as predicted, with the Eleven-point Rating Scale assessing "attitude to authority in general" ($r = .73$).
2. The rank position of scores on the C.A.S. is positively and significantly correlated with rankings obtained from the judgements of 15 male subjects with respect to their own positions in a group of close acquaintances ($\rho = .69$).
3. The C.A.S. scores of persons judged by 2 persons or more to be the most pro-authority or the most anti-authority persons in a group of 15 male close acquaintances were found to be significantly different, as predicted, by the Mann-Whitney U test.
4. C.A.S. scores were negatively and significantly correlated, as predicted, with scores derived from students' reports of the number of demonstrations in which they had taken part; their participation in the more violent type of demonstration; being "picked on" and "roughly treated" by the police; and being "in strife" with teachers. C.A.S. scores were also positively correlated, as predicted, with reported attendance at Church. Significant correlations for results for one sex only were also obtained, in the predicted direction, for female students - "being punished

at school" (negative correlation) and "having been prefects" (positive correlation). For males, a significant positive correlation, as predicted, was found with reports of "seeking to sabotage or disrupt lessons".

The C.A.S. failed to correlate significantly for both or either sex with indices derived from reports regarding interactions with parents and the occupancy of positions of authority, that is, apart from the position of "prefect" among female students. The marked differences between correlations obtained for male and female subjects with respect to indices derived from reported experiences at school, suggests that such experiences may have a quite different significance for males and females. In general, it appears that the validity of the C.A.S. is well supported, but that there may be limitations to its scope. It does not appear to be related to non-institutionalised authority. Its close association with the Radicalism Scale (which has significant correlations with most of the same indices derived from the biographical reports) is consistent with such a limitation.

P A R T T W O

ATTITUDE TOWARDS AUTHORITY AND RELATED
PERSONALITY CHARACTERISTICS.

CHAPTER 5: PERSONALITY AND ATTITUDE TO AUTHORITY: GENERAL BACKGROUND

The empirical work described so far has confirmed the concept of "attitude to authority". The question to be faced now is that of the relationship between attitude to authority and broader aspects of personality. Before reviewing the literature on this topic, it will be useful to clarify the nature of attitude to authority as measured by the developed scales, by summarising the findings described in Chapters 3 and 4.

The scales are reliable and internally consistent. They relate to institutionalised authority: no support for the view that they are generalised beyond this field, to attitudes to parents for instance. The scales correlate significantly with each other, and their validity is supported by significant correlations with alternative measures and predictions based upon personal assessments. Low scorers (with an anti-authority attitude) on all the scales are significantly more likely to report having taken part in demonstrations (and potentially more violent types of demonstrations) than high scorers; and high scorers are more likely to report attending Church. The authority scales are highly correlated with the Radicalism Scale, and the latter also is validated by the autobiographical reports, principally those relating to demonstrations and Church attendance. It would seem reasonable to regard the attitude towards authority scales as providing a measure of student attitudes along the dimension of radical anti-authority to conservative pro-authority, in the sense of institutionalised authority.

In considering the relevant research into the broader personalities of individuals identifiable by such scales, it is appropriate to draw upon two related sources of information: (1) the literature relating to the personalities of student radicals in recent

times; (2) the broader current of research into the personalities of anti- and pro-authority types. From this background literature it is possible then to formulate testable hypotheses concerning the nature of the relationship between certain personality characteristics upon which attention has been focussed and the attitudes of students as assessed by the scales developed in this study.

5. (i) The Personality characteristics of Student Radicals

A high proportion of judgements about student radicals has been based upon the activities at Berkeley, California in the mid- and late-1960s. Following a survey of the literature in 1967, Christian Bay concluded that the radical activists were "less ego-defensive" than others. Flacks (1967) saw them as being characterised by both "anti-authoritarianism" and "anti-dogmatism", and Katz (1967) commented upon the strength and richness of their intellectual and emotional endowments. Winborn and Jansen (1967) described leaders of liberal as opposed to conservative groups as "more sober and serious in temperament, more emotionally sensitive.... more confident and secure in meeting the daily demands of life" (p.513). Keniston (1967) concluded that many of the characteristics of radical students (he mentions empathy, superior intellectual attainments, capacity for group involvement, strong humanitarian values, and emphasis upon self-realisation) "are consistent with the hypothesis that as a group they are unusually healthy psychologically" (p.127). By 1971 Keniston was prepared to argue, on the basis of a "voluminous body of research", that the similarities between American radical activists could be "summarised, perhaps oversimplified, in a sentence: The activist group is, compared to the student population from which it is drawn, an 'elite' group in virtually every respect" (p.279).

Strongly drawn though this picture is, it presents only one aspect. A different view is provided by Bettelheim (1969) who

described the typical student protester as "lumping together.... all the facets and institutions of society into one defamatory image" (p.29); and drawing upon his clinical experience of student activists Bettelheim judged them to be "exceedingly bright...." but "emotionally fixated at the age of the temper tantrum" (p.34). Within the student radical, he concluded, there is a deep self-hatred. One is reminded of Hoffer's (1951) conception of the true believer as a person who seeks out a new collective identity because he cannot live with himself. Some writers have "explained" student activism in terms of oedepal rebellion. Cora Bell (1969) saw the struggle for the gates at the London School of Economics during the student demonstration of 1967 in such Freudian terms: these were forbidden gates guarded by father-figures. But perhaps the most damning attack on student demonstrators comes from an anti-Freudian, Eysenck, writing in Encounter in 1972. It is Eysenck's opinion that the "psychology of the fascists has been taken over holus bolus by the scattered troops of the New Left". To him they are "nothing but Left-Wing fascists sharing with Hitler their creed of unreason, intolerance and veneration of force" (p.89). In terms of Eysenck's personality theory of political attitudes (1954) they are "tough-minded" radicals and as such they share such qualities as aggressiveness, violence and "mental rigidity" with the tough-minded members of the extreme right.

The views expressed could hardly be more conflicting. They are also highly emotional and one is led to suspect that Hudson's view expressed in "The Cult of Fact" (1972) that social psychological conclusions are likely to reflect the researcher's value system may, at least in this area, be true. What is clearly required is a more precise description and measure of the personality characteristics involved, and a statement of the

hypotheses that are suggested by such research. We may then ask whether these apply to the attitudes assessed in this study.

5. (ii) Pro- and anti-authoritarianism

Detailed research has concentrated much more on the nature of the pro-authority type of person in our society, and he (or she) has commonly been regarded as irrational and even pathological. Fromm (1941) regarded extreme favourableness of attitude towards authority as springing from an inability to bear isolation and weakness in one's own self. Maslow (1943) enumerated various characteristics such as obsessiveness with power, cynicism, general hostility and sadism, which he regarded as cohering to form an authoritarian syndrome. A major study of this type of person appeared in "The Authoritarian Personality" by Adorno et al., in 1950. These authors hypothesised that "the political, economic and social convictions of an individual often form a broad and coherent pattern as if bound together by a 'mentality' or 'spirit' and this pattern is an expression of deep-lying trends in personality" (p.1). Their extensive interview and test data suggested to them that this indeed was the case: strong ethnocentric, pro-authority beliefs appeared to be associated with certain basic personality tendencies. The individual who habitually submitted to authority, they concluded, manifested a generalised tendency to structure the world rigidly, to be intolerant of ambiguity and to exhibit a marked repressiveness towards the expression of impulses. Fromm and Maslow had suggested that being extremely pro-authority was pathological: Adorno et al. agreed and identified the pathology as relating to certain cognitive and emotional malfunctioning.

Rokeach (1960) in "The Open and Closed Mind" broadened the notion of authoritarianism so that it applied to so-called "dogmatic" individuals who were not necessarily conservative or ethnocentric

in their views. They were regarded as having a particular kind of cognitive structure, which resulted in closed-mindedness, and an unusual degree of reliance on authority. Such a system of functioning he saw as a response to a need to ward off threatening aspects of reality. Later, Cattell (1964) put forward his "U1 28" factor as a firm personality structure "arising in the general region where once stood the defunct notion of the authoritarian personality" (p.333). The authoritarian in Cattell's formulation is one who believes in and accepts authority and shifts his opinion towards authority when he is told what authority believes. He is characterised by "ideational rigidity and sterility". There is a lack of spontaneity and drive and a tendency towards anxiety and depression. Cattell attributes this condition to a state of "internalised inhibition or apathy due to some kind of environmental history" (p.343). Finally Harvey (1967) presented a view of personality in terms of four major conceptual systems, one being characterised by an extreme dependence on representatives of institutional authority, and in the cognitive area, by a preference for simplicity, consistency and a need for structure-order.

The extreme authoritarian then, has been conceived mainly in pathological or at least socially undesirable terms: he suffers from some kind of cognitive malfunctioning or limitation, described variously as "intolerance of ambiguity" (Adorno, et al.), "dogmatism" (Rokeach), "ideational rigidity" (Cattell), and "need for structure-order" (Harvey). Some kind of emotional blocking is considered to occur, making it impossible for him to exercise appropriate variations in behaviour. This again may be understood, or described, differently as "impulse-repression" (Adorno, et al., 1950), a "reaction to external threat" (Rokeach, 1960) or "internalised inhibition" (Cattell, 1964). It would seem to follow that a person who is free of such authoritarian impediments

will be flexible, tolerant of ambiguity, open minded and emotionally expressive. One might well expect such a person to be independent and creative in his life-style.

But a problem arises at this point. It may indeed be the case that a person unable to question or say "no" to authority cannot show full maturity, as the theologian Paul Tillich (1963) has asserted, but it seems also to be true that there may be a point at which saying "no" to authority becomes the central theme of a life-style to the extent that it becomes an impediment to psychological development and even an indicator of pathology. It follows from the foregoing argument that it is important to distinguish between pathological and non-pathological forms of antagonism to authority.

The psychoanalyst Belle (1969) made the distinction in the following terms. Pathological anti-authoritarianism arises when hostility generated in a child's relationship with his father, or father figure, is displaced on to subsequently encountered father-figures. It is characterised, he wrote, by an inability to relate with teachers, employers and law enforcement officers, and is the "result not the cause of an anti-authoritarian personality orientation" (p.356). Non-pathological anti-authority behaviour, on the other hand, far from being maladaptive, is regarded as the outcome of a conflict between a mature integrated personality and an unjust reality. Belle instances the cases of Jesus Christ and Kahlil Gibran.

A similar view of maladjusted anti-authoritarianism was adopted by Bay (1958); he defined anti-authoritarianism as a defensive predisposition to oppose uncritically standards and commands supported by authorities, thus implying both its pathological ("defensive") nature and its irrational ("uncritical") basis. Some empirical support for Bay's formulation is found in a

study by Marfin and Ray (1972). They found small but significant correlations between the scores of Australian subjects on Rudin's "attitude towards rational authority" scale (such that low scores indicate anti-authoritarianism) and measures of intelligence (.36) and neuroticism (-.12). Bay's discussion of the psychological nature of the extreme anti-authoritarian personality centred upon its supposed paradoxical similarities to the extreme authoritarian personality. Frenkel-Brunswik's (1950) report had noted signs of rigidity in the personality make-up of extremely liberal subjects who tended towards the glorification of the underdog, and Adorno et al. (1950) had postulated the existence of a rigid type among rebels. Bay's own contribution was largely speculative. He viewed the extreme authoritarian as being like the anti-authoritarian, "deficient in psychological freedom". In both types this was seen as leading to a tendency to "black or white" thinking and an inability to tolerate the awareness of "a complex ambiguity ridden world". These notions would appear to conform closely to the psychological concepts of dogmatism and intolerance of ambiguity.

We are led to consider the possibility, therefore, that given a sufficient range of attitudes extending from extremely favourable to authority to extremely unfavourable to authority, certain kinds of cognitive malfunctioning such as those associated with intolerance of ambiguity and dogmatism may be encountered at both extremes, with more "normal" functioning occurring among people one might call mid-authoritarians towards the centre. In other words, a curvilinear relationships might be expected between such cognitive variables and attitude towards authority scales.

This possibility is supported by Toffler (1970) in "Future Shock". He suggests that anti-authoritarian left-wingers and authoritarian right-wingers may be adopting similar strategies in

attempting to cope with their cognitive overload. A manageable social order may be achieved through police action and parental discipline, or alternatively through a reversion to a simple primitive system of living, as in the rural communities of pre-technological societies (like the Aquarius people at Nimbin, N.S.W. in 1973). At the intellectual level both types may be characterised using Toffler's term as "super-simplifiers", grasping at simple, complete explanations, such as "the profit motive" or "communist conspiracy", and proposing and sometimes attempting to implement, drastic and even violent solutions to community problems.

5. (iii) Summary and hypotheses

In summary, it appears that there has been considerable agreement that extremely pro-authority individuals are likely to have certain cognitive and emotional characteristics usually associated with "authoritarianism". Compared with persons who are relatively unconcerned with authority, they might be expected to think in "black or white" terms, to be intolerant of ambiguity, dogmatic, uncreative and emotionally repressed. The disagreement concerns the opposite end of the attitude continuum. Opinion here tends to be divided. The bulk of the American studies on radical activists (but not all) tend to support what may be called the linear hypothesis: that with increasing radical anti-authority attitudes there is a decrease in the strength of personality characteristics associated with authoritarianism. However, there is some evidence, partly observational and partly experimental, that appears to support the view that extremely pro- and extremely anti-authority types are alike in certain personality characteristics which are relatively absent among persons occupying positions in the centre of the attitude continuum. This we may call the curvilinear

hypothesis. Neither hypothesis appears to have been tested with Australian students; nor is there any very direct and general evidence from the American research on this issue.

CHAPTER 6: PERSONALITY VARIABLES EXAMINED

The hypotheses needed to be formulated in terms of particular personality variables and corresponding measures. The choice of variables (and the tests relating to them) were guided by the general theoretical considerations already outlined and, to some extent, by the desire to connect with earlier empirical investigations.

It may be questioned whether the personality variables that were chosen do have the independence implied by their individual labels; for instance, some measures of "intolerance of ambiguity" and "dogmatism" have been shown to be strongly related to each other as well as to some measures of general authoritarianism. However, for convenience they will be described separately. (The question of their common variance was investigated in a subsidiary factor analytical study which is reported later).

The relationship between attitude towards authority and 5 personality variables was examined. The personality variables were:

1. Intolerance of Ambiguity
2. Dogmatism
3. Cognitive complexity - simplicity
4. Creative Independence
5. Emotional activation

6. (i) Intolerance of Ambiguity

A. Background literature. The concept of intolerance of ambiguity was introduced by Frenkel-Brunswik (1949) who regarded it as "one of the basic variables in both the emotional and cognitive orientation of a person towards life" (p.113). In her view, as a result of being unable to express ambivalent attitudes towards parents, there may emerge in some adults a tendency to structure the world rigidly. The persistence of an unresolved and possibly unresolvable situation is extremely disturbing to such a person. A conclusion must be

reached quickly: in Gestalt terms there is a premature closure as to evaluative aspects (often to the neglect of reality), which must be maintained by shutting out aspects that represent a threat to the chosen solution. Thus among persons more intolerant of ambiguity there appears a tendency to resort to black-white judgements, to accept or reject people in an overall manner, to avoid uncertainty and to prefer what is definite and clear. By contrast the person who is tolerant of ambiguity may even prefer complexity and differentiation.

In response to such a formulation, a wide range of instruments both verbal and non-verbal were developed to measure "intolerance of ambiguity". Much of the subsequent research was aimed at establishing a connection between this variable and authoritarianism in general, as indexed by the California F scales, Rokeach's dogmatism scales and various measures of prejudice. As far as questionnaire measures were concerned, numerous positive correlations have been reported: O'Connor (1952), Coulter (1953), Budner (1962), Feather (1971).

Attempts to obtain significant correlations between authoritarian attitude and performance measures of personality variables have been less successful. Using the rapid establishment of personal norms on the autokinetic phenomena as an index of intolerance of ambiguity, Block and Block (1950), Taft (1956) and Millon (1957) reported significant correlations with measures of authoritarianism; but Kenny and Ginsberg (1958), were unable to do so; and McCandless and Holloway (1955) found that their more prejudiced subjects (children) did not tend to make decisions more rapidly than others in judging weights that were objectively equal, as had been predicted. Siegel (1954) found that his more authoritarian subjects (on the F scale) "jumped to conclusions" more readily about who had said certain things in a highly ambiguous

situation; and Rokeach (1952) found that his more ethnocentric subjects (ethnocentrism is empirically related to authoritarianism) tended to guess more at the names of people on photographs when they were really unsure. Kenny and Ginsberg (1958) also observed a tendency among their more authoritarian subjects to ask questions more frequently during a series of extremely obscure and ambiguous tasks. On the other hand, Davids (1955, 1956) and Davids and Erikson (1957) repeatedly failed to confirm the hypothesis that authoritarians experience a particularly confusing and complex situation (spoken statements being presented simultaneously) as more unpleasant than non-authoritarians, under either task or ego-involving situations. And yet there is evidence from Rosenberg and Zimet (1957) that authoritarians do prefer simplicity in Art, and according to Fisher (1951) tend to remember asymmetrical forms as being more symmetrical than they are.

In the area of social judgement, Steiner (1954) showed that authoritarians tend to assume that personality traits that are empirically shown to be more desirable have a greater probability of occurring together than non-authoritarians do. But such "intolerance of trait inconsistency", as Steiner called it, could not be demonstrated by Kenny and Ginsberg (1958). Nor could these two investigators support Jones' (1956) claim that authoritarians show significantly fewer reversals on the Necker cube under the condition of "a set towards reversals". Lastly, there is the interesting series of pictures first used by Frenkel Brunswik (1949) in which a dog is shown gradually to change into a cat. According to Frenkel Brunswik, authoritarians show intolerance of ambiguity by tending to persevere with the perception of the dog despite changes in the successive stimuli. Coulter (1953), however, failed to find any greater tendency to persevere among

people high on either the F scale or high on Eysenck's measure of authoritarianism.

The relationship between intolerance of ambiguity and authoritarianism, though generally claimed to be positive, is therefore not completely certain. It must also be understood that the various measures of intolerance of ambiguity that have been used have not always correlated significantly with each other: this is particularly true of performance measures. In Kenny and Ginsberg's (1958) study of various measures of intolerance of ambiguity, only 5 out of 66 correlations among the measures were significant at the .05 level in the predicted direction. They do not conclude, however, that the construct should be discarded; but rather that it is probably less general than was at first assumed. They suggest that future research may discover a number of distinct or relatively independent dimensions. At the present time all that can be said is that some measures of tolerance of ambiguity do relate to some measures of authoritarianism without any particular pair necessarily relating to each other. So much for the general nature of this concept.

Primary interest for the purpose of this research is in the relationship between intolerance of ambiguity and attitude towards authority, rather than authoritarianism. Evidence concerning such a relationship may be drawn from two areas: research into the personalities of people whose activities and commitments allow one to infer a particular attitude towards authority, for instance, radical activists (anti-authority) and Church-attenders (pro-authority); and research into the personalities of subjects categorised according to tests relating to acceptance of authority.

The evidence from research into the personalities of radical activist students suggests that there is a positive correlation

between intolerance of ambiguity and acceptance of authority. Heist, whose results obtained in 1965 are reported by Trent and Craise (1967), found that Free Speech Movement students of Berkeley University, California, arrested for their political activities scored significantly higher than other students on the Complexity Scale of the Omnibus Personality Inventory (O.P.I.). High scorers on this scale are regarded as "tolerant of ambiguities and uncertainties". A similar study by Pierce and Schwartz (1971) examined the personalities of students who picketed a strike directed against an alleged arbitrary act of the Provost of the University of Rochester in 1967. Compared to non-pickers, on Jackson's Personality Research Form, activists showed a lower need for "cognitive structure" which the authors interpret as higher tolerance for ambiguity. On an Activities Index, activists also showed a lower "need for order". Pierce and Schwartz conclude that (for both sexes) politically active students show "a general willingness to live comfortable with ambiguity, to question external sources of authority and to reject an authoritarian ideology" (p.229).

The relationship between religious behaviour and intolerance of ambiguity has been studied by Budner (1962) and Feather (1967). Using his own questionnaire measure of intolerance of ambiguity, Budner found a significant correlation between the frequency of Church attendance and intolerance of ambiguity. Feather (1967) found similar results and, in addition, showed that it was amongst the most fundamentalist of Church attenders - who accept the literal authority of the Bible - that intolerance of ambiguity was greatest on Budner's measure.

In a subsequent study, Feather (1971) examined the median rankings of the value "Obedience" on Rokeach's Value Survey for four groups of students differing in degrees of intolerance of

ambiguity, as assessed by Budner's Intolerance of Ambiguity scale. In successive years, in 1968 and 1969, Feather found that differences between the groups were significant, with the group showing most intolerance of ambiguity ranking "Obedience" highest, and the group with least intolerance of ambiguity ranking "Obedience" lowest. This study is important for two reasons: previous studies had not sampled such a range of types, and, secondly, the results were obtained from students at a South Australian university, Flinders University.

Even in this area the evidence is confusing, however. Evidence supporting a curvilinear hypothesis may be derived from Coulter (1953) supported by Eysenck (1954), Taylor (1960), and Weitman (1962). Coulter made use of the "dog-cat pictures" already described. They were shown to English subjects identified as Fascists (pro-authority) and Communists (anti-authority) types. Eysenck (1954) reports that both Fascists and Communists perseverated longer in reporting the "dog" perception than other kinds of subjects, and submits this as evidence for the relatively high intolerance of ambiguity shared by extreme right and left wing people. Here, of course, it could be argued that British communists were not really against authority in general: in relation to Moscow they could be slavishly obedient. Less controversial evidence is provided by Weitman (1962) who divided his student subjects into three groups on the basis of an analysis of sentence completion tests according to whether they were pro, against or unconcerned with authority. All the subjects were given Thurstone's embedded figures test (1944). To find the hidden figure it is necessary to fragment the larger figure and restructure it in a different way. The pro- and the anti-authority groups both did significantly poorer than the middle group. It may be argued that these extremists showed a greater need to maintain an established structure, which prevented them from adopting a flexible approach that

would have allowed them to see it in a different way. Such persons may reasonably be called "intolerant of ambiguity".

Lastly there is the study of Taylor (1960) who identified people for or against or neutral with respect to authority, using scores on the F scale together with a scale of social distance. He found a greater tendency towards perceptual closure using a pencil and paper perceptual test among the more extreme scorers compared with the intermediate scorers. Such a curvilinear relationship was interpreted by Taylor as supporting the view that extreme liberals and extreme conservatives are basically similar with regard to personality structure as manifested through perception. It may be objected that we are dealing here with a measure of authoritarianism as distinct from a measure of attitude to authority. Nonetheless, the demonstration of a curvilinear relationship in this area suggests that a closer examination of the relationship between attitude towards authority and intolerance of ambiguity may reveal a similar relationship.

B. Tests of Intolerance of Ambiguity. Three tests were used to assess intolerance of ambiguity. Two were questionnaire measures: the Complexity sub-scale of the Omnibus Personality Inventory (O.P.I.), and Budner's Intolerance of Ambiguity test. A further measure was obtained from a performance test, the Photo Ambiguity Test (P.A.T.) devised by the writer.

The Complexity Scale of the O.P.I. is a test consisting of 32 statements to which the subjects are asked to respond by saying whether each one is generally true or false. According to the manual for the O.P.I. "this measure reflects an experimental and flexible orientation rather than a fixed way of viewing and organising phenomena. High scorers are tolerant of ambiguities and uncertainties; they are fond of novel situations and ideas. Most persons high on this dimension prefer to deal with complexity

as opposed to simplicity, and very high scorers are disposed to seek out diversity and ambiguity" (p.4). It must be noted that this scale is scored in the direction such that low scores represent intolerance of ambiguity, unlike the two other tests to be described.

Budner's Intolerance of Ambiguity test is a 16 item test to which subjects are asked to respond on a 6-point scale expressing strong, moderate or slight agreement or disagreement. Budner's test is probably the most carefully developed for the measurement of intolerance of ambiguity. Budner postulated a general tendency to react to ambiguous situations in a characteristic way. An ambiguous situation is defined "as one which cannot be adequately structured or categorized because of the lack of sufficient cues" (p.30). Three such situations are exemplified in the test. First, a completely new situation in which there are no familiar cues: in short, one of novelty. Secondly, a complex situation in which there is a very great number of cues to be taken into account; that is one of complexity. Thirdly, a contradictory situation in which different elements or cues suggest different structures; that is, one of insolubility. To the individual who is "intolerant of ambiguity" such situations are likely to be perceived as "sources of threat". By contrast, a person who is tolerant of ambiguity is conceived as having "a tendency to perceive ambiguous situations as desirable" (p.29).

Each of the 16 items in Budner's test is categorized according to whether it relates to intolerance of complex, novel or insoluble situations. Hence three subscales may be derived from it. Further, the kind of reaction implied by the response may be categorized as "submissive" (recognizing as unalterable) or "denying" (refusing to acknowledge or allow its existence). Lastly the reaction may be regarded as taking place either in the phenomenological world of individual perceptions and feelings or in the "operative" world of

natural and social objects. The total scale is balanced and relatively free of both acquiescent and social desirability response tendencies. A test-retest reliability of .85 is claimed (with N=15). Budner offers moderate correlations with assessment based upon (a) "blind" analyses of biographical material ($r = .48$), and (b) peer ratings ($r = .34$) using the same 15 subjects, as evidence of validity.

The Photo Ambiguity Test is a non-verbal test, developed for this study. It should be noted that what evidence there is in favour of the curvilinear hypothesis has been provided by performance tests (Coulter, 1953; Taylor, 1960; Weitman, 1962). It is conceivable that questionnaire tests enable some radical "psychologically minded" students to give verbal responses that fit the stereotype of the progressive, "healthy" radical type, who theoretically likes novelty and complexity, thus providing a flattering self-image that is not in accord with their general mode of behaviour. A performance test with a less obvious intention was expected to provide a useful check.

The Photo Ambiguity Test owes much of its conceptualisation to Siegel (1954) who developed a similar test, which he calls the Tolerance-Intolerance of Ambiguity Test. Siegel's test makes use of pictures of people and a set of statements. The subject is expected to match them. This present test uses 16 pictures of babies, judged to be under 2 years of age, presented on one sheet. On another foolscap sheet there are 16 pictures of men. The photographs were obtained from various magazines. The 2 sheets were presented in a large brown envelope, together with an answer sheet which contained the following instructions:

"Examine carefully each of the young children and the men on the 2 sheets. You are asked to attempt to match the children with the men who are their fathers. This may be done by scrutinising

the features of the persons closely and looking for signs of resemblance. Match as many as you can, but do not match any which you are not certain about. Write your answers in the space provided below using letters to indicate your choice. You will be told when the time is up".

The time given was 7 minutes by which it had been ascertained in pilot trials about half the children and the fathers would have been matched on average. The general response to the tests was one of initial pleasure, perhaps because of the cuteness of the babies. There was much smiling and some quiet laughter. The photographs appeared to be scrutinised closely and most subjects were concentrating on the task at the end of the period. As far as I know, none of the photographed men were in fact fathers of any of the children, and there was no evidence that any of the photographs were recognized personally by subjects. In Budner's terms a situation was presented which could not be adequately structured or categorised because of a lack of sufficient cues. It is certainly a "complex" situation and almost certainly a "novel situation". It is doubtful whether it should be regarded as an "insoluble situation". It is reasonable to suppose that subjects might see chance resemblances between certain men and certain children, "jump to a conclusion" and make a match. Once embarked upon this process of matching the more intolerant of ambiguity might be expected to continue until the situation was "closed". At any rate, as a check on the Photo Ambiguity measure, the prediction was made that there would be a positive correlation between the number of matches made and scores on Budner's Intolerance of Ambiguity test. In particular, positive correlations were predicted with the scores on the "Complexity" and "Novelty" subscales. In addition, a negative correlation was predicted with the O.P.I. Complexity sub-scale tolerance of ambiguity measure.

C. Correlations amongst Intolerance of Ambiguity Tests. The Budner measure of Intolerance of Ambiguity and the O.P.I. measure of tolerance of ambiguity (the Complexity sub-scale) were found to correlate moderately highly. For 253 S.A.I.T. subjects the product-moment correlation was $-.59$ ($p < .001$); for males ($N=152$) and females ($N=101$) the correlations were $-.56$ and $-.60$ respectively. Correlations between the O.P.I. measure and the sub-scales of the Budner test were also significant. For the same subjects, both sexes combined, the correlations were $-.51$ for the Complexity sub-scale; $-.51$ for the Novelty sub-scale; and $-.20$ for the Insolubility sub-scale. The various tests may therefore be regarded as complementary measures of intolerance of ambiguity.

To assess the validity of the Photo Ambiguity Test, correlations were computed between the results for this test and those obtained for the two questionnaire measures. As predicted, correlations with the Budner Intolerance of Ambiguity test were significant for the total scale: for both sexes combined ($N=230$) the correlation was $.25$ ($p < .001$); for males ($N=147$) and for females ($N=83$), the correlations were $.21$ and $.25$ respectively. Correlations were also significant, for both sexes combined, for the Complexity sub-scale and the Novelty sub-scale ($p < .01$), but not for the Insolubility sub-scale. (Details of the correlations for each sex, and for each of the items on the Budner Scale are provided in Appendix 10). It may be noted that the correlations with particular items are all in the predicted direction for both sexes combined, and six of them are significant at the $.05$ level (one tailed test). The items most closely associated with the P.A.T. are: "Often the most interesting and stimulating people are those who don't mind being different and original", ($r = -.27$) and "What we are used to is always preferable to what is unfamiliar", ($r = .25$). Analysis of the male and female

data separately suggests that while, on the whole, the relationships are similar for both sexes, there are some items which are, apparently, more related for one sex than the other. In general, while the analysis in terms of the sub-scales proved to be of interest, the categorisations according to whether the reaction might best be interpreted within a phenomenological or operative framework, or as a submissive or denying style of responding did not, and these results are therefore not presented in detail.

Significant correlations were also obtained, as predicted, between the P.A.T. and the O.P.I. Complexity Scale, reflecting tolerance of ambiguity. A total of 231 subjects completed both these tests and a product-moment correlation of -0.20 was obtained ($p < .01$, one tailed test); for males the correlation was $-.19$ ($N=147$) and for females $-.17$ ($N=84$).

In general, then, the Photo Ambiguity Test may be regarded as a performance type test resting upon a similar rationale to that upon which the two questionnaire measures are based, and having small, but significant correlations with each of them. To this extent, the measure is a valid measure of intolerance of ambiguity.

6. (ii) Dogmatism

A. Background Literature. Rokeach (1954) defined dogmatism "as a relatively closed cognitive organisation of beliefs and disbeliefs about reality, organised around a central set of beliefs about absolute authority which in turn provides a framework for patterns of intolerance towards others" (p.195).

An examination of the items of the Dogmatism scales (Forms D and E) by which Rokeach proposed to measure dogmatism shows it to be a complex and elaborate formulation. In summary, the highly dogmatic individual differentiates sharply between his beliefs and disbeliefs, is able to maintain quite contradictory beliefs within

his own belief system and is unable to differentiate between views that differ from his own. He feels alone, fearful and obsessed with power; he is suspicious and intolerant of others and desires above all things an absolute authority to follow and a great cause to believe in. Meanwhile the dogmatic person feels that the present is unbearable, and only the past and the future really matter.

According to Vacchiano et al. (1969) subsequent research has tended to support Rokeach's contention that dogmatism "represents a generalised cognitive state of the organism" and is "independent of ideological content" (p.269). This latter judgement, however, has been challenged by Ray (1970) and Parrott and Brown (1972), who argue that it is associated rather specifically with right-wing political beliefs.

Three aspects of dogmatism have received particular attention. First there is the claim that dogmatic individuals tend to judge the worth of a communication on the basis of its source rather than on its intrinsic merits. Several investigations have strongly supported this claim. Vidulich and Kaiman (1961) found that highly dogmatic persons tended to be more influenced by the judgements of a high status person than were low dogmatic persons in an autokinetic perceptual experiment. Powell (1962) found that highly dogmatic subjects tended to evaluate statements with which they were presented more in accordance with the presidential candidate to whom they were attributed than was the case for relatively open-minded subjects. More recently, Harvey and Hays (1972) found that among both male and female college students the more highly dogmatic tended to agree more with a high authority source (a research physiologist) than a low authority source (a high school student) about the need for pollution control. The empirical evidence is not, however, entirely consistent. Becker (1967) reported that both high and low dogmatic subjects were more positively

affected than others by the knowledge of the authorship of a joke when judging how funny it was. This report suggests that in some areas of judgement at least, persons with extremely high or low degrees of dogmatism may be equally open to the influence of authority.

A second aspect of dogmatism explored by Rokeach is the nature of the cognitive malfunctioning that is associated with the dogmatic person. According to Rokeach (1960) as a result of the cognitive isolation of parts of his belief system, the dogmatic person is less able to entertain and synthesise new beliefs than the more open-minded person. In his experimental studies of problem solving, Rokeach found that the time needed to analyse the so-called "Doodlebug Problem", that is, successfully indicate what assumptions were being made, did not differ for groups of extremely dogmatic and extremely non-dogmatic subjects. However, the time taken to reach a solution to the problem after assumptions had been "overcome" did differ significantly, with the dogmatic subjects taking longer to provide the new synthesis required. In partial support of Rokeach's contention, Mouw (1969) found that the difference between highly dogmatic and low dogmatic subjects was greatest on tasks of synthesis, using the Kropp and Stoker (1966) tests of cognitive processes. On literal comprehension, dogmatic subjects were actually better. However, the difference between the groups did not appear suddenly at the stage of synthesis, as Rokeach would have predicted, for non-dogmatic subjects were also rather better at analysis. Somehow, as Long and Ziller (1965) have suggested, there is some interference with the processing of pre-decisional information, but the precise nature of the cognitive malfunctioning remains in doubt.

Thirdly, there has been concern with the origin and nature of the interference with the dogmatic person's thinking processes.

According to Rokeach (1960), the closed mind may be conceived as representing a "tightly woven network of defences against anxiety" (p.69). Such defence mechanisms are seen as organised so as to form "a cognitive system designed to shield a vulnerable mind" (p.70). One would therefore expect high levels of dogmatism to be associated with poor adaptation and with clinical measures of psychopathology. The empirical evidence strongly supports this expectation. In studies by Rokeach and Fruchter (1956) and by Fruchter, Rokeach and Novak (1958), dogmatism and anxiety emerged as part of a single psychological factor, which included self-rejection and paranoid tendencies. Confirmation of the relationship between dogmatism and anxiety by other investigators has been provided by Norman (1966) and Rebhun (1966). Plant, Telford and Thomas (1965) found their more highly dogmatic subjects immature and defensive; Korn and Giddon (1964) found dogmatism positively correlated with intolerance, inflexibility and insecurity on the California Personality Inventory, and Vacchiano et al. (1968) found dogmatic subjects in greater need of help (higher need for "Succorance") and with a low need for Intraception on the Edwards Personal Preference Schedule. Kemp (1963) showed that dogmatic subjects have relatively poor social perception, being significantly less accurate in gauging both the positive and negative characterisations a teacher attributed to himself. There would appear to be good grounds for expecting some degree of social psychopathology to accompany high degrees of dogmatism.

There is considerable evidence that having a positive attitude towards a range of different authorities is positively correlated with dogmatism. In the area of religion, Feather (1967) found a significant difference between religious subjects and others he termed "agnostics" on Rokeach's Dogmatism Scale, thereby replicating his earlier finding of 1964. Ray (1970) using an Australian version of the Dogmatism

Scale, found significant differences between Methodists and Humanists. Steininger et al. (1972) found that reported Church attendance among college students was positively related to dogmatism for both sexes. McCarthy and Johnson (1962) found that the more dogmatic of their subjects tended to accept the police's explanation of riots in San Francisco as opposed to the students'; and Larsen (1968) found a highly significant correlation of .82 ($N = 103$) between attitudes towards the police and dogmatism among Mormon students.

Ingenious support for a positive relationship between authority rejection and open-mindedness was obtained by Rosenman (1967) who found that highly dogmatic students rated the film "Dr. Strangelove", which savagely satirised American political and military leaders, lower than did those who were relatively open-minded. Making the assumption that intolerance towards the use of marijuana is due to the "official negative view of the authorities", Lorentz (1972) found a linear relationship between such "tolerance" and dogmatism, with nondogmatics being more tolerant than medium dogmatics, who were in turn more tolerant than high dogmatics. This relationship was obtained for both a group of students and a group of businessmen. This is the only one of the above findings which is firmly inconsistent with the existence of a curvilinear relationship.

Among Australian tertiary students, Anderson and Western (1967) found a small but significant correlation ($-.21$) between their measures of Dogmatism and Social Liberalism, which entailed "a belief that individuals should be subject to minimum constraints by society" (p.178). Further research with Australian students is reported by Feather (1971) who computed median rankings for the value of obedience on Rokeach's Value Survey for four groups of students varying in degrees of dogmatism, as assessed by Rokeach's Dogmatism Scale, Form E. For each of the three years, 1968, 1969 and 1970, the median ranking for "obedience" was highest for the most dogmatic group, and for two of the years (1969 and 1970), lowest for the

least dogmatic group. However, the trend is not in each case

clearly linear: in 1968 it was a group that was intermediate in dogmatism that ranked "obedience" highest, and for none of the years were differences between groups claimed as significant.

Research into the personalities of radical students has generally shown them to be less dogmatic than others. Watts and Whittaker (1966) administered a scale of personality flexibility to 172 Free-Speech Movement members who "sat in" the Administrative Building at the University of California in 1964 and to a comparable sample of 146 other (non-activist) students. The authors claim that their test is negatively related to authoritarianism. The mean score for the two groups was found to differ significantly ($p < .001$). Direct application of Rokeach's Dogmatism Scale to students with known political attitudes have been subsequently reported by Karabenick and Wilson (1969), Hampden-Turner (1970) and Steininger et al. (1972). Hampden-Turner's report on the unpublished Ph.D. thesis of Doress (1968) at the University of Boston is particularly interesting because he related dogmatism to a dimension of left-wing, central, and right-wing activism. He found a linear relationship not only with total dogmatism scores, but also with sub-scales of Rokeach's test: namely "party -lining", "perceptual narrowing", "intolerance towards the renegade, the disbeliever and the deviant", "fear of compromise" and "authoritarian belief in one great cause". In each case the most dogmatic were subjects from the right activist group, followed by "central" and "left" types. Non-activists occupied a central position. Karabenick and Wilson (1969) measured attitudes towards the Vietnam war and found a significant positive correlation of .23 between being dogmatic and being in favour of the Vietnam war. "Moderates" and "Hawks" did not differ significantly but "Doves" differed reliably from the remainder. In an attempt to find whether there might be a group of "Doves" who are relatively dogmatic, the scores of the most

extreme "Doves", being 2% of the 678 subjects, were examined and found to be even lower on dogmatism than the "Dove group" as a whole. They conclude that "the relationship between dogmatism and the Vietnam war attitude appears to extend throughout the Vietnam war continuum even to the most extreme "Doves" " (p.421). Bailes and Guller (1970) with male subjects, and Steininger et al (1972) with both males and females, also found that anti-Vietnam war attitude decreased with dogmatism.

Such evidence amounts to a strong case for the existence of a linear relationship between student radicalism and dogmatism. However, there are exceptions. Rosen and Kenny (1972) failed to find a significant difference between student supporters of a liberal candidate (a prominent member of an anti-Vietnam war movement in America) and a conservative candidate on a scale of dogmatism. A particularly discordant report was provided by La Giapa (1969) who tested 140 upper level high school students and 315 University students in Windsor, Ontario and found significant correlations between dogmatism and student power attitudes ($r = .61, p < .001$) and between dogmatism and two measures of student activism: participation in student demonstrations ($r = .26, p < .001$), and occupation of the University building ($r = .15, p < .05$). Consistent with these findings, Ray (1974) reported that among 404 Australian National Servicemen significant positive correlations were found between scores on his Humanistic Radicalism Scale and two measures of authoritarianism, Ray's balanced F Scale ($r = .47$) and Anderson's Australian revision of Rokeach's Dogmatism Scale ($r = .27$). In these two studies there is evidence of support for the opposite hypothesis: that radicals are more dogmatic than others. It should be noted, however, that neither La Giapa nor Ray considered the relationship between

dogmatism and radicalism over the entire continuum. Other investigators, Eysenck (1954), Rokeach (1960) and Barker (1963), have reported the existence of an authoritarianism of the left. A curvilinear relationship between dogmatism and attitude to authority among S.A. tertiary students therefore appeared as a distinct possibility, despite the extensive evidence favouring a generally linear relationship.

B. The test of dogmatism. The test of dogmatism developed and validated by Ray (1970) was used in this study. Two qualities in particular commended it. It is a balanced scale which prevents the confounding of acquiescence set with the primary dimension of dogmatic beliefs. Secondly, to provide negatively worded items students at an Australian University were encouraged to write items intended to tap the opposite concept of "open-mindedness". The choice of "negative" items included in the final scale was determined by the strength of their correlations with the strongest of Rokeach's positive D scale items. Thus Ray could claim to have provided a scale that was not only "balanced" and an equivalent to Rokeach's scales (upon which previous research had been based) but, in addition, was influenced by Australian notions of dogmatism. Ray claimed a reliability coefficient of .91 (with students) and a validity coefficient of .51 using the supposed greater dogmatism of Methodist "believers" as against humanist "non-believers" as a criterion.

6. (iii) Cognitive Complexity - Simplicity

A. Background literature. Like the concept of dogmatism, "cognitive complexity" is intended to refer to the cognitive structure of an individual rather than the content of his thinking. It has, unfortunately, been given somewhat different meanings by different psychologists and, not surprisingly, measures derived from different conceptualisations have failed to correlate significantly (see Vannoy,

(1966; Little, 1969; Richardson and Soucar, 1971). However, within the personality theory of Kelly (1955) a view of cognitive complexity has been developed, primarily by Bieri (1966) which has generated considerable research in personality and interpersonal perception, and it is this meaning of "cognitive complexity" that was adopted in this investigation.

Kelly conceived individuals as differing primarily according to the systems of constructs which they used in construing the world. Bieri focussed on the extent to which individuals differentiated between the constructs they used in making judgements of people. Those who differentiated poorly, that is, tended to use constructs similarly in making judgements of a variety of people known to them were described as "cognitively simple"; those who differentiated among constructs well were called "cognitively complex". Cognitively complex people are described as tending to construe behaviour "in a multi-dimensional way" and as having a "versatile way of perceiving the behaviour of others" (p.14).

Bieri's own measure of cognitive complexity originally made use of Kelly's repertory grid methodology. In his earlier work he employed constructs derived from differentiations between stimulus persons made by his subjects, but more recently he has employed a standardized method (correlating highly with the former measure, according to Tripodi and Bieri, 1963) in which dimensions rather than dichotomous constructs are provided for the subject to use.

In Vannoy's (1966) factor analytical study, Bieri's test of cognitive complexity loads moderately on three of the factors extracted. According to Vannoy, Factor II, accounting for 19.6% of the variance (the factor loading of Bieri's test on this factor is $-.47$), shows a pattern of loadings which indicates a relatively low level of conceptual development, similar to that described by Harvey et al (1961) as System II. Such a self-system is believed to involve

the perception of persons in a highly polarised manner. Thus a high level of cognitive simplicity may be associated with a lack of differentiation of the social environment, apart from the crudest categorisations. Vannoy's Factor V (9.6% of the variance, with a Bieri test loading of $-.34$) is considered to indicate an inordinate pre-occupation with the competence of others, among whom there is thought to be a wide variation. Factor VI (8.6% variance, with a Bieri test loading of $-.37$) suggests to Vannoy a "black versus white" orientation. There is a tendency "to view persons as being thoroughly good or thoroughly bad... a pre-disposition to divide one's world into opposing camps" (p.394).

Vannoy's analysis suggests, among other things, that the cognitively simple would tend to be prejudiced in their judgements. A small but significant negative correlation is, in fact, reported in Vannoy's (1966) study between cognitive complexity (Bieri's measure) and a measure of authoritarianism based upon the California F Scale ($r = -.20$). One characteristic of the prejudiced person is a tendency to assume that other people are like himself: to practise what Cameron and Magaret (1951) have called "assimilative projection". The evidence is strong that cognitively simple people do, in fact, tend to assume that others are very much more like themselves than cognitively complex people do (Bieri, 1955; Leventhal, 1957; Adams-Webber, 1969) and in some circumstances at least they appear to be less accurate judges of others (Bieri, 1955; Plotnick, 1961).

A study by Lundy and Berkowitz (1957) suggests that while in general cognitively simple people do not change their opinions easily, they are far more susceptible to change when they are influenced by authority figures (generals) than by their peers, and that this is not the case for cognitively complex persons.

Further, persons who are cognitively complex tend to be perverse in their reactions to both peer and authority persuasion, that is, they tend to change in the opposite direction. This would indicate that a linear relationship between attitude to authority and cognitive complexity may be found, with the more cognitively simple being more favourably disposed towards authority.

On the other hand, there is reason to suppose that at some extreme point of anti-authoritarianism, a cognitively simple orientation may be found. The representatives of System II of Harvey's conceptual scheme (to which, in Vannoy's judgement, cognitive simplicity is related) are described by Harvey (1967) as typically showing "distrust of authority and rebellion against the more approved guides of behaviour" (p.319). In addition, there are characterisations of the more radical type of student as "black and white thinkers" arrested in their social development (Bettelheim, 1969; Eysenck, 1972) that might lead one to expect a curvilinear relationship, with extreme pro- and anti-authority types being more cognitively simple than others.

B. The Cognitive Simplicity Test. In this study the measure used to assess cognitive complexity-simplicity was basically the one used by Bieri (1966). Subjects were asked to name 10 people known to them personally who correspond to 10 roles that were provided on the answer sheet. (These roles were regarded as sampling a person's everyday social environment). Each one was rated by the subject on 10 bipolar adjectives on a 6-point scale. The score for cognitive complexity was obtained by comparing each of the construct rows in pairs and counting 1 for every identical rating for a person being rated. High scorers are the more cognitively simple, and because of this the scale is referred to hereafter as the Cognitive Simplicity Scale.

Slight modifications were made to Bieri's method. In place of "boss", which was considered inappropriate for a student group, "lecturer" was included. In addition, the forms were given out with a strip of paper stapled to the edge of the sheet so that the subject could write down the initials of the person corresponding to the role. To prevent the subjects from having to give personal information, he was instructed that he should detach the slip at the completion of the 10 by 10 grid (see Appendix 11).

6. (iv) Creative Independence

A. Background Literature. "Creative Independence" is a term that is used here to describe a feeling of autonomy and spontaneity that is thought to engender creative behaviour. Such a feeling would appear to be incompatible with a great concern with authority. Originality, as Leach (1967) has argued, demands the fullest possible utilisation of stimuli from the environment. If some are not utilised because their use, in a particular context, does not seem to be approved by the authorities, the possibilities for creative behaviour are obviously limited. But equally, it might be argued, creativity may be stifled by a tendency to ignore stimuli simply because their use is commended by the authorities.

Harris (1973) argues from a transactional analysis point of view that a pre-occupation with contending against authority may frustrate creativeness. "The most creative individual", he argues, "is one who discovers that a large part of the content of the Parent squares with reality. He can then file away this validated information of the Adult, trust it, forget about it, and get on with other things..." (p.35). According to this line of reasoning, at some extreme point of an anti-authoritarian attitude one would expect a diminution in creativeness, and arguably, a lowering in the feeling of creative independence.

The empirical evidence on the relationship between attitude to authority and creative independence is unclear. Some early studies of radical personalities by Moore (1925) and Vetter (1930) indicate that radicals are less "suggestible" (and therefore "more independent") than others. Vetter's study also provides evidence that radicals are more original than conservatives. On the Kent-Rosanoff Association test, radicals produces less probable responses (i.e. having lower frequency values). More recently, Hudson (1968) has shown that it is the more divergent thinkers, at least among English Grammar School boys, who show the least respect for authority, as assessed by Hudson's Independence test, the one adapted for this study.

However, results obtained by Carol (1972) using the Independence sub-test of Gordon's Survey of Interpersonal Values are only partly consistent with the linear hypothesis. In Carol's study, American college students were categorised as pro-authoritarian, non-authoritarian, or anti-authoritarian, according to their responses on the Miale-Holsopple Sentence Completion test. Independence scores were indeed found to be significantly lower for the pro-authority types, but non- and anti-authoritarian were reported as receiving similar mean scores. In the same study, Carol explored the relationship between the three types of authoritarians and the variable of creativity, using a battery of Guilford's Creativity tests. The results for each of these three types were not significantly different. However, the mean scores of the non-authoritarians were higher than those of both the pro- and anti-authoritarians, a result that is consistent with the curvilinear hypothesis.

It is apparent then that the evidence concerning the nature of the relationship between attitude to authority and variables

that are thought to be similar to that of "creative independence" is unclear, and that a further test of the linear and curvilinear hypotheses is required.

B. The Creative Independence Scale. The test used to assess Creative Independence was Rump's Adjective Check List (1968). Eighteen of the 36 test items are intended to provide an assessment of creative independence; half are positively and half negatively keyed. The positively keyed adjectives are: versatile, imaginative, independent, rebellious, different, creative, individualistic, cynical and outspoken; the negative ones are: self-conscious, conventional, play-it-safe, conservative, unadventurous, boring, do not take risks, few novel ideas and easily influenced. These adjectives are listed in random order on the test sheet. Subjects are asked to tick those that best describe themselves, about half of the items if possible (see Appendix 12).

For 211 subjects, students at the S.A.I.T., the internal consistency of the scale using Cronbach's alpha was found by the writer to be .65. The scale has been shown by Rump (1968) to be related to a measure of divergent thinking derived from scores for "Controlled Association", "Uses of Objects" and "Similarities" using 100 first year University of Adelaide subjects, with a correlation of .26.

6. (v) Emotional Activation

A. Background Literature. It is generally considered to be characteristic of the strongly prejudiced, authoritarian personality that he cannot enjoy the direct expression of his sexual and aggressive impulses (Brown, 1965). These are normally repressed. Some indirect expression may be obtained through projection, but

this is emotionally unsatisfying. One would expect him therefore to be generally lacking in drive and spontaneity. McClosky's (1958) judgements of extreme conservatives, on the basis of his Minnesota samples, as "people who think poorly of themselves... who are submissive, timid and wanting in confidence", is in accordance with this expectation.

By contrast the student radical activist, at Berkeley, at least, has been shown by Heist (1965) to be significantly higher than other students on the O.P.I. sub-scale of "Impulse Expression"; that is, he may be regarded as more ready than others to express his impulses and seek gratification in conscious thought or in overt behaviour. Winborn and Jansen (1967) interpret the scores of radical social-action leaders at Indiana University on Cattell's "16PF" test as indicating that this group has lower super-ego strength than conservative leaders and, in addition, are "more emotionally sensitive and more forthright and unpretentious in social relationships" (p.513). Pierce and Schwartz (1971) summarising previous research say that activists have been portrayed typically as, among other things, "emotionally open and expressive" (p.221), to which their own study adds that he is less suspicious, defensive and guarded than others and more spontaneous, playful, colourful and conspicuous. The tendency towards emotional expressiveness is seen as being especially extreme in women activists who possess a "more hell-bent impulsive danger-courting wildness not present in men" (p.229).

The evidence is not, however, completely one sided. Williamson and Hoyt (1952) found that both male and female leaders of a conservative club scored significantly lower than liberal leaders on the Pd Scale of the M.M.P.I., suggesting that the latter may be characterised as "lacking in deep emotional

responsiveness": the Pd Scale largely reflects a disregard of social mores, however, and no clear inference concerning emotional expressiveness is possible from this study. An early study by Vetter (1930) found that there was a curvilinear relationship between a measure of introversion (on Laird's Personal Inventory) and a "radical-conservative-reactionary" continuum for both males and females, with "radicals" and "reactionaries" being more introverted than "conservatives". Although such findings as these are unrepresentative in the literature, they do suggest the possibility that radical activities may represent sporadic outbursts of anti-authority feeling in normally repressed personalities that cannot gain emotional satisfaction in other ways. Again, it may be concluded that an empirical test of the linear and curvilinear hypotheses is desirable.

8. The Emotional Activation Scale. The measurement of emotional activation was provided by Rump's Adjective Check List (1968), as for the Creative Independence scale. From checking or not checking 18 items relating to emotional activation a general level of excitability and adventurousness is inferred. It was intended as a measure relatively independent of psychopathological symptomatology to provide an indication of "normal" degrees of outgoingness and emotional arousal. The scale is balanced, with nine positive and nine negatively keyed items. The positively keyed ones indicating emotional activation are: energetic, enthusiastic, irritable, hurried, touchy, restless, pleasure-seeking, aggressive and moody. The negatively keyed items are: reserved, patient, easy-going, peaceable, gentle, tired, stable, unemotional and contented (see Appendix 12). For 211 S.A.I.T. subjects the internal consistency of the test was assessed using Cronbach's alpha as .63.

The Emotional Activation Scale has been found to correlate with both dimensions of Eysenck's (1964) Personality Inventory. For 100 first year Adelaide University students the correlations were .39 with extraversion and .32 with neuroticism (Rump, 1968). In Eysenck's terms therefore one would expect that subjects low on Emotional Activation would be relatively introverted and lacking in emotional arousal; and high scorers would tend to be extraverted and generally highly aroused. Unlike Eysenck's Neuroticism Scale, however, the Emotional Activation scale is relatively free of social desirability effect: correlations with Edwards Social Desirability Scale for the latter are -.26, compared with -.79 for the E.P.I. (Rump and Court, 1971).

6. (vi) Summary and Re-statement of Hypotheses

To summarise: it has been shown that with respect to 5 personality variables, theoretical considerations, and to some extent empirical research, suggest the importance of gaining data to test two alternative hypotheses concerning the relationship between these variables and attitude towards authority. One hypothesis predicts a linear relationship and the other a curvilinear one. Both agree in predicting that persons who are highly pro-authority will tend to be intolerant of ambiguity, dogmatic, cognitively simple and low in both creative independence and emotional activation compared with persons who occupy intermediate positions on the scale. They disagree, however, in predicting the personality characteristics of those who are very much opposed to authority. The linear hypothesis predicts that such persons will tend to be the most tolerant of ambiguities, open-minded, cognitively complex, creatively independent and emotionally activated of all; whereas the curvilinear hypothesis predicts that they will resemble in personality characteristics those who are most pro-authority.

CHAPTER 7. PERSONALITY SCORES AND THEIR CORRELATIONS WITH ATTITUDE TO AUTHORITY

This chapter presents the data for the personality variables described in the previous chapter. Means and standard deviations are given, and to examine the extent of the linear relationship between attitude and personality variables, correlation matrices are presented. The data are examined more closely for any curvilinear relationship in the following chapter.

For the purposes of examining these results, data for the S.A.I.T. students are analysed separately from those of the University of Adelaide students, who provided a partial replication of the main S.A.I.T. results.

7. (i) Means, Standard Deviations and Correlations for the S.A.I.T. students

The personality tests were administered together with the attitude scales to groups of students attending psychology classes at the S.A.I.T. during 1971 and 1972. In agreeing to participate in the study students were promised an explanation of its purpose, and the results were subsequently discussed with them. As previously explained, there was a falling off in attendance, particularly in the General Studies Course, which resulted in various numbers of tests being completed by different subjects. For this reason three overlapping sets of data have been analysed separately:

1. The maximum amount of data available for each personality variable and the complete set of Attitude toward Authority and Radicalism scales. (That is, data for all subjects who completed all Attitude Scales plus any of the personality tests).

2. The maximum amount of data available for every pair of variables. (That is, data for all subjects who completed any scales or tests are included for analysis).

3. The comprehensive data available for all personality and attitude variables used. (That is, data only for those subjects who completed all the tests).

The results obtained from the first set of data form the basis for the main analyses in this chapter. A subsidiary factor analysis of the third set of data is also presented subsequently. The remaining results are given in Appendices 14, 15 and 16 and may be consulted for comparison.

Mean scores for males and females on (a) personality tests and (b) attitude scales based on the first set of data are given in Tables 26 and 27 respectively.

Table 26. Personality Test Scores of S.A.I.T. students who also completed all the Attitude Scales, with sex differences.

Personality Test	Males			Females			Both Sexes			Signif. of the sex difference	
	\bar{X}	S.D.	N	\bar{X}	S.D.	N	\bar{X}	S.D.	N	t	p <
Intolerance of Ambiguity (Budner)	47.85	8.77	61	44.19	9.68	68	45.92	9.44	129	2.22	.05
Intolerance of Complexity (Budner)	26.34	5.35	61	23.97	5.78	68	25.09	5.71	129	2.39	.02
Intolerance of Insolubility (Budner)	7.85	2.55	61	7.50	2.69	68	7.67	2.62	129	.75	n.s.
Intolerance of Novelty (Budner)	13.36	3.23	61	12.72	4.30	68	13.02	3.85	129	.94	n.s.
Tolerance of Ambiguity-Complexity (O.P.I.)	15.51	5.63	60	17.28	5.70	69	16.46	5.74	129	-1.76	n.s.
Intolerance of Ambiguity P.A.T.	8.74	4.00	57	7.25	3.02	57	7.99	3.61	114	2.22	.05
Dogmatism (Ray)	88.98	11.89	60	85.98	10.45	63	87.45	11.27	123	1.48	n.s.
Cognitive Simplicity	135.47	26.16	64	134.92	24.35	64	135.20	25.27	128	.12	n.s.
Creative Independence	10.60	2.86	91	10.18	3.52	87	10.40	3.20	178	.87	n.s.
Emotional Activation	7.85	3.03	91	8.71	3.65	87	8.28	3.50	178	-1.70	n.s.

Notes: (1) See Appendix 13 for numbers of part-time and full-time subjects in these samples, mean ages and their standard deviations for each sex.

(2) See Appendix 14 for results using all scores available for each personality variable, including Ss who did not complete all Attitude Scales, and for results using data only for those subjects who completed all tests and scales.

Table 27. Authority Scale Scores for sets of S.A.I.T. subjects represented in Table 26.

Data for Ss who also completed the personality test indicated	SYMBOLIC AUTHORITY SCALE							
	MALES			FEMALES			Significance of sex difference	
	\bar{X}	S.D.	N	\bar{X}	S.D.	N	t	p
Budner and sub-scales	72.38	10.98	61	75.16	9.48	68	-1.53	n.s.
O.P.I. (Complexity)	72.61	10.91	60	74.93	9.61	69	-1.27	n.s.
P.A.T.	73.14	10.35	57	74.44	10.40	57	-.66	n.s.
Dogmatism	72.13	11.23	60	73.21	10.44	63	-.55	n.s.
C.S.	71.88	10.97	64	73.21	10.37	64	-.78	n.s.
C.I. & E.A.	70.91	11.08	91	73.77	9.95	87	-1.80	n.s.

TEACHERS SCALE

	TEACHERS SCALE							
	MALES			FEMALES			Significance of sex difference	
	\bar{X}	S.D.	N	\bar{X}	S.D.	N	t	p
Budner and sub-scales	100.48	18.67	61	94.08	15.52	68	2.11	<.05
O.P.I. (Complexity)	100.52	18.81	60	94.26	15.48	69	2.06	<.05
P.A.T.	101.46	17.84	57	94.96	16.11	57	2.02	<.05
Dogmatism	101.70	16.56	60	94.56	15.41	63	2.46	<.02
C.S.	101.52	17.19	64	94.70	15.28	64	2.35	<.05
C.I. & E.A.	99.14	17.09	91	93.90	15.37	87	2.14	<.05

ARMY SCALE

	ARMY SCALE							
	MALES			FEMALES			Significance of sex difference	
	\bar{X}	S.D.	N	\bar{X}	S.D.	N	t	p
Budner and sub-scales	89.11	23.69	61	85.26	18.68	68	1.02	n.s.
O.P.I. (Complexity)	89.88	23.13	60	84.75	19.02	69	1.37	n.s.
P.A.T.	90.72	21.52	57	84.65	19.86	57	1.55	n.s.
Dogmatism	88.48	24.55	60	83.49	20.69	63	1.21	n.s.
C.S.	89.45	23.21	64	83.69	20.53	64	1.48	n.s.
C.I. & E.A.	87.74	22.88	91	83.99	19.80	87	1.16	n.s.

Table 27 (continued)

Data for Ss who also completed the personality test indicated	LAW SCALE						Significance of sex difference	
	MALES			FEMALES			t	p
	\bar{X}	S.D.	N	\bar{X}	S.D.	N		
Budner and sub-scales	90.92	14.66	61	90.62	13.58	68	.12	n.s.
D.P.I. (Complexity)	91.25	14.55	60	90.07	14.21	69	.46	n.s.
P.A.T.	91.91	13.34	57	89.72	14.90	57	.82	n.s.
Dogmatism	90.93	15.03	60	89.59	14.17	63	.50	n.s.
C.S.	90.36	14.31	64	89.77	14.15	64	.23	n.s.
C.I. & E.A.	89.58	15.26	91	89.52	13.91	87	.03	n.s.

	POLICE SCALE						Significance of sex difference	
	MALES			FEMALES			t	p
	\bar{X}	S.D.	N	\bar{X}	S.D.	N		
Budner and sub-scales	82.41	15.83	61	81.72	12.92	68	.27	n.s.
D.P.I. (Complexity)	82.80	15.67	60	81.52	12.94	69	.50	n.s.
P.A.T.	83.22	14.91	57	80.75	13.44	57	.92	n.s.
Dogmatism	83.25	14.83	60	80.38	13.77	63	1.10	n.s.
C.S.	82.59	14.23	64	80.13	13.68	64	.99	n.s.
C.I. & E.A.	80.24	15.38	91	81.00	12.75	87	.36	n.s.

	RADICALISM SCALE						Significance of sex difference	
	MALES			FEMALES			t	p
	\bar{X}	S.D.	N	\bar{X}	S.D.	N		
Budner and sub-scales	46.95	10.01	61	50.76	8.68	68	-2.30	<.05
D.P.I. (Complexity)	46.83	10.05	60	50.93	8.72	69	-2.46	<.02
P.A.T.	46.60	9.53	57	50.04	8.22	57	-2.05	<.05
Dogmatism	46.63	9.96	60	50.51	8.04	63	-2.36	<.02
C.S.	47.36	9.69	64	50.33	8.10	64	-1.87	n.s.
C.I. & E.A.	47.90	10.01	91	51.45	8.80	87	-2.49	<.02

Note: See Appendix 14 for results using (a) all Ss who completed a particular Attitude Scale and (b) only Ss who completed all tests.

As overlapping sets of subjects completed the various personality tests, the data for these sets are given in some detail, so as to verify that the sets are not systematically different. The ages of the subjects differ very slightly from group to group (see Appendix 13), as one would expect from the degree of overlap. For males mean ages varied from 22.89 to 24.20; for females from 18.18 to 18.84. The proportion of full time to part-time subjects remained fairly constant (see also Appendix 13) with male full-timers comprising about 60% of respondents and females approximately 90%. Male and female subjects differ mainly in that males are, on average, approximately 4 years older and more likely to attend part-time.

It may be noted (from Table 26) that males have higher mean scores on each of the 5 measures of Intolerance of Ambiguity and, consistently, a lower mean score on the O.P.I. Tolerance of Ambiguity scale, higher mean Dogmatism and Cognitive Simplicity scores, and lower mean scores on Creative Independence and Emotional Activation; in short, their scores are different in the directions in which pro-authority subjects were expected to differ from intermediate groups. In three cases the differences are significant by t test, these being three of the measures of intolerance of ambiguity: the Budner test and the complexity subscale of Budner's test, and the Photo Ambiguity Test.

For the Authority Scales and the Radicalism Scale means and standard deviations were computed for each of the 6 overlapping sets of subjects used in this analysis. Scores on particular attitude scales within each of the sets tended to be very similar (see Table 27.); the direction of the differences between males and females was the same in each case. It seems unlikely, therefore, that there is any systematic bias due to differential

attendance at test sessions. The direction of the differences between males and females tends to be consistent from scale to scale. In general, males have higher mean scores on the pro-authority attitude scales, and lower mean scores on the Radicalism Scale. There is one exception, the Symbolic Authority Scale, on which the mean scores for females are slightly higher, though to a non-significant degree. Significant differences were found for the Teachers' Scale, and, with the exception of one case, the Radicalism Scale.

The correlations between personality and attitude towards authority measures (and the Radicalism Scale) are given in Table 28a, 28b and 28c. (Intercorrelations between all personality measures and attitude variables for completed sets of results are given in Appendix 15a and 15b and those using all the available data - with numbers for each pair - are given in Appendix 16a and 16b. These may be consulted for comparisons).

First, it may be noticed (from Tables 28a and 28b) that for both males and females the correlations are generally in the direction predicted by the linear hypothesis. There is one exception for males: Intolerance of Novelty (a Budner sub-scale) has a zero correlation with the Teacher Scale. For females there are two exceptions, again involving the Teacher Scale, with Intolerance of Ambiguity (P.A.T.) and Cognitive Simplicity. Not counting the Budner sub-scales and the Composite Authority Scale (since it is derived from other scales), it may be observed that 34 out of 35 correlations are in the predicted direction for males, and 33 out of 35 for females. Combining sexes (see Table 28c), as appears justified given such a high degree of similarity, it may be seen that all the correlations are in the predicted direction.

Table 28a. Linear correlations between personality measures and attitude towards authority (and radicalism) for samples of male S.A.I.T. subjects.

Personality Measure	N	Pre-dict	Attitude Measure					Radicalism Measure		
			S.A.	T	A	L	P	CA	Pre-dict	R
Intolerance of Ambiguity (Budner)	61	+	32*	05	26*	20	20	26*	-	- 19
Intolerance of Complexity (Budner)	61	+	38*	02	28*	17	08	23*	-	- 15
Intolerance of Insolubility (Budner)	61	+	07	12	17	19	20	19	-	-03
Intolerance of Novelty (Budner)	61	+	16	00	05	06	24*	13	-	-25*
Complexity Scale O.P.I.	60	-	-52*	-29*	-37*	-46*	-45*	-53*	+	36*
Intolerance of Ambiguity (P.A.T.)	57	+	28*	32*	05	13	07	23*	-	-15
Dogmatism (Ray)	60	+	28*	15	16	38*	28*	31*	-	-24*
Cognitive Simplicity	64	+	23*	21*	19	36*	28*	32*	-	-19
Creative Independence	91	-	-24*	-12	-20*	-32*	-16	-26*	+	14
Emotional Activation	91	-	-17*	-04	-08	-03	-13	-11	+	-03

Notes: The predictions, in accordance with the linear hypothesis, are given as + for a correlation in the positive direction and - for a correlation in the negative direction.

Abbreviations: S.A. (Symbolic Authority); T (Teachers);
A (Army); L (Law); P (Police);
CA (Composite Authority); R (Radicalism).

Correlations significant at the .05 level (one tailed test) are marked thus: *.

Decimal points have been omitted, as in all subsequent tables.

Table 28'b. Linear correlations between personality measures and attitude towards authority (and radicalism) for sample of female S.A.I.T. subjects.

Personality Measure	N	Pre-dict	Attitude Measure					Radicalism Measure		
			S.A.	T	A	L	P	CA	Pre-dict	R
Intolerance of Ambiguity (Budner)	68	+	45*	24*	22*	40*	14	39*	-	-37*
Intolerance of Complexity (Budner)	68	+	45*	24*	19	39*	10	37*	-	-35*
Intolerance of Insolubility (Budner)	68	+	20*	11	19	21*	12	22*	-	-36*
Intolerance of Novelty (Budner)	68	+	28*	15	13	25*	12	25*	-	-15
Complexity Scale O.P.I.	69	-	-43*	-25*	-28*	-35*	-19	-40*	+	33*
Intolerance of Ambiguity (P.A.T.)	57	+	26*	-13	05	06	15	10	-	-21
Dogmatism (Ray)	63	+	41*	29*	43*	44*	29*	49*	-	-45*
Cognitive Simplicity	64	+	29*	-04	27*	08	17	20	-	-19
Creative Independence	87	-	-29*	-20*	-30*	-28*	-13	-32*	+	28*
Emotional Activation	87	-	-17	-25*	-28*	-24*	-14	-28*	+	20*

Notes: The predictions, in accordance with the linear hypothesis, are given as + for a correlation in the positive direction and - for a correlation in the negative direction.

Abbreviations: S.A. (Symbolic Authority); T (Teachers); A (Army); L (Law); P (Police); CA (Composite Authority); R (Radicalism).

Correlations significant at the .05 level (one tailed test) are marked thus: *.

Table 28c. Linear correlations between personality measures and attitude towards authority (and radicalism) for samples of S.A.I.T. subjects of both sexes.

Personality Measure	N	Pre-dict	Attitude Measure						Radicalism Measure	
			S.A.	T	A	L	P	CA	Pre-dict	R
Intolerance of Ambiguity (Budner)	129	+	35*	18*	25*	30*	17*	32*	-	-31*
Intolerance of Complexity (Budner)	129	+	37*	16*	24*	28*	09	30*	-	-28*
Intolerance of Insolubility (Budner)	129	+	13	12	18*	20*	16*	20*	-	-20*
Intolerance of Novelty (Budner)	129	+	20*	10	10	17*	17*	19*	-	-20*
Complexity Scale (O.P.I.)	129	-	-45*	-29*	-34*	-40*	-32*	-47*	+	36*
Intolerance of Ambiguity (P.A.T.)	114	+	25*	17*	08	11	12	19*	-	-21*
Dogmatism (Ray)	123	+	33*	23*	29*	41*	29*	40*	-	-35*
Cognitive Simplicity	128	+	25*	10	22*	23*	23*	27*	-	-19*
Creative Independence	178	-	-27*	-15*	-24*	-30*	-15*	-28*	+	19*
Emotional Activation	178	-	-15*	-16*	-18*	-13*	-13*	-19*	+	10

Notes: The predictions, in accordance with the linear hypothesis, are given as + for a correlation in the positive direction and - for a correlation in the negative direction.

Abbreviations: S.A. (Symbolic Authority); T (Teachers); A (Army); L (Law); P (Police); CA (Composite Authority); R (Radicalism).

Correlations significant at the .05 level (one tailed test) are marked thus: *.

High degrees of correlation are somewhat less evident, and not all are reliably different from zero. Out of the 35 possible correlations, 20 are significant for males and for females 23 are significant. Combining the sexes, however, provides a total of 31 significant correlations; the four nonsignificant exceptions are the P.A.T. Intolerance of Ambiguity, which fails to correlate significantly with either the Army, the Law or the Police Scales, and the Cognitive Simplicity measure which fails to correlate significantly with the Teacher Scale. Despite these exceptions, this analysis provides results which are on the whole consistent with the linear hypothesis.

The most general measures of attitudes towards authority are the Symbolic Authority Scale and the Composite Authority Scale. In relation to these the linear hypothesis appears to be consistently supported. Most of the correlations are low but significant. For the two sexes combined (see Table 28c) nine of the ten correlations with Symbolic Authority are significant and all of the ten correlations are significant for the Composite Authority Scale. The highest degrees of relationship with the C.A.S. are with the D.P.I. Tolerance of Ambiguity Scale ($r = -.47$) and Ray's Dogmatism Scale ($r = -.40$).

The sub-scales of the Budner test provide relatively weak support for the linear hypothesis. This is probably due to the instability of these short scales. However, even here 10 of the 15 correlations are significant (using the data for both sexes combined), each one is in the predicted direction, and each correlates significantly with the Total Authority Scale.

It should also be noted that correlations between the personality variables and Radicalism are, in general, similar (allowing for the opposite "polarity" from the Attitude Scales).

For both sexes combined, with the sole exception of Emotional Activation, significant correlations were found with both the C.A.S. and Radicalism.

Finally it was observed that for the S.A.I.T. sample the older subjects tended to be more in favour of authority and somewhat less radical than the younger ones; and, in general, the older subjects also scored higher on those personality variables associated positively with a pro-authority attitude and negatively with radicalism. Although the correlations are generally quite small (see Appendices 15 and 16), it was considered desirable to check the contribution of age by partialling out. The effect of age is negligible as can be seen in Table 29, and the significance of the obtained correlations between the personality variables and both the C.A.S. and the Radicalism Scale is not altered.

In general then the results are consistent with the linear hypothesis (subject to the check on curvilinearity reported later), suggesting that pro-authority students are more likely to be intolerant of ambiguity, dogmatic and low in Creative Independence. Results for the two sexes are fairly similar, but on the basis of Table 27a and 28b it appears that Emotional Activation may be associated with a relatively anti-authority attitude for females only, and cognitive simplicity for males only.

Table 29. Partial correlation coefficients between personality variables and (1) C.A.S. and (2) the Radicalism Scale, corrected for age (S.A.I.T. subjects).

<u>Personality variable</u>	<u>N</u>	<u>C.A.S.</u>		<u>R.A.D.</u>	
		<u>Partial r</u>	<u>Orig. r</u>	<u>Partial r</u>	<u>Orig. r</u>
Intolerance of Ambiguity (Budner)	129	31	(32)	27	(28)
Intolerance of complexity (Budner)	129	29	(30)	19	(20)
Intolerance of insolubility (Budner)	129	20	(20)	20	(20)
Intolerance of novelty (Budner)	129	19	(19)	09	(10)
Complexity scale (D.P.I.)	129	46	(47)	36	(36)
Intolerance of Ambiguity (P.A.T.)	114	19	(19)	21	(21)
Dogmatism (Ray)	123	39	(40)	34	(35)
Cognitive Simplicity	129	22	(27)	17	(19)
Creative Independence	178	26	(28)	27	(28)
Emotional Activation	178	16	(19)	18	(19)

7. (ii) Means, Standard Deviations and Correlations for the University of Adelaide students

As a partial replication of this study, Rump's Adjective Check List was also administered to the 80 first year Adelaide University students who completed the Attitude Scales. Details of the ages and modes of attendance of the subjects and their attitude scores have already been described in Chapter 3 (see Tables 14 and 15). Corresponding information for the 178 S.A.I.T. students who also completed both attitude scales and the Adjective Check List may be

found in Appendix 13 and in Table 27. Here it may be noted that, in general, the subjects in the University sample tended to be younger, with a mean age of 18.98 years compared with a S.A.I.T. mean of 21.30 years. The differences were particularly marked for male subjects: the University mean is 19.30 years and the S.A.I.T. mean 23.71 years. On the attitude tests the University subjects obtained lower mean scores on each of the (pro-authority) scales and a higher mean Radicalism Score than their S.A.I.T. counterparts. (A more detailed examination of both sex and institution differences on these scales is provided in Chapter 11). Table 30 presents the scores for the University and S.A.I.T. students on the two personality tests. It will be seen that the mean scores for the two institutions are very similar.

Table 30. Adjective Check List Scores of University of Adelaide students who also completed all the Attitude Scales, with corresponding scores for S.A.I.T. subjects.

Creative Independence Scale

	<u>Males</u>			<u>Females</u>			<u>Both Sexes</u>		
	\bar{X}	S.D.	N	\bar{X}	S.D.	N	\bar{X}	S.D.	N
University of Adelaide	10.60	3.09	33	10.21	3.21	47	10.38	3.17	80
S.A.I.T.	10.60	2.86	91	10.18	3.52	87	10.40	3.20	178

Emotional Activation Scale

	<u>Males</u>			<u>Females</u>			<u>Both Sexes</u>		
	\bar{X}	S.D.	N	\bar{X}	S.D.	N	\bar{X}	S.D.	N
University of Adelaide	8.67	2.96	33	8.23	3.33	47	8.41	3.19	80
S.A.I.T.	7.85	3.03	91	8.71	3.65	87	8.28	3.50	178

Linear correlations between the two personality variables (Creative Independence and Emotional Activation) and the attitude scales are provided in Table 31, for the University of Adelaide students and (for comparison) the S.A.I.T. sample.

Table 31. Linear Correlations between two personality Measures and Attitudes towards Authority (and Radicalism) for a sample of Adelaide University students, with corresponding correlations for the S.A.I.T. sample.

(a) Correlations with Creative Independence

	S.A.	T.	A.	L.	P.	C.A.S.	R.A.D.
<u>Males</u>							
U. of A. (N=33)	-26	-38*	-30*	-24	-11	-29*	16
S.A.I.T. (N=91)	-24*	-12	-20*	-32*	-16	-26*	14
<u>Females</u>							
U. of A. (N=47)	-52*	-20	-47*	-40*	-40*	-47*	23
S.A.I.T. (N=87)	-29*	-20*	-30*	-28*	-13	-32*	28*
<u>Both scores</u>							
U. of A. (N=80)	-40*	-27*	-39*	-34*	-24*	-39*	20*
S.A.I.T. (N=178)	-27*	-15*	-24*	-30*	-15*	-28*	19*

(b) Correlations with Emotional Activation

	S.A.	T.	A.	L.	P.	C.A.S.	R.A.D.
<u>Males</u>							
U. of A. (N=33)	-11	08	00	-18	00	-04	09
S.A.I.T. (N=91)	-17*	-04	-08	-03	-13	-11	-03
<u>Females</u>							
U. of A. (N=47)	05	22	06	00	-01	10	-12
S.A.I.T. (N=87)	-17	-25*	-28*	-24*	-14	-28*	20*
<u>Both sexes</u>							
U. of A. (N=80)	-04	16	03	03	-01	02	-02
S.A.I.T. (N=180)	-15*	-16*	-18*	-13*	-13*	-19*	10

Note: Correlations significant at the .05 level (1 tailed test) are indicated thus: *.

All predictions are in the negative direction, apart from predictions of correlations with Radicalism Scale, which are all positive.

It can be seen from Table 31 that as far as Creative Independence is concerned there is a clear replication of the results obtained from the S.A.I.T. sample. All the correlations for both samples are in the predicted direction, and for both males and females correlations with the C.A.S. are significant. For the combined sex data in both samples all the correlations are significant.

As in the case of the S.A.I.T. sample it was considered desirable to check the contribution of age to the correlations with C.A.S. and Radicalism that are claimed as significant. The correlations with age are relatively small, and the partial correlation coefficient computed on the total sample of 80 students for C.I. and C.A.S. is little changed (partial r is $-.38$ compared with the original value of $-.39$); similarly for C.I. and Radicalism the correlation is little affected by correcting for age (partial r is $.19$, compared with the original value of $.20$).

For Emotional Activation in the University sample in no case does a correlation reach significance and several correlations are in the non-predicted direction. A correlation of $.02$ with the C.A.S. for the sexes combined strongly suggests the absence of a linear relationship between this personality variable and attitude to authority. Here, then, is a discrepancy between the Adelaide University and S.A.I.T. samples, in that at least the female subjects in the S.A.I.T. sample tended to give the predicted correlations with Emotional Activation, while the University students did not. In fact, S.A.I.T. females provided significant correlations with the Teachers, Army, Law and Composite Authority Scale, and despite the failure of the male results to reach significance with the C.A.S., all the male results are in the

predicted direction, and for both sexes combined all the correlations with the authority scales are significant. Clearly, with respect to Emotional Activation the existence of a linear relationship has not been replicated.

CHAPTER 8. EXAMINING THE RELATIONSHIP BETWEEN
ATTITUDE AND PERSONALITY VARIABLES

8(i) Methodological considerations

The two hypotheses described in Chapter 5 predicting respectively a linear and a curvilinear trend may be examined in two ways. First, they may be studied by means of an analysis of variance using orthogonal polynomial coefficients, such that linear and quadratic components may be separately tested for significance. Secondly, they may be studied by means of an inspection of a visual representation of the data so as to reveal the nature of the trend in more detail, and to identify any complex curvilinearity which might be worthy of further investigation.

In each case, personality variables are considered in relation to the overall attitude measure, the C.A.S. It is recognized that in carrying out an analysis of variance on these data, one has to treat the attitude scale as a discontinuous independent variable, as a fixed effect without error variance: this is not entirely appropriate since the attitude scale like the personality scales, represents a continuum and is subject to error of measurement. In order to test the components of trend, the C.A.S. has to be segmented into a series of fixed intervals. Co-variance of personality scores within these intervals is not extracted from "error variability", giving as a consequence a relatively conservative test of significance for the between-interval trends. However, the method has the important merit of separating and testing for significance a linear component and a quadratic component. In addition it allows for the possibility of a significant composite trend, or residual curvilinearity, to be identified, which would indicate that a trend other than

a simple linear or quadratic form may best account for the nature of the relationship.

For the trend analysis to be undertaken, the C.A.S. should be broken into equal intervals so as to avoid any spurious trends emerging as a result of any rescaling which might result from the use of unequal intervals. Accordingly, the C.A.S. was divided into six intervals, three on each side of the mean value of 50. The middle four intervals were equal in size, being half the standard deviation in width. The two outer intervals covered the high and low scores, that is, those which were more than 1 standard deviation from the mean on either side. In defining the intervals in this way, the numbers of scores in each interval were kept approximately equal, and a reasonably close correspondence was obtained between the number of intervals used in this analysis and the number of points plotted in the graphical presentation (see p. 162 for an explanation of the method of plotting used).

The calculation for linear and quadratic components, and residual deviations, was performed using an S.P.S.S. programme (Nie et al., 1975, p.425) and involved the regression of group means for personality variables on the six C.A.S. intervals, given the values 1 through 6 for this purpose. A summary of the results of these analyses is provided in Table 32.

Table 32. Summary of the Results for the Trend Analyses, showing

significance of the Linear and Quadratic Components.
(In each case the trend of the stated personality variable against the C.A.S. is assessed).

<u>Personality variable</u>	<u>N</u>	<u>S. A. I. T.</u>					
		<u>Linear trend</u>		<u>Quadratic trend</u>		<u>Residual deviation</u>	
		F	P<	F	P<	F	P<
Budner's Intolerance of Ambiguity (B.I.A.)	129	15.22	.001	0.04	n.s.	.34	n.s.
Intolerance of Complexity, subscale of the B.I.A.	129	13.94	.001	1.60	n.s.	.18	n.s.
Intolerance of Insolubility, subscale of the B I.A.	129	5.60	.05	0.30	n.s.	.91	n.s.
Intolerance of Novelty, subscale of the B.I.A.	129	4.64	.05	0.57	n.s.	.64	n.s.
Tolerance of Ambiguity (Complexity Scale, O.P.I.)	129	28.74	.001	0.02	n.s.	1.32	n.s.
Photo Ambiguity Test	114	4.23	.05	1.48	n.s.	.56	n.s.
Ray's Dogmatism Test	123	20.07	.001	0.39	n.s.	.54	n.s.
Cognitive Simplicity	128	9.04	.01	0.02	n.s.	1.35	n.s.
Rump's Creative Independence	178	15.90	.001	1.35	n.s.	.32	n.s.
Rump's Emotional Activation	178	6.79	.01	0.47	n.s.	.29	n.s.
<u>UNIVERSITY OF ADELAIDE</u>							
Creative Independence	80	13.97	.001	1.59	n.s.	.52	n.s.
Emotional Activation	80	0.01	n.s.	5.90	.05	.86	n.s.

Note; The degrees of freedom for the F ratios are as follows;

For the numerator; Linear, 1; Quadratic, 1; Residual, 3;

For the denominator; (N - 6) in each case.

8. (ii) Examination of the trends

It can be seen from Table 32 that, with the exception of the Emotional Activation Scale with University of Adelaide students, all of the linear trends are significant, and neither the quadratic component nor the residual deviations reach significance. The linear hypothesis is clearly very strongly supported by these results. (Examination of the correlation coefficients and the graphs presented below confirms that the direction of the linear trend is according to prediction in each case).

There is the one exception that must be considered: the Emotional Activation Scale. Among S.A.I.T. students the linear trend is significant; among University of Adelaide students there is a significant quadratic trend, reflecting a contrast between the low scores on the Emotional Activation measure obtained by students at the extremes of the attitude scale and the relatively high scores obtained by students who were intermediate on the C.A.S. These results may be conveniently represented in the following table.

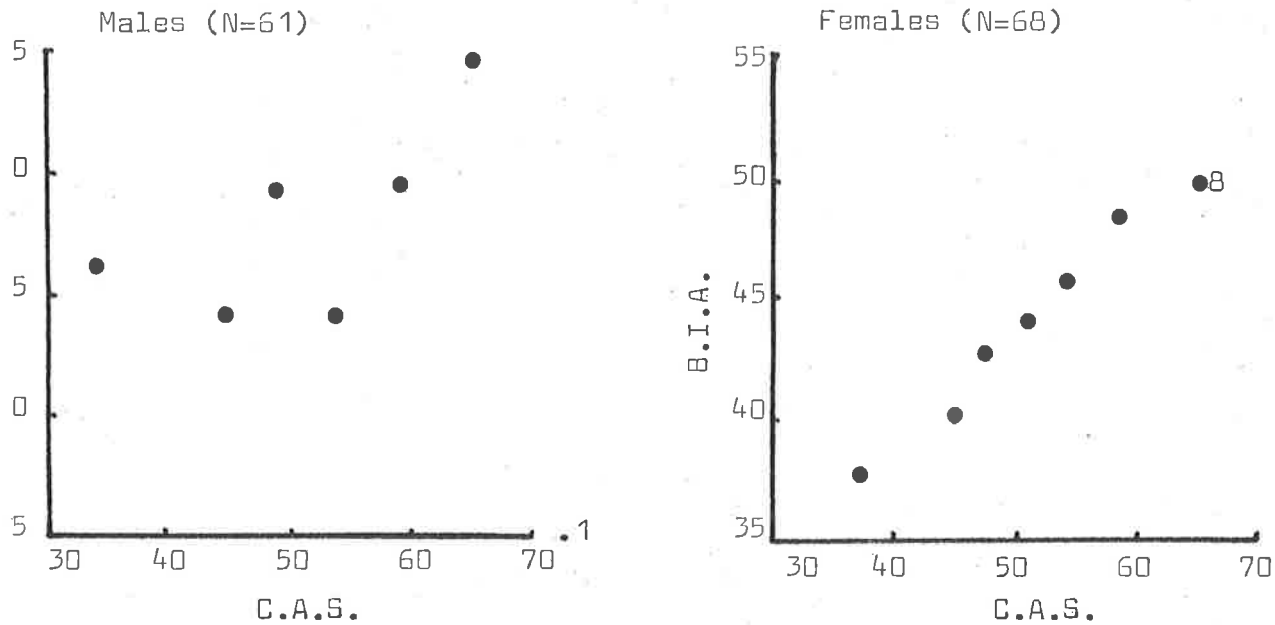
Table 33. Scores on the Emotional Activation Scale for University subjects, by sub-groups according to C.A.S.

	\bar{X}	S.D.	N
Upper and lower quartiles on C.A.S.	7.55	3.86	40
Intermediate group on C.A.S.	9.28	3.34	40

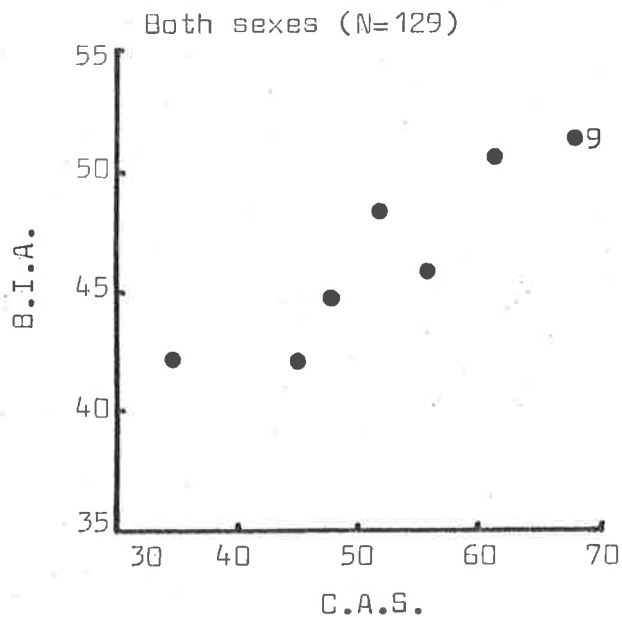
(The difference between the two subgroups is significant, with $t = 2.12$, $p < .05$, 2 tailed test).

The trends for the personality variables are examined in more detail with reference to the graphs presented in figures

Figure 1. Relationship between Budner's Intolerance of Ambiguity test (B.I.A.) and the Composite Authority Scale (C.A.S.) for S.A.I.T. students.

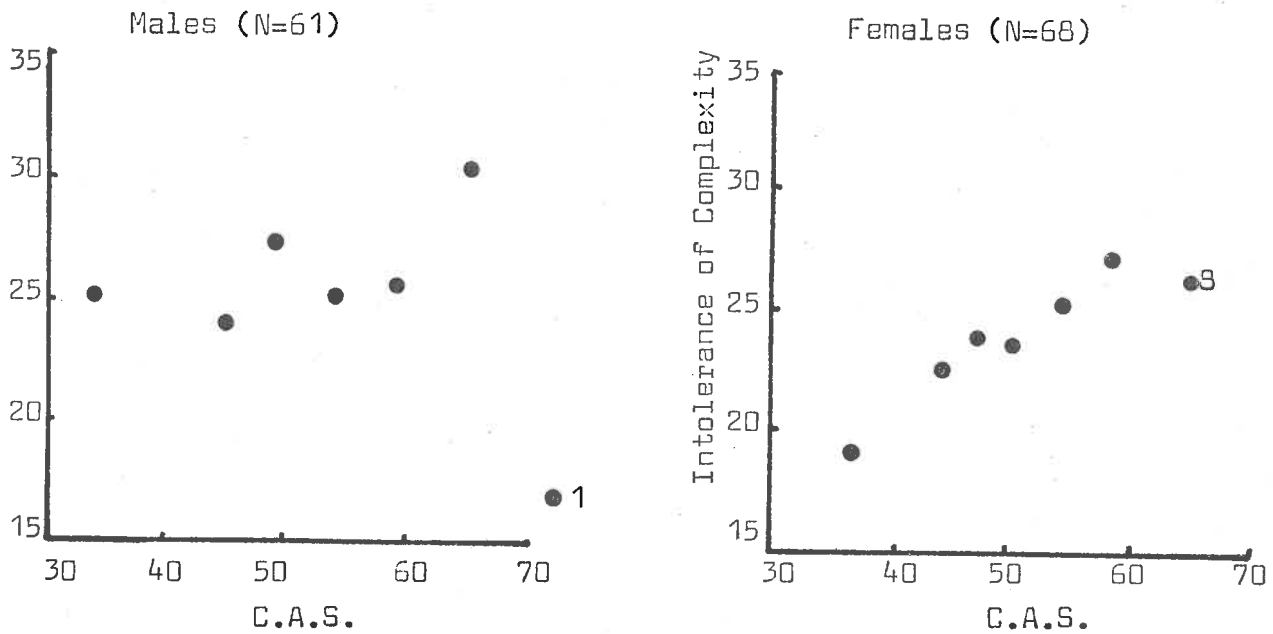


Note: Each dot represents 10 subjects, except where indicated.

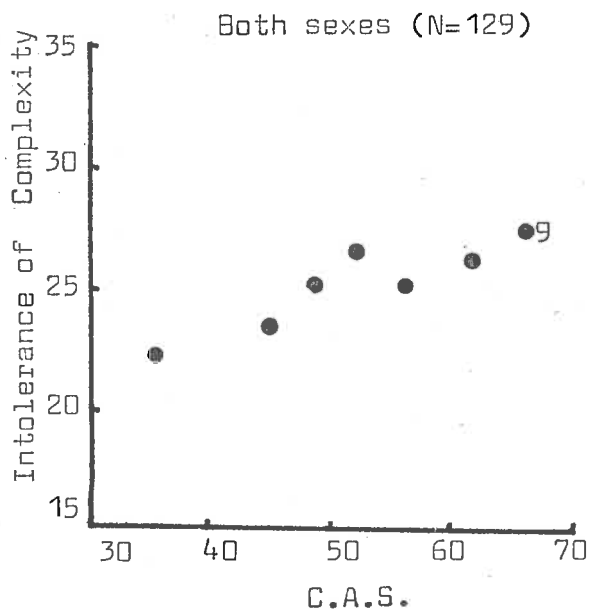


Note: Each dot represents 20 subjects, except where indicated.

Figure 2. Relationship between the Intolerance of Complexity sub-scale of Budner's Intolerance of Ambiguity test and the Composite Authority Scale (C.A.S.) for S.A.I.T. students.

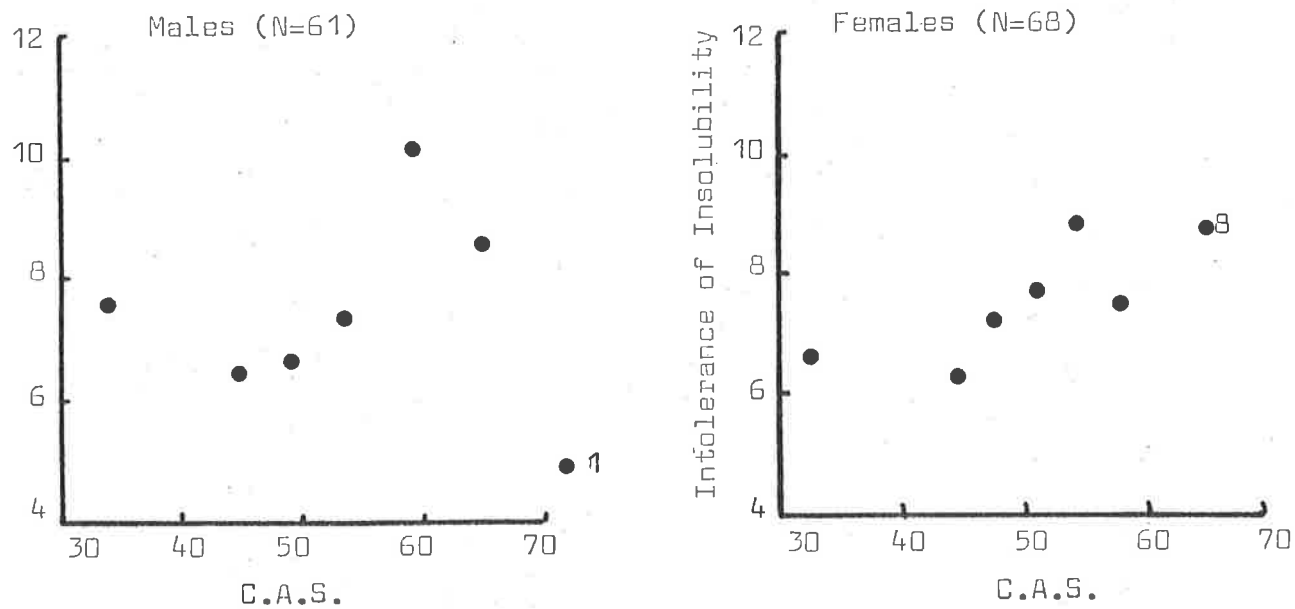


Note: Each dot represents 10 subjects, except where indicated.

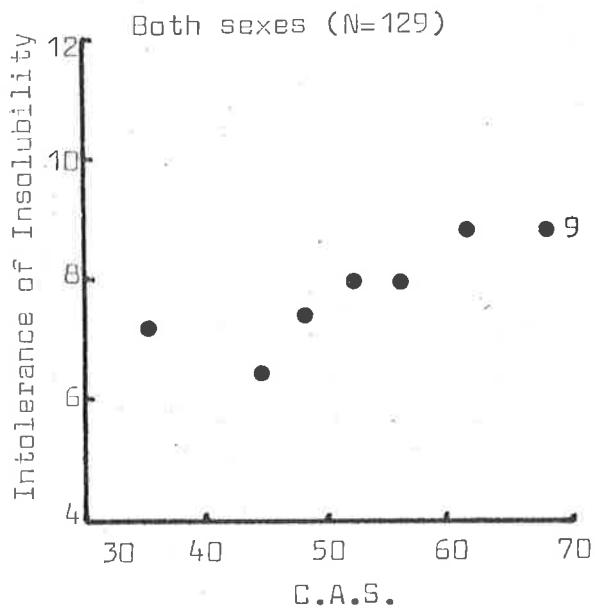


Note: Each dot represents 20 subjects except where indicated.

Figure 3. Relationship between the Intolerance of Insolubility sub-scale of Budner's Intolerance of Ambiguity test and the Composite Authority Scale (C.A.S.) for S.A.I.T. students.

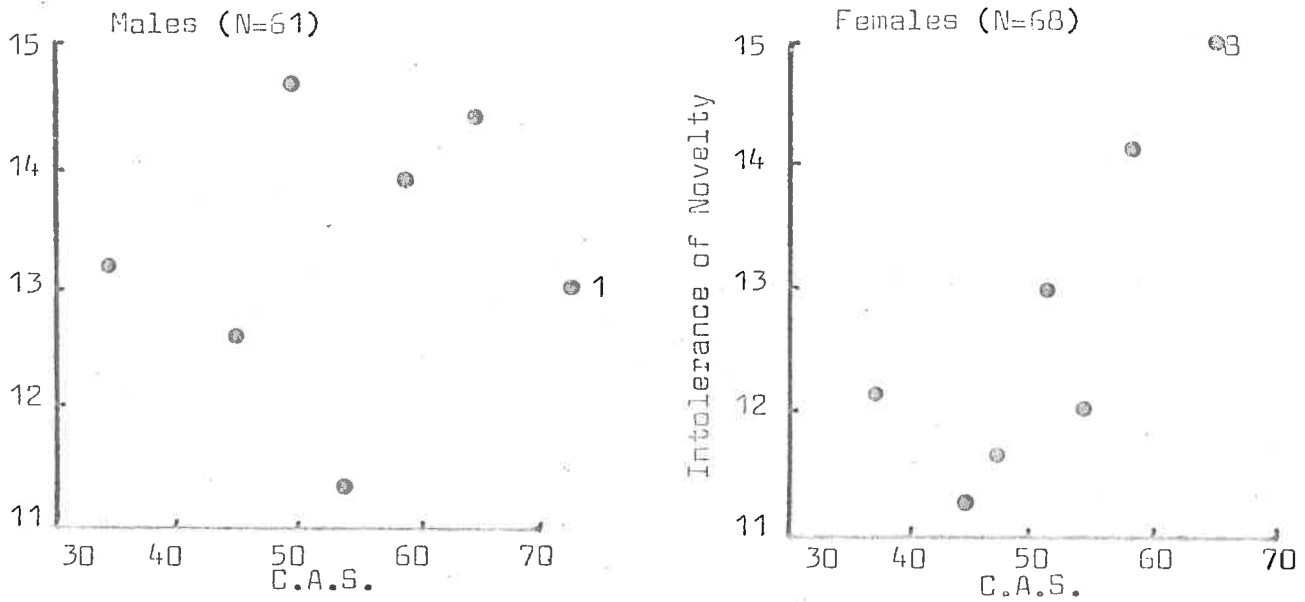


Note: Each dot represents 10 subjects, except where indicated.

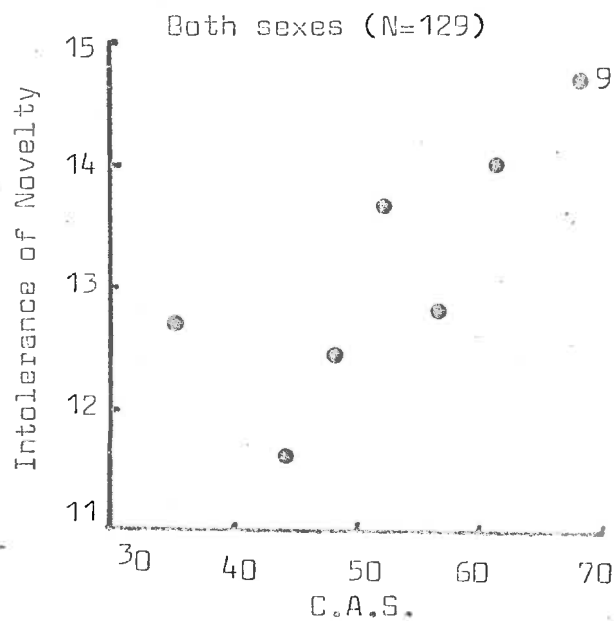


Note: Each dot represents 20 subjects, except where indicated.

Figure 4. Relationship between the Intolerance of Novelty sub-scale of Budner's Intolerance of Ambiguity test and the Composite Authority Scale (C.A.S.) for S.A.I.T. students.

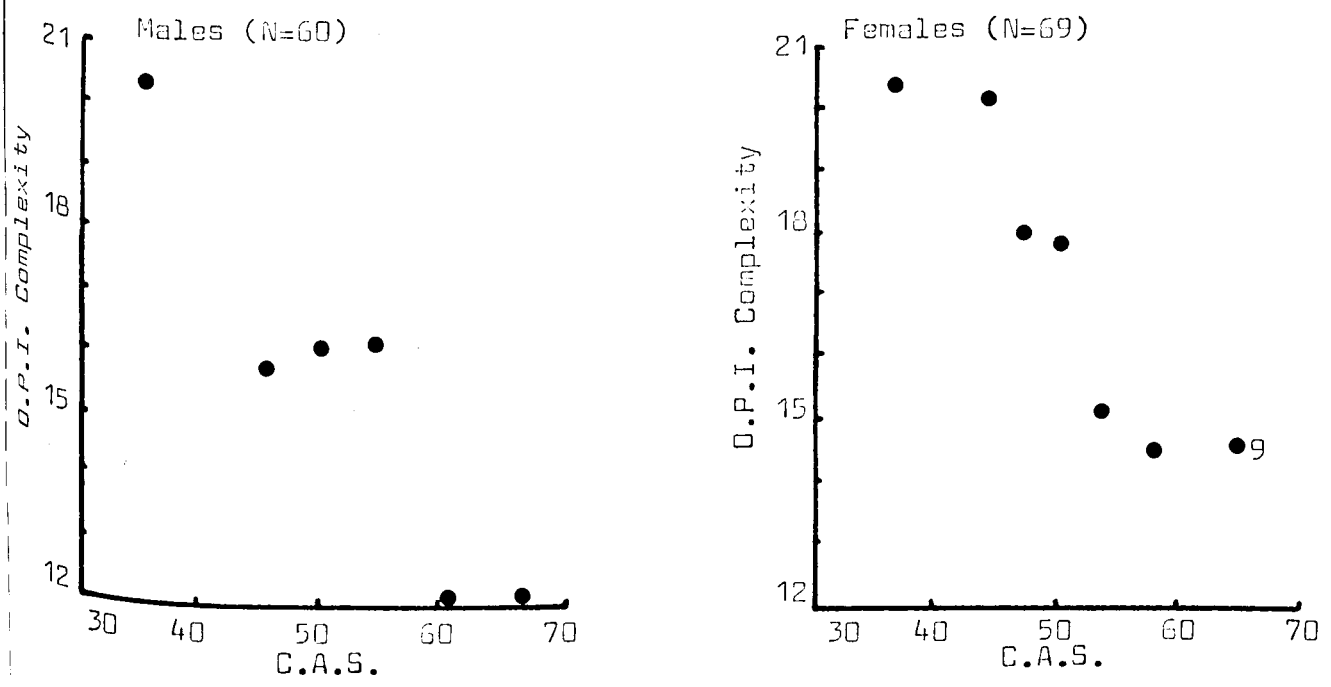


Note: Each dot represents 10 subjects, except where indicated.

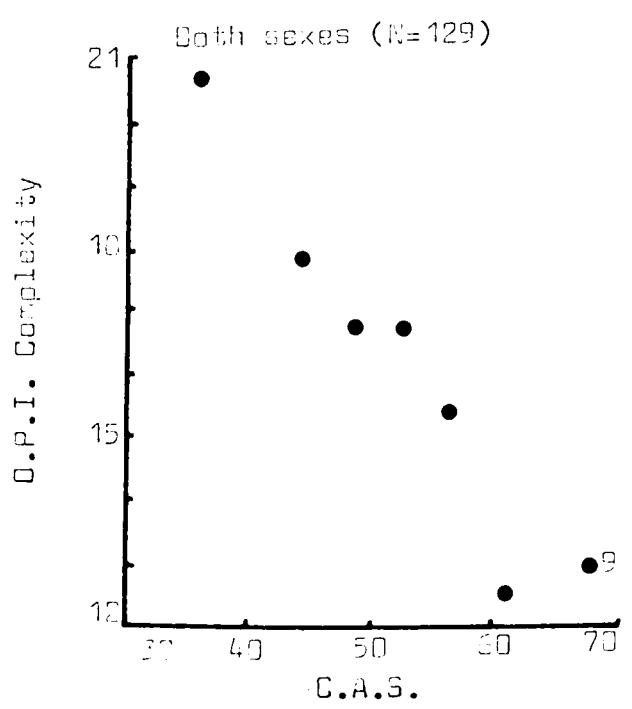


Note: Each dot represents 20 subjects, except where indicated.

Figure 5. Relationship between the Complexity sub-scale of the O.P.I. (measuring Tolerance of Ambiguity) and the Composite Authority Scale (C.A.S.) for S.A.I.T. students.

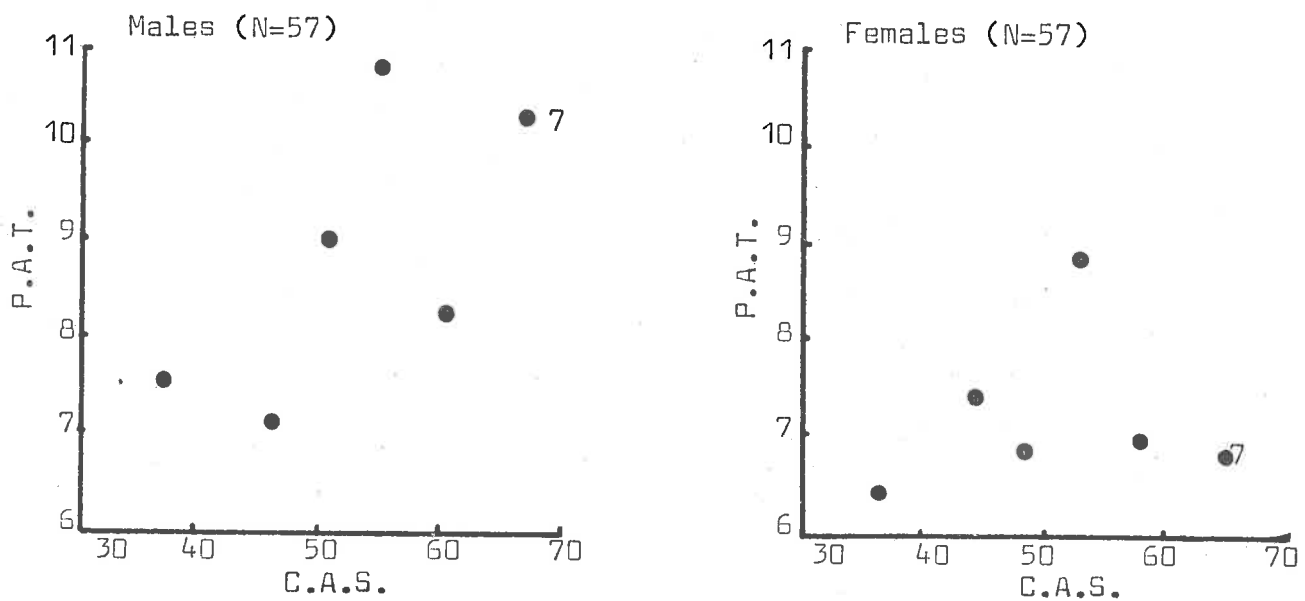


Note: Each dot represents 10 subjects, except where indicated.

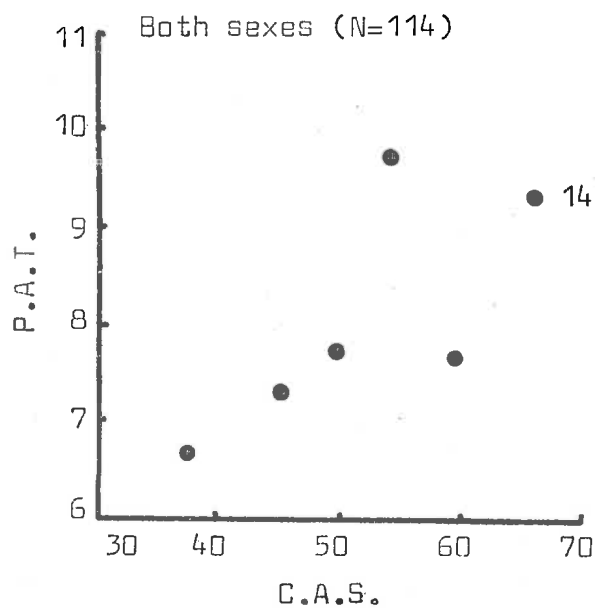


Note: Each dot represents 20 subjects, except where indicated.

Figure 6. Relationship between the Photo Ambiguity Test (PAT) measure of Intolerance of Ambiguity and the Composite Authority Scale (C.A.S.) for S.A.I.T. students.

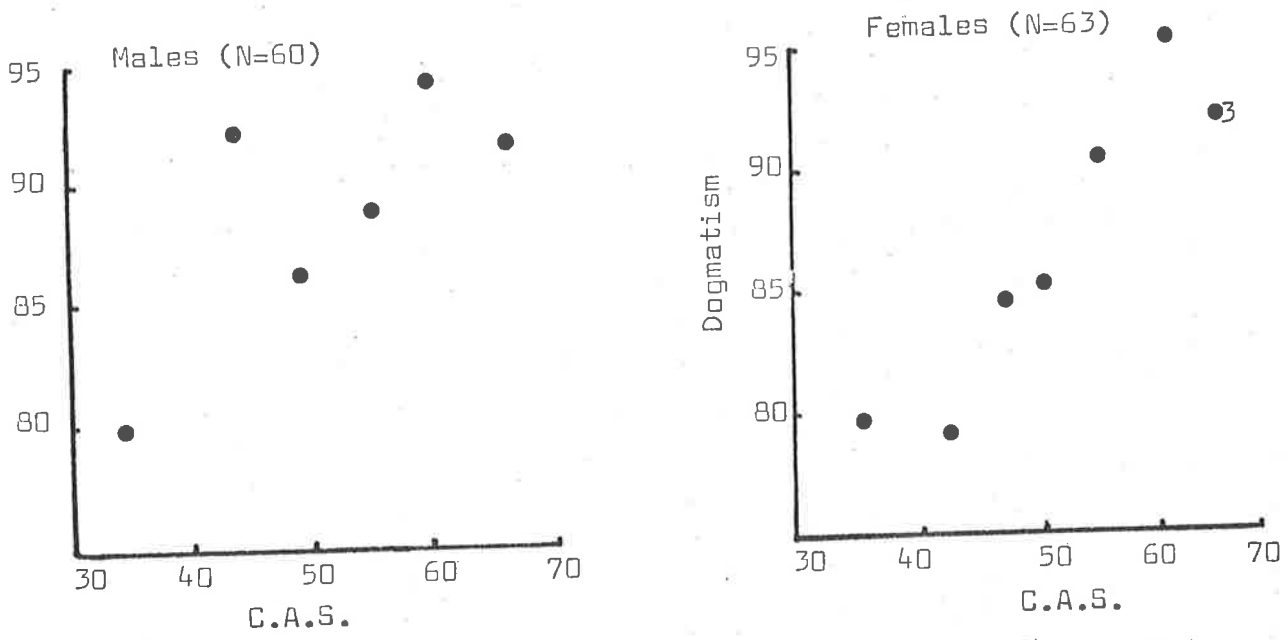


Note: Each dot represents 10 subjects, except where indicated.

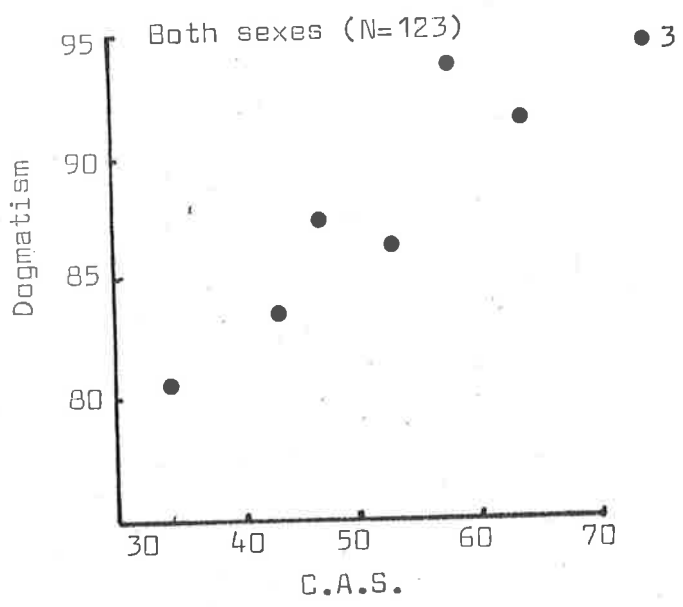


Note: Each dot represents 20 subjects, except where indicated.

Figure 7. Relationship between the Dogmatism Test (Ray's) and the Composite Authority Scale (C.A.S.) for S.A.I.T. students.

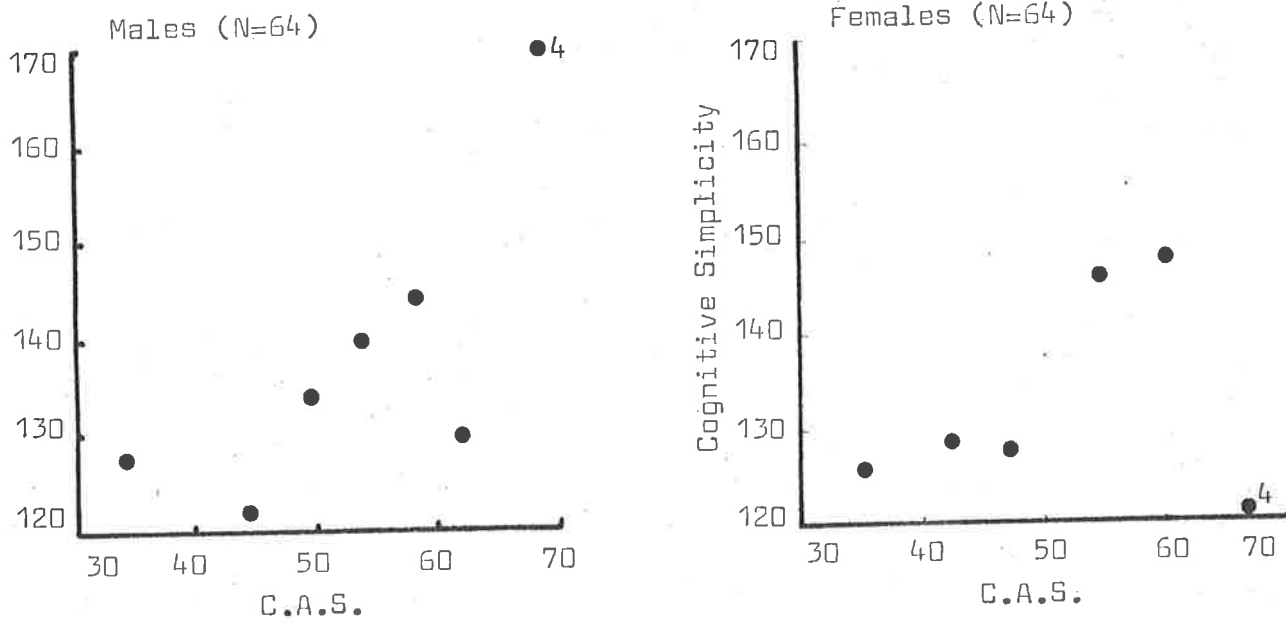


Note: Each dot represents 10 subjects, except where indicated

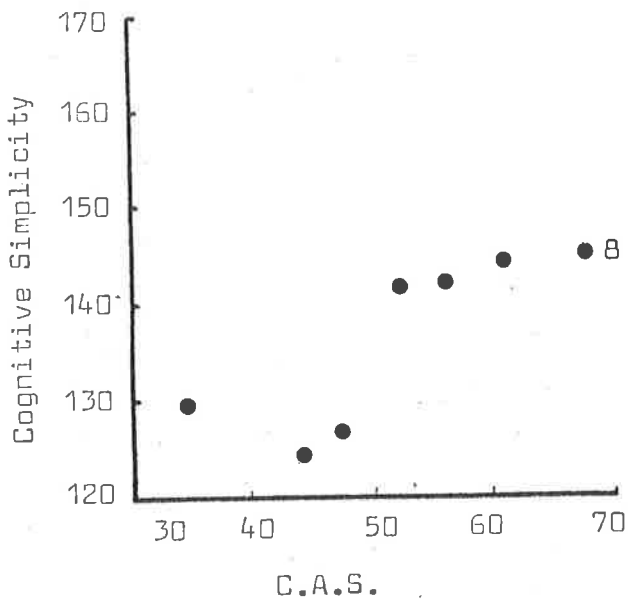


Note: Each dot represents 20 subjects, except where indicated

Figure 8. Relationship between Cognitive Simplicity and the Composite Authority Scale (C.A.S.) for S.A.I.T. students.

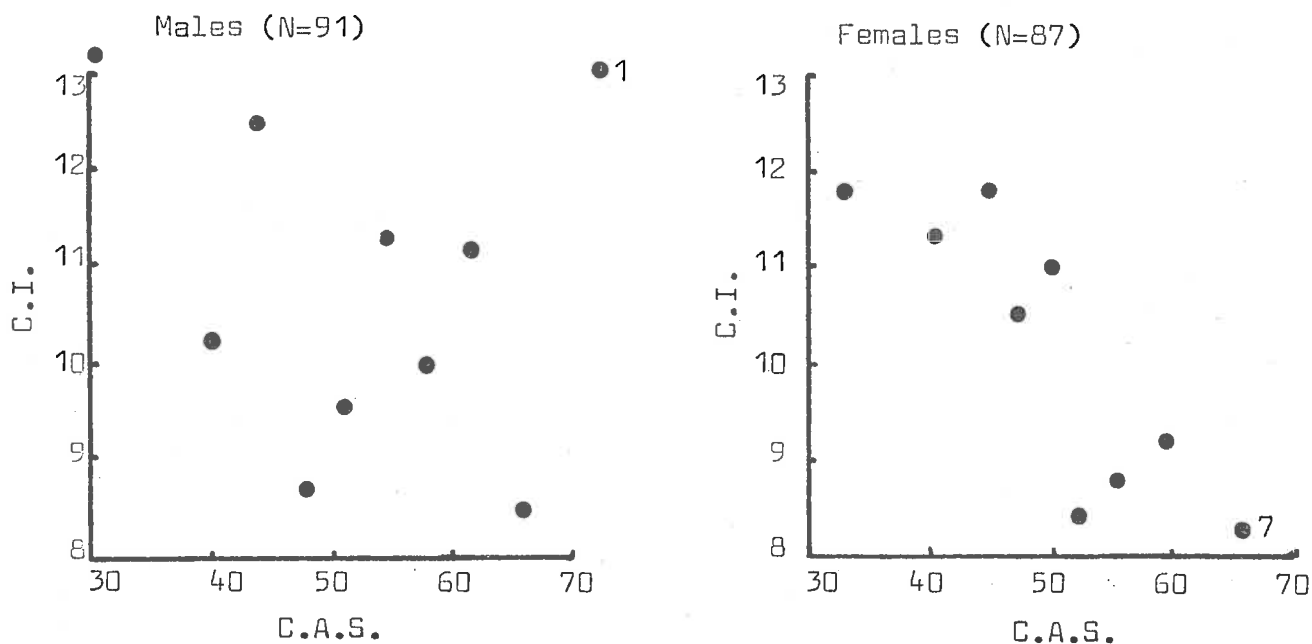


Note: Each dot represents 10 subjects, except where indicated.

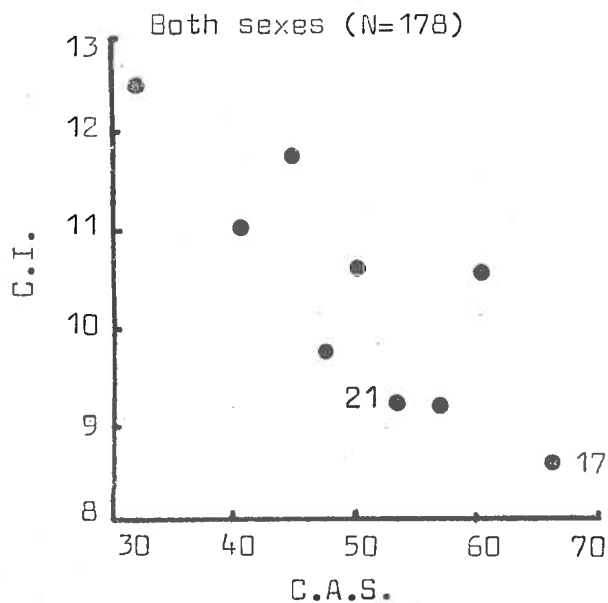


Note: Each dot represents 20 subjects, except where indicated.

Figure 9. Relationship between Creative Independence (C.I.) as assessed by Rump's Adjective Check List Scale, and the Composite Authority Scale (C.A.S.) for S.A.I.T. students.



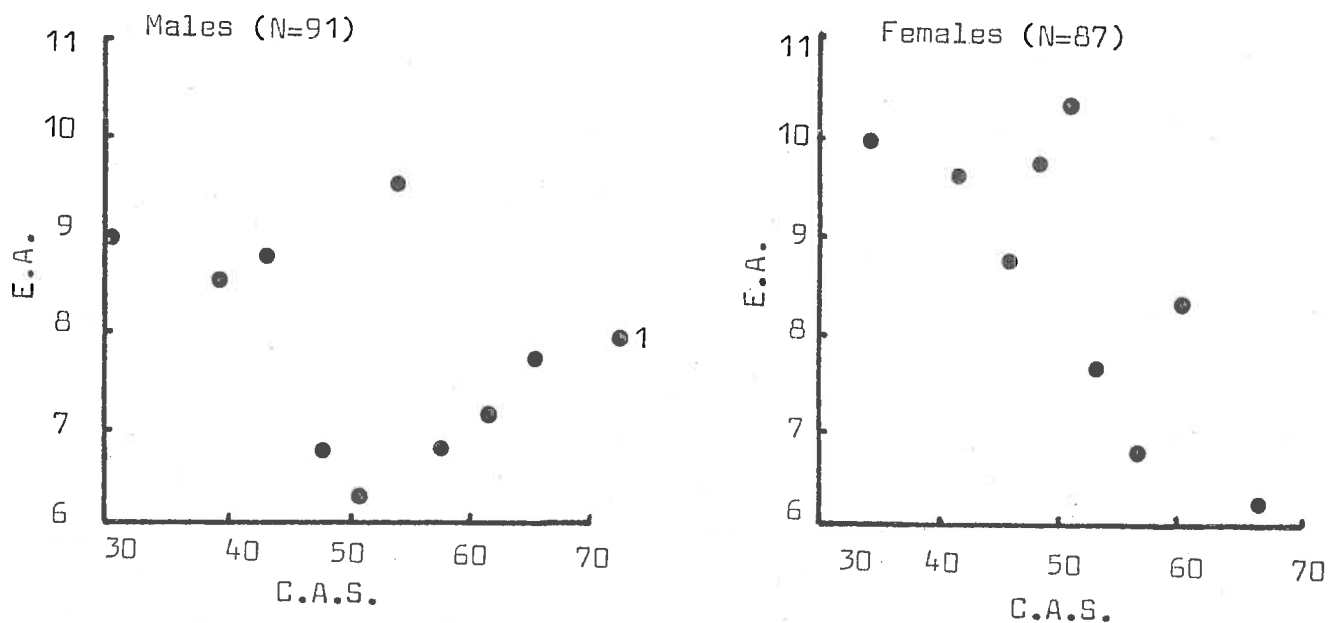
Note: Each dot represents 10 subjects, except where indicated.



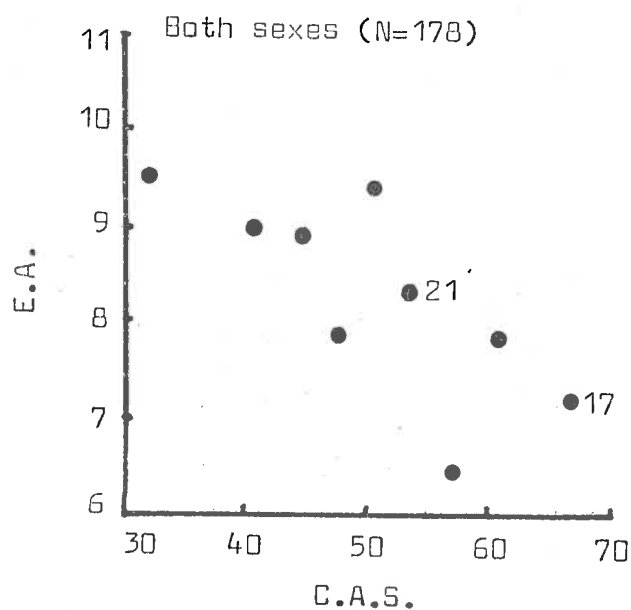
Note: Each dot represents 20 subjects, except where indicated.

For one group scores on the C.A.S. were tied at the 20th position: hence one group includes 21 subjects, as indicated.

Figure 10. Relationship between Emotional Activation (E.A.), as assessed by Rump's Adjective Check List Scale, and the Composite Authority Scale (C.A.S.) for S.A.I.T. students.



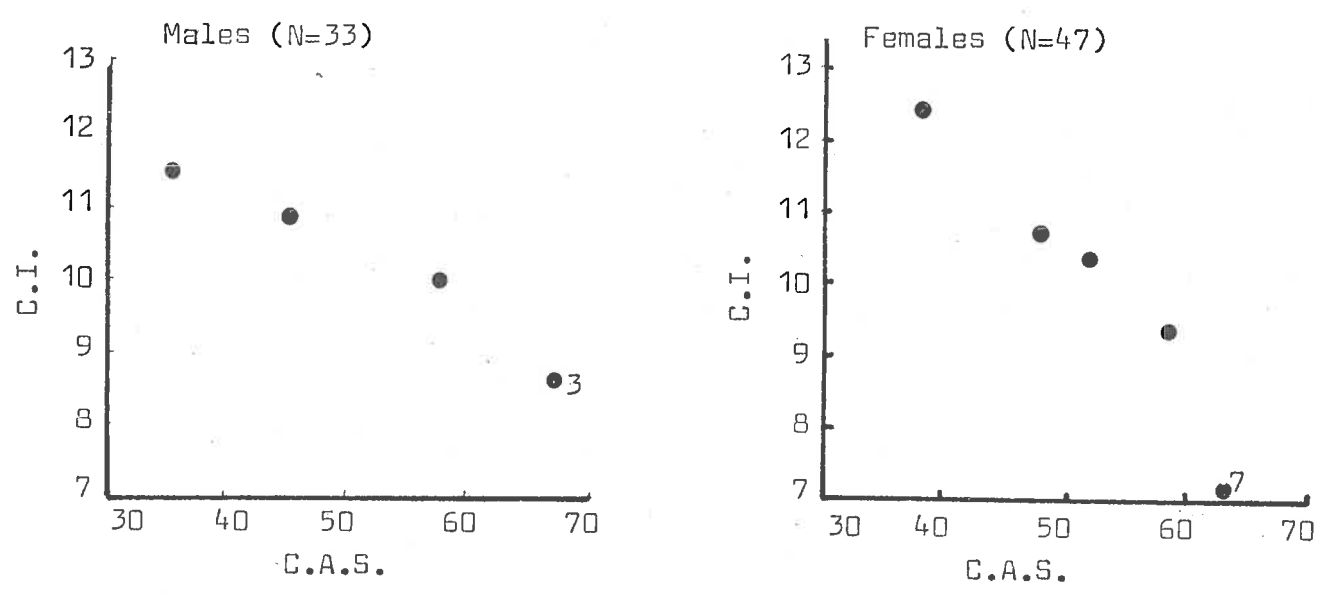
Note: Each dot represents 10 subjects, except where indicated.



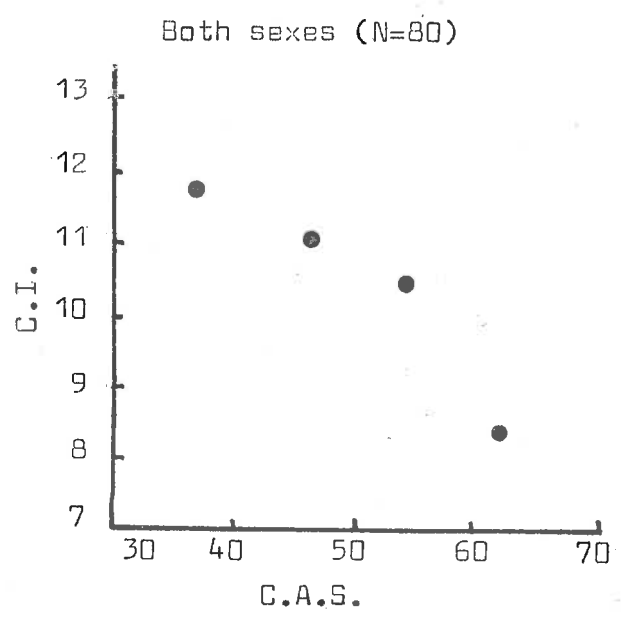
Note: Each dot represents 20 subjects, except where indicated.

For one group scores on the C.A.S. were tied at the 20th position: hence one group includes 21 subjects, as indicated.

Figure -11. Relationship between Creative Independence (C.I.) as assessed by Rump's Adjective Check List Scale, and the Composite Authority Scale (C.A.S.) for University of Adelaide students.

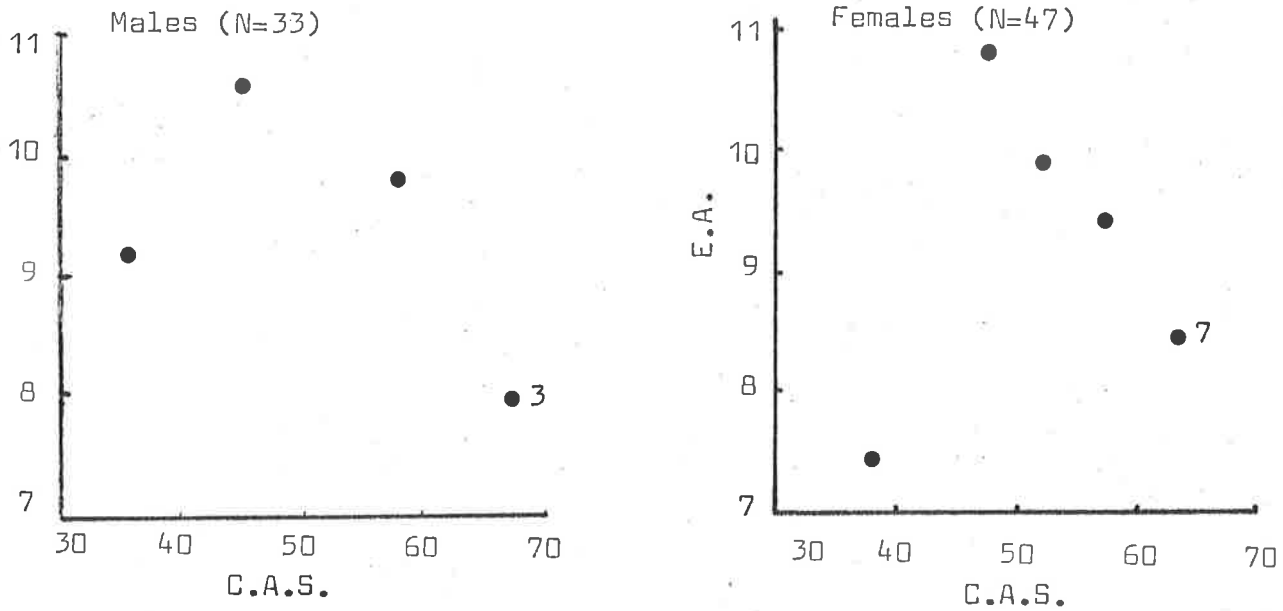


Note: Each dot represents 10 subjects, except where indicated.

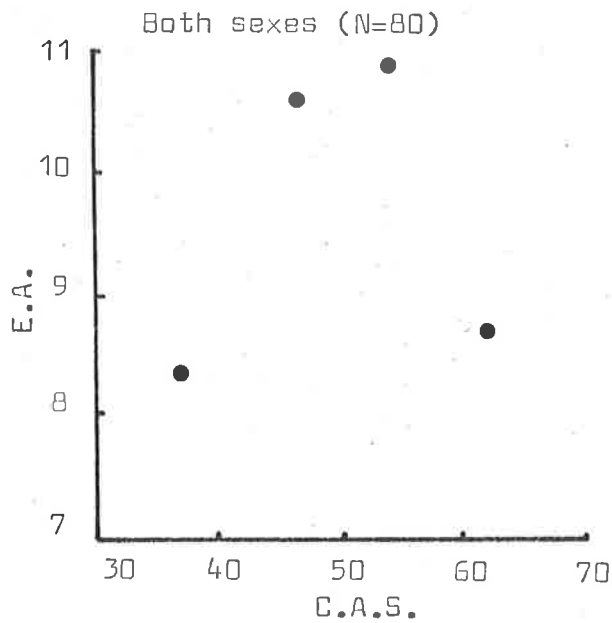


Note: Each dot represents 20 subjects.

Figure 12. Relationship between Emotional Activation (E.A.), as assessed by Rump's Adjective Check List Scale, and the Composite Authority Scale (C.A.S.) for University of Adelaide students.



Note: Each dot represents 10 subjects, except where indicated.



Note: Each dot represents 20 subjects.

In these graphs the nature of the trend has been clarified by using grouped data points. Scores on the C.A.S. were rank-ordered and then grouped in successive sub-groups of 10 subjects for each sex separately, and 20 subjects for the sexes combined. The mean C.A.S. score for each subgroup was plotted against the corresponding subgroup mean for the personality variable. The method of using equal sized subgroups, rather than using equal scale intervals, ensures that each of the plotted points (except for the final point based upon the few residual Ss) has approximately the same standard error. The same method was used by Rump and Court (1971) in plotting the relationship between the E.P.I. Neuroticism Scale and Social Desirability Scores.

Most weight in interpretation is given to the data points plotted for both sexes combined, since they are based upon the larger groupings of 20 subjects. As an aid in interpretation, references are made to the probability values given in the trend analyses (Table 32), and to the correlation coefficients obtained for each sex separately (from Table 28 and 31).

A. Intolerance of Ambiguity. The graphs for Budner's Intolerance of Ambiguity test (overall score) provide strong confirmation of the significant linear trend ($p < .001$) obtained for both sexes combined (see Fig. 1). The consistency of the linear trend is clearer for females ($r = .39$) than for males ($r = .26$). As might be anticipated with the shorter component scales, the linear trend appears to be less marked, though significant ($p < .05$) for both sexes. Although nonlinear trends are not significant, it may be noted that for males the lowest Intolerance of Ambiguity score was obtained by subgroups with a moderate

attitude to authority for each of the three Budner subscales (Fig. 2,3,4). This suggests that further research would be justified on the form of the relationship for males of moderate to extremely anti-authority views.

The O.P.I. measure of Complexity (or "tolerance of ambiguity") also has (in Fig. 5) a clear and significant linear trend ($p < .001$) for both sexes combined. The trends are quite strong for both males ($r = -.53$) and females ($r = -.40$), providing a useful replication of the linear effect.

Although the P.A.T. for Intolerance of Ambiguity has been shown to provide a significant linear trend ($p < .05$) the graphical representations in Fig. 6 suggest that the trend is a relatively weak one; for the sexes taken individually this is particularly so, with correlations of only .23 and .16 for males and females respectively. Indeed, for each sex the maximum Intolerance of Ambiguity on the P.A.T. is shown by a subgroup of moderate attitude to authority, which is predicted by neither the linear nor the curvilinear hypothesis as stated in Chapter 6. Despite such anomolous features, the contrast between the relatively high scores of the pro-authority students and the low scores of the anti-authority students on this performance measure of Intolerance of Ambiguity is evident in the graph for both sexes combined.

It may be concluded that as far as "Intolerance of Ambiguity" is concerned, as assessed by three different measures, the evidence from the S.A.I.T. students gives no support to the curvilinear hypothesis. Subjects who are extremely in favour of authority and those who are extremely against authority do not appear to be similar in being highly intolerant of ambiguity compared with a more intermediate group. On the other hand, the linear hypothesis does receive some support on each of the

three measures (but particularly the Budner and O.P.I. scales), for both sexes combined. In general, the more pro-authority subjects score as predicted higher on intolerance of ambiguity. However, minor anomalous features are found in the relationships for Budner's test with male subjects, and for the P.A.T. with both sexes.

B. Dogmatism. The relationship between attitude towards authority and dogmatism is clearly not of a regular curvilinear second-order form (see Fig. 7). The data for both sexes combined confirms a clear linear trend in the predicted direction ($p < .001$). For females the trend is somewhat clearer ($r = .49$) than for males ($r = .31$). The linear hypothesis predicting that the extreme pro-authority subjects will score high on dogmatism, whilst extreme anti-authority subjects will score low, is strongly supported.

C. Cognitive Simplicity. The cognitive simplicity test has been shown to produce a linear trend ($p < .01$) for both sexes combined, and the graph (see Fig. 8) is consistent with this finding in so far as it presents a contrast between the high cognitive simplicity scores of the relatively pro-authority students compared with those of others. However, there does appear (in the data for both sexes particularly) a suggestion of a curvilinear effect: the most anti-authority subgroup has a higher mean cognitive simplicity than two subgroups which are more pro-authority. It is clear from the graph, however, that the extreme anti-authority students do not resemble the pro-authority students. The tendency towards curvilinearity is slight, and no significant quadratic trend was found. The effect is nonetheless interesting, and suggests that further investigations with more extremely anti-authority students may possibly be worthwhile.

D. Creative Independence. The linear hypothesis has been strongly supported by the results from both the S.A.I.T. and the University of Adelaide samples (see Fig. 9 and 11): in both cases the linear trend is highly significant ($p < .001$). The trends appear in the graphs as clearly linear, and in the predicted direction with the more pro-authority subjects scoring lower on Creative Independence. The trends are particularly regular, with no apparent differences between the sexes for either institution. The linear hypothesis may be regarded as receiving support from samples drawn from differing educational institutions.

E. Emotional Activation. Here the results are complex. A significant linear trend is found for the S.A.I.T. sample ($p < .01$). However, Fig. 10 shows for females a linear trend in the predicted direction ($r = -.28$), whilst for males Fig. 10 reveals no coherent pattern ($r = -.10$). It may be concluded that among S.A.I.T. students there is no support for the curvilinear hypothesis, but that the linear hypothesis is supported at least for females.

For the University data, a significant quadratic effect has been found ($p < .05$). Such a trend, with very high and very low scorers on the C.A.S. having comparatively low scores on emotional activation is evident in the plots for both male and female subjects (see Fig. 12), and it may be concluded that the curvilinear hypothesis in this case has received support.

B(iii). Summary of the Examination for Linearity and Curvilinearity

Taking the results for both the regression analyses and the graphical representation of data, it is evident that there

is strong support for the linear hypothesis in relation to Intolerance of Ambiguity, Dogmatism and Creative Independence for S.A.I.T. subjects, with the linear relationship for Creative Independence being replicated for University of Adelaide subjects. Support for the curvilinear hypothesis is limited to Emotional Activation for the University sample only. In two cases, for the Cognitive Simplicity Scale and Budner's Intolerance of Ambiguity, the results presented in the graphs (for male subjects especially) suggest a slight (non-significant) tendency towards the hypothesised curvilinearity at the lowest levels of the C.A.S.

In general, it must be concluded that the linear hypothesis receives substantial support from these results, and that apart from Emotional Activation for University subjects, indications of curvilinearity are very slight. It is apparent from these results, however, how anomalous results suggesting a curvilinear relationship may occasionally be reported. If selected groups rather than groups drawn from the whole attitude-to-authority range are used, and the study is limited to one sex, one institution or one personality variable, then a curvilinear effect may be found. It is because of the wider scope of the present study that the curvilinear effects apparent in the results may be seen as unrepresentative and highly restricted.

CHAPTER 9. THE RELATIONSHIP BETWEEN PERSONALITY AND ATTITUDE :
ANALYSES OF THE CORRELATION MATRICES

Relationships between the personality and attitude variables have been shown to be predominantly linear in form. The question raised in this chapter is whether further analyses of the correlation matrices may allow a more compact and orderly summary of the relationships. The methods of (a) factor analysis, and (b) canonical correlation are used for this purpose.

9 (i) Factor analysis

A distinction has been maintained throughout this study between attitude to authority on the one hand, and certain personality factors commonly associated with authoritarianism, such as Intolerance of Ambiguity and Dogmatism on the other. If this distinction is valid, factor analysis should enable a factor of attitude to authority to be identified that is distinguished from any other factor (or factors) upon which the personality factors are significantly loaded. Further, it has already been suggested in Chapter 6 that the personality variables chosen for this study may not have the independence that is implied by their separate labels. If this is so, the personality variables (or a high proportion of them) may prove to be related to a common personality factor. The possibility therefore arises that two group factors, an attitude factor and a personality factor, may be derived from an analysis of the correlation matrix. Notwithstanding the distinction between the two factors, one would expect them to be moderately correlated with each other, providing that rotation to an oblique solution is used.

One may also ask whether any such factors would be similar for both sexes. It has been shown that the attitude scales for each sex may be associated somewhat differently with indices of reported behaviour, and there are some divergences in the manner in which certain personality variables are related to the authority scales. The factorial structure for the sexes separately, as well as for the two sexes combined, should therefore be ascertained. A factor analysis may be expected to provide a compact summary of the major factors involved in the study, and the relations between them.

So far the assumption has been made in this study that the results from the overlapping sets of data are comparable. To test this assumption with respect to the underlying factor structure, two sets of correlations were analysed: (a) the correlations for 87 S.A.I.T. students who completed all the tests (see Appendix 15), and (b) the correlations for all S.A.I.T. subjects who completed at least two of the tests (see Appendix 16). The number of subjects associated with correlations between variables in the latter case varied between 117 and 402 with a harmonic mean of 168.3. The two overlapping sets of data differ principally in that the scores on the attitude scales for the subset of 87 subjects consistently show a more pro-authority attitude (all the means for the attitude to authority scales are higher), and a less radical outlook (see Appendix 14). This is not surprising since irregular attendance at the sessions conducted in the General Studies Course would presumably have occurred more among relatively anti-authority students. The variables subjected to factor analysis were the seven scales relevant to attitude to authority (but not

including the C.A.S. so as to avoid overlapping scales), together with the seven personality scales, and the subjects' age. The method of analysis used was that of principal component analysis, to determine the number of components with eigenvalues greater than unity; that number of factors was then extracted using an iterative procedure, with the initial estimates of communalities given by the squared multiple correlations; finally factors were rotated to give a fairly oblique solution, using the direct "oblimin" criterion with delta equal to zero (Nie, Bent and Hull, 1970). For both sexes combined, four factors were extracted. The first two factors only were found by inspection of the factor pattern matrix to be relevant to this study. The rotated factor loadings are given in Table 34 for the first two factors.

It may be seen from Table 34A that for both sets of overlapping data the variables have loadings of a similar magnitude on the same factors. It may be concluded that there is no indication of any systematic differences in the factorial structure for the two sets of data. Factor 1 may be described as a pro-authority factor having for both sets of data positive loadings of greater than .40 on each of the Likert-type attitude to authority scales, and negative loadings of greater than .40 for Radicalism. This supports the conclusion reached in Chapter 3, that the generality of attitude towards authority extends over such authorities as the Law, the Army, the Police, Teachers and Symbolic Authority and is strongly related to holding left wing radical beliefs. The near zero

Table 34A

Oblique factor loadings on Factor I and Factor II derived from correlations amongst (a) the results for S.A.I.T. students who completed all the tests and (b) the results for all S.A.I.T. subjects who completed at least two tests.

<u>Variables</u>	<u>FACTOR I</u>		<u>FACTOR II</u>	
	Sample (a) N = 87 (19.69% variance)	Sample (b) * $\bar{n}(h)=168.3$ (21.45% variance)	Sample (a) N=87 (16.39% variance)	Sample (b) * $\bar{n}(h)=168.3$ (12.28% variance)
<u>Attitude Scales</u>				
Law	87	85	07	07
Army	79	83	01	-01
Police	76	74	-04	-09
Radicalism	-64	-67	-10	-10
Teacher	50	53	01	07
Symbolic Authority	46	62	29	16
Independence Scale	-01	01	05	15
<u>Personality tests</u>				
Tolerance of Ambiguity (Complexity Scale, O.P.I.)	14	16	-81	-76
Intolerance of Ambiguity (Budner's test)	-07	02	80	61
Dogmatism (Ray)	00	16	66	51
Creative Independence (Rump)	15	00	-62	-65
Emotional Activation (Rump)	08	-02	-40	-33
Photo Ambiguity Test	- 03	03	25	13
Cognitive Simplicity	26	28	00	03
Age	07	11	16	00

*Note: Harmonic mean for number of data pairs available for the correlations.

Decimal points have been omitted.

loadings of the Independence Scale (the Revised Hudson Scale) on this factor also supports a previous conclusion, that the attitude towards authority assessed in this study does not extend to attitudes to the non-institutionalised authority represented by this scale.

Factor II is loaded at least moderately (greater than .30) on five of the personality scales, positively in the case of Budner's measure of Intolerance of Ambiguity and Dogmatism, and negatively for the O.P.I. measure of Tolerance of Ambiguity, Creative Independence and Emotional Activation. For the remaining personality tests the loadings are small in the case of the Photo Ambiguity test (.25 and .13 for the smaller and larger samples respectively), and for Cognitive Simplicity for both samples the loadings are close to zero. The general personality factor that has emerged appears to reflect a strong dislike for uncertainty, a tendency to hold dogmatic beliefs and to view oneself as not creatively independent or emotionally activated. For neither Factor I nor Factor II are the loadings on age of any appreciable size.

If the linear hypothesis concerning the relationship between the attitude and personality variables used in this study is in general correct, one would expect the two factors to be at least moderately correlated. This is indeed the case. For the first set of data (with $N=87$), the correlation was .48, and for the total sample the correlation was .41.

The data for subjects who completed all the tests was also analysed for the sexes separately. The first two factors were similar for males and females, but in the case for females it was the personality factor that accounted for a marginally greater proportion of the variance (see Table 34B) The loadings for the

corresponding factors are presented for the two sexes together for comparison in the following table.

Table 34 B Oblique factor loadings on the first two factors extracted from correlations for male and female S.A.I.T. students

<u>Variables</u>	<u>Pro-authority factor</u>		<u>"Personality" factor</u>	
	Males (N=42) (22.40% variance)	Females (N=45) (19.58% variance)	Males (N=42) (12.7% variance)	Females (N=45) (20.31% variance)
<u>Attitude Scales</u>				
Law	.80	.87	.17	.06
Army	.77	.79	.10	.01
Police	.80	.80	.02	-.13
Radicalism	-.70	-.61	-.01	-.22
Teacher	.78	.26	-.27	.17
Symbolic Authority	.33	.66	.24	.23
Independence Scale	.05	-.11	.26	.11
<u>Personality tests</u>				
Tolerance of Ambiguity (Complexity Scale O.P.I.)	.32	.05	-.66	-.91
Intolerance of Ambiguity (Budner)	-.07	.07	.85	.78
Dogmatism (Ray)	-.02	-.01	.36	.79
Creative Independence (Rump)	.09	-.01	-.60	-.71
Emotional Activation (Rump)	.04	-.13	-.04	-.53
Photo Ambiguity Test	.04	-.01	.08	.29
Cognitive Simplicity	.43	.00	.12	.16
Age	-.06	-.05	-.05	-.12

Note : Decimal points have been omitted.

From Table 34B it is clear that the results for each sex are broadly similar. For each sex there is a pro-authority factor loaded positively and, in general, at least moderately on measures of attitudes towards specific authorities and negatively on Radicalism. Loadings on the Independence Scale are in both cases close to zero. On the personality factor the loadings are also similar, particularly with respect to variables that have relatively heavy loadings: that is, the two questionnaire measures of Intolerance (or Tolerance) of Ambiguity and the measure of Creative Independence. For both sexes the personality factor is moderately related to the pro-authority factor: for males $r = .32$; for females $r = .47$, and these results are in both cases consistent with the linear hypothesis.

Despite the overall similarities between the factor structures for males and females, there are some differences. Among attitude to authority scales, the greatest discrepancy in factor loadings is found on the Teacher Scale, which has a loading of .78 on the attitude factor for males, and only .26 for females, suggesting that teachers are viewed as "authority figures" more by male students. This may be related to the strikingly different findings for the two sexes (reported in Chapter 4) concerning the relationship between the Composite Authority Scale and the nature of reported interaction with teachers.

The loadings for Cognitive Simplicity on the pro-authority factor are also very different (Males = .43; females = .00); it seems possible that the scores on this variable may have different implications for the sexes. Finally, there is the difference between males and females on the loadings for Emotional Activation on the personality factor; for males it is $-.04$ and for females .53. On the basis of this analysis it appears that a low level of emotional activation may accompany personality characteristics such as intolerance of ambiguity for females only.

To recapitulate: the main conclusion on the basis of the factor analysis is that the first two factors represent (i) a general pro-authority attitude, which includes an opposition to left-wing radicalism, but not a tendency to be independent of the authority of graduating students; and (ii) a personality dimension which includes a strong dislike of uncertainty, and a tendency to hold dogmatic beliefs, and to view oneself as not creatively independent or emotionally activated. Moreover, these two factors are correlated moderately, as predicted by the linear hypothesis. The factor structure and the relationship between the main factors was found to be substantially similar for different sets of overlapping data, and the main conclusions based upon the factor analysis were replicated for each sex independently, despite minor discrepancies.

9(ii) Analysis by canonical correlation

A complementary mode of analysis of the correlation matrix is provided by canonical correlation. Having established that the personality and attitude variables are factorially distinct yet correlated, one may ask what variates derived from each set of variables may account for the maximum amount of the relationship between the sets.

Canonical correlation analysis was performed on the sample of S.A.I.T. data ($N = 87$) using the S.P.S.S. programme (Nie et al., 1970, p.520) to obtain pairs of canonical variables based upon the sets of personality and the attitude variables. The first pair of canonical variates and their weightings were of interest to this study and are presented in Table 34 C.

Table 34C Canonical variates with weighting for sets of personality and attitude tests

Personality Tests	Canon. variate Weights	Attitude Scales	Canon. variate Weights
Tolerance of Ambiguity (Complexity Scale, O.P.I.)	-.59	Symbolic Authority	.51
Cognitive Simplicity	.45	Law	.28
Emotional Activation	-.21	Teacher	.18
Creative Independence	-.16	Radicalism	-.17
Photo Ambiguity Test	.16	Army	.10
Intolerance of Ambiguity (Budner)	.07	Police	.02
Dogmatism	-.07		

The canonical correlation was significant, with a value of .63 ($p < .05$). It is clear from the canonical variate weights that the relationship between the two sets of variables was primarily determined by the contributions of the Complexity Scale of the O.P.I. and the test of Cognitive Simplicity among the personality variables, and Symbolic Authority among the attitude scales. The canonical correlation method is such as to enter that scale first in the canonical variate which has the highest correlation with the other set, and to give scales entered subsequently a weighting only to the extent that they contribute independently to the canonical correlation. In emphasising the O.P.I. test and the Cognitive Simplicity test, this analysis suggests that these two tests are making distinct contributions to the relationship between the two sets of variables. It would

seem that although the Cognitive Simplicity test has a zero loading on the group personality factor (see Table 34A), the variable nevertheless does have an independent relationship with the attitude dimension. In terms of the relationship with the personality variate, the Symbolic Authority Scale has a central position, which is appropriate since it is intended as the most general measure of attitude to authority.

CHAPTER 10: A FURTHER REPLICATION

10. (i) Introduction

The studies reported so far have supported two general propositions: that there is a generality of attitude to authority among tertiary students, extending over a range of institutionalised authorities, and that such an attitude is related in a linear way to a constellation of personality variables. The generality of attitude to authority was strongly supported using samples of students from two tertiary institutions, the S.A.I.T. and the University of Adelaide. It should be noted, however, that the obtained linear relationship between attitude to authority and certain personality variables was supported primarily by the results of students at the S.A.I.T. only. Among the University of Adelaide students, the personality scales were restricted for practical reasons, and the demonstration of a clear linear relationship was limited to the Creative Independence Scale. Further, the pattern of loadings on the personality factor obtained from an analysis of two overlapping sets of data, presented in Table 33 in the last chapter, suggests that the Intolerance of Ambiguity dimension is of central importance. At this stage it is important to determine whether the findings relating this dimension to attitude to authority can be replicated with a University sample.

It was, in part, to remedy this deficiency that a further investigation was undertaken in 1975. There were additional reasons for undertaking a further analysis. In 1971 and 1972 when the previous testing had been conducted, there had been considerable political unrest associated with the war in Vietnam, which was unpopular with many students and for which young people

were being conscripted and, in some cases, gaoled for refusing to comply with conscription orders. It is arguable that the consistency of attitudes towards the authorities used in this study, particularly the Army and the Law, was due to the polarisation of student opinion about this issue. It has been shown in Chapter 4 that the measured attitudes to authority were closely associated with such political involvement as taking part in Moratorium marches directed towards ending Australian involvement in Vietnam. By April 1975 when the replication was administered, the Army was no longer associated with the war and the Law was no longer being used to coerce young people into taking part in such a war. Any correlation between the Army and Law scales in 1975 would therefore be less likely to be influenced by a particular historical situation, and more certainly reflect a generalised feeling about such authorities.

The choice of specific tests to be used in the replication was determined by the results of the factor analysis described in Chapter 9. It was apparent that the highest loadings on the "pro-authority factor" were for the Law Scale (.87) and the Army Scale (.79). The personality test with the highest loading on the personality factor was the Complexity subscale of the Omnibus Personality Inventory, with a factor loading of -.81. Correlations between this measure of tolerance of ambiguity and attitude to authority as measured by the C.A.S., for male and for female students in the S.A.I.T. sample had been, as predicted, negative and significant. Figure 5 in Chapter 8 indicated a clear linear relationship between the Complexity subscale and the C.A.S. for each sex separately. It was predicted that this relationship would be replicated in the 1975 University sample.

An inquiry was also undertaken into the reliability of the O.P.I. Complexity subscale and the attitude scales used in this replication study. With respect to the O.P.I. subscale, such an analysis was justified on three grounds: first, its high loading on the "personality factor" indicated its central importance in this study; secondly, other reported uses of this test have been in the context of the full set of O.P.I. scales and it might be suggested that its reliability was therefore affected; and thirdly, the test had been developed among American students and its item consistency could be questioned for Australian students. Finally, the need to re-examine the reliability of the attitude scales was justified in the light of the changing political and social climate, which, it might be argued, could affect the consistency of the items.

10. (ii) The sample

The previous sample of University students ($N = 80$) was not large, and perhaps insufficient to investigate fully the complete range of attitude to authority. Accordingly, a larger sample of 284 volunteers from First Year Psychology classes at the University of Adelaide were administered three tests: the O.P.I. Complexity subscale, the Army Scale and the Law Scale. Of these, 248 subjects completed all the tests without any errors or omissions, and only these subjects were included in the analyses. The average age of these students is given in Table 35, and compared with the earlier sample's average age.

Table 35 Means and Standard Deviations of Ages of Subjects in the University Replication study of 1975, and comparisons with the 1972 study.

	Mean	S.D.	N
Males	20.68 (19.30)	5.08 (2.56)	116 (33)
Females	19.44 (18.74)	4.54 (3.93)	132 (47)
Both sexes	20.02 (18.98)	4.84 (3.45)	248 (80)

Note: The corresponding figures for the 1972 study are given in brackets. It may be noted that the 1975 sample was, on average, approximately one year older than the sample used in the earlier study; however, the difference for both sexes combined is not significant, $t = 1.78$, $df = 326$, $p > .05$.

10. (iii) Results

A. Reliability. The item-total biserial correlations (corrected for the contribution of item to total) for the O.P.I. Complexity subscale, in general, reached a satisfactory level, the mean correlation coefficient being .34. The complete list of items and correlations is given in Appendix 18. One item is exceptional, however, having a negligible (negative) correlation (-.01). This item is: "I dislike having others deliberate and hesitate before acting". It is scored in the direction of for a "true" response. Clearly its use is questionable in any further applications of this subscale. It would seem that the keywords in the item, "deliberate" and "hesitate" are not clearly related to the concept of "uncertainty" which appears to underlie the subscale. Despite this, the reliability of the subscale is quite good: A Cronbach alpha coefficient of .75 was obtained, which compares closely with the values given in the O.P.I. manual (p.49) of .73 and .76 with

two different sets of American College Freshmen. The subscale would appear to have satisfactory cross-cultural generality even when detached from other items of the full scale. The item with the highest item-total correlation (.52) is "I don't like things to be uncertain and unpredictable", and this seems to be consistent with the notion of intolerance of ambiguity or uncertainty.

For the Army and Law scales Cronbach alpha coefficients of .92 and .86 respectively were obtained. Although these are indicative of reliable scales, there is a very slight fall in the reliability of the scales. On the basis of the 1972 University sample (see Tables 4 and 6) the reliabilities of the scales were .95 for the Army and .91 for the Law.

B. Means and standard deviations of test scores. The average scores were broken down according to sex and, where appropriate, comparisons were made with results obtained from the sample. These results are shown in Table 36.

Differences between the two samples indicate some slight changes in attitudes towards the two kinds of authorities. This is especially true of the Army for which differences are significant for both males ($t = 3.45$, $df = 147$, $p < .001$), and for females ($t = 2.57$, $df = 177$, $p < .05$); for both sexes combined ($t = 4.25$, $df = 326$, $p < .001$). Thus attitudes of both sexes towards the Army are more favourable for the 1975 sample. For the Law Scale the change tends to be in the opposite direction, significantly so for females ($t = 3.14$, $df = 177$, $p < .01$), but not for males ($t = 1.38$, $df = 147$, $p > .05$). For both sexes combined, the difference for the Law Scale is significant with $t = 3.29$, $df = 326$, $p < .001$. In

Table 36. Means and Standard Deviations of scores on the O.P.I. Complexity subscale, the Army Scale and the Law Scale for University of Adelaide students in 1975, and comparisons with the 1972 sample.

	<u>Males</u>		
	Mean	S.D.	N
O.P.I. Complexity Subscale	16.66	5.11	116
Attitude to the Army	89.66 (76.03)	19.57 (20.88)	116 (33)
Attitude to the Law	77.33 (81.00)	12.98 (15.45)	116 (33)
	<u>Females</u>		
O.P.I. Complexity Subscale	16.80	5.33	132
Attitude to the Army	87.44 (79.60)	18.21 (16.58)	132 (47)
Attitude to the Law	76.25 (83.68)	12.96 (16.03)	132 (47)
	<u>Both Sexes</u>		
O.P.I. Complexity Subscale	16.74	5.23	248
Attitude to the Army	88.48 (78.13)	18.89 (18.56)	248 (80)
Attitude to the Law	76.75 (82.58)	12.98 (15.85)	248 (80)

Note: Comparative results for the 1972 University of Adelaide subjects are given in brackets.

general, there is evidence that a shift in attitudes to the Army and the Law took place over the years 1972 to 1975, involving a favourable movement towards the Army and an unfavourable one towards the Law. The possible reasons for these changes are briefly discussed in Section 10 iv below.

C. Correlations between the Attitude Scales. In view of the directionally different movements of attitudes in relation to the Army and the Law over the period between tests it becomes important to inquire whether subjects still tend to be consistent in their attitudes towards authority despite such general changes

in the population. In addition, it is of interest to compare the correlations obtained between these scales with those obtained in the 1972 sample.

Table 37. Correlation matrices for the Army Scale, the Law Scale and Age for University of Adelaide students in 1975 and 1972.

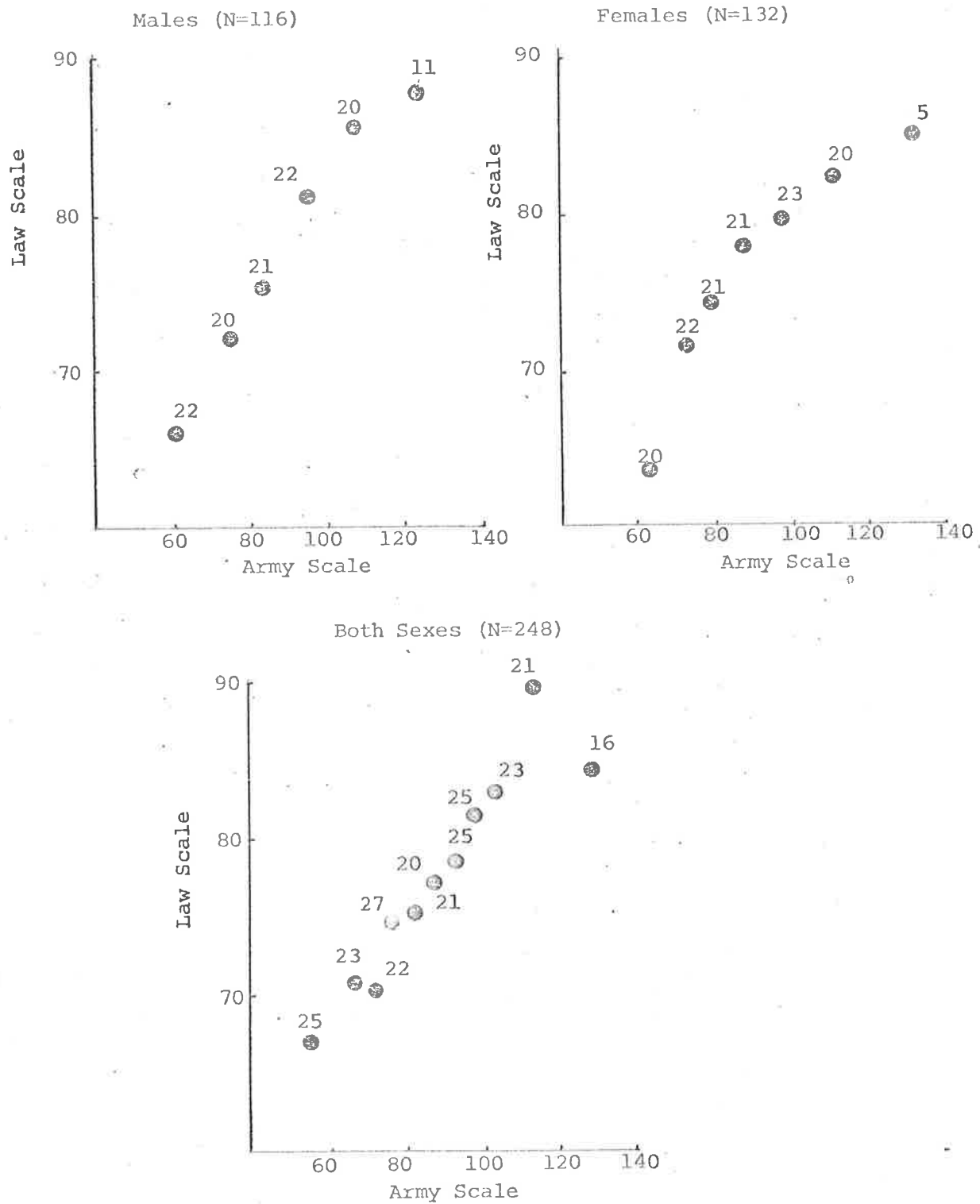
(In each case the correlation coefficients for 1975 subjects are given to the right of the diagonal line, and, for comparison, the results for 1972 subjects are given to the left of it).

	<u>Males</u>				<u>Females</u>		
	Army	Law	Age		Army	Law	Age
Army		.56	-16	Army		.43	.13
Law	.78		-22	Law	.69		-07
Age	-02	.06		Age	-21	-05	

	<u>Both sexes</u>		
	Army	Law	Age
Army		.50	-01
Law	.73		-14
Age	-14	-02	

The correlations between the two attitude scales are highly significant: for each sex and for both sexes combined, they are significant at the .001 level (1-tailed test). The significance remains after the effect of age has been partialled out: for males the correlations between the Army Scale and the Law Scale is then .55, for females .43 and for both sexes .50. Although a significant relationship between the two scales is replicated by the 1975 sample, the correlations are, in fact, significantly lower than those in 1972: for males, $z = 2.01$, $p < .05$; for females $z = 2.22$, $p < .05$; and for both sexes combined $z = 2.91$, $p < .01$. However, despite a significant reduction in the

Figure 13. Relationship between two measures of attitude to authority, the Law Scale and the Army Scale, for University of Adelaide students (1975).



Note: The numbers of subjects are indicated by each dot.

strength of the relationship, scores on the two scales are still strongly related, and give further support to the hypothesis of a general attitude to authority.

The nature of the relationship can be further explored by means of an examination of graphs for the two attitude scales. Mean scores on one variable are obtained, as in Chapter 8, on the basis of approximately equal-sized subgroups of subjects on the other variable. Due to numerous tied scores, the groupings are not entirely equal in size.

A generally linear trend between the two scales is apparent in Figure 13. It is particularly marked for male subjects; for females there is a slight suggestion of curvilinearity.

D. Correlations between the Complexity Subscale of the O.P.I. (Tolerance of Ambiguity) and two Attitude to Authority Scales. The relationship between the O.P.I. Complexity subscale and the two measures of attitude to authority may be examined in the following table which shows correlations between the personality and attitude variables. Here comparisons are available for the corresponding results using the S.A.I.T. subjects, derived from Table 28.

The correlations for the University sample are significant ($p < .001$) for each sex taken separately, and similar in magnitude to the coefficients obtained in the earlier sample. After partialling out for the contribution of age, the correlations for both sexes combined remain at $-.32$ for both the Law and the Army Scales, and these are significant at the $.001$ level (1-tailed test). It is clear that the results obtained from the 1971-2 S.A.I.T. sample have been substantially confirmed, with respect to the correlation between personality and attitude variables.

Table 38. Correlations between two attitude to authority scales and the O.P.I. Complexity Scale (Tolerance of Ambiguity) for University of Adelaide students, 1975, with corresponding results for the S.A.I.T. sample, 1971-72.

	<u>Males</u>	<u>Females</u>	<u>Both Sexes</u>
Army	-.28 (-.37)	-.35 (-.28)	-.32 (-.34)
Law	-.32 (-.46)	-.33 (-.35)	-.33 (-.40)

Notes: (1) Results for the S.A.I.T. sample are given in brackets.

(2) Sample sizes are as follows:

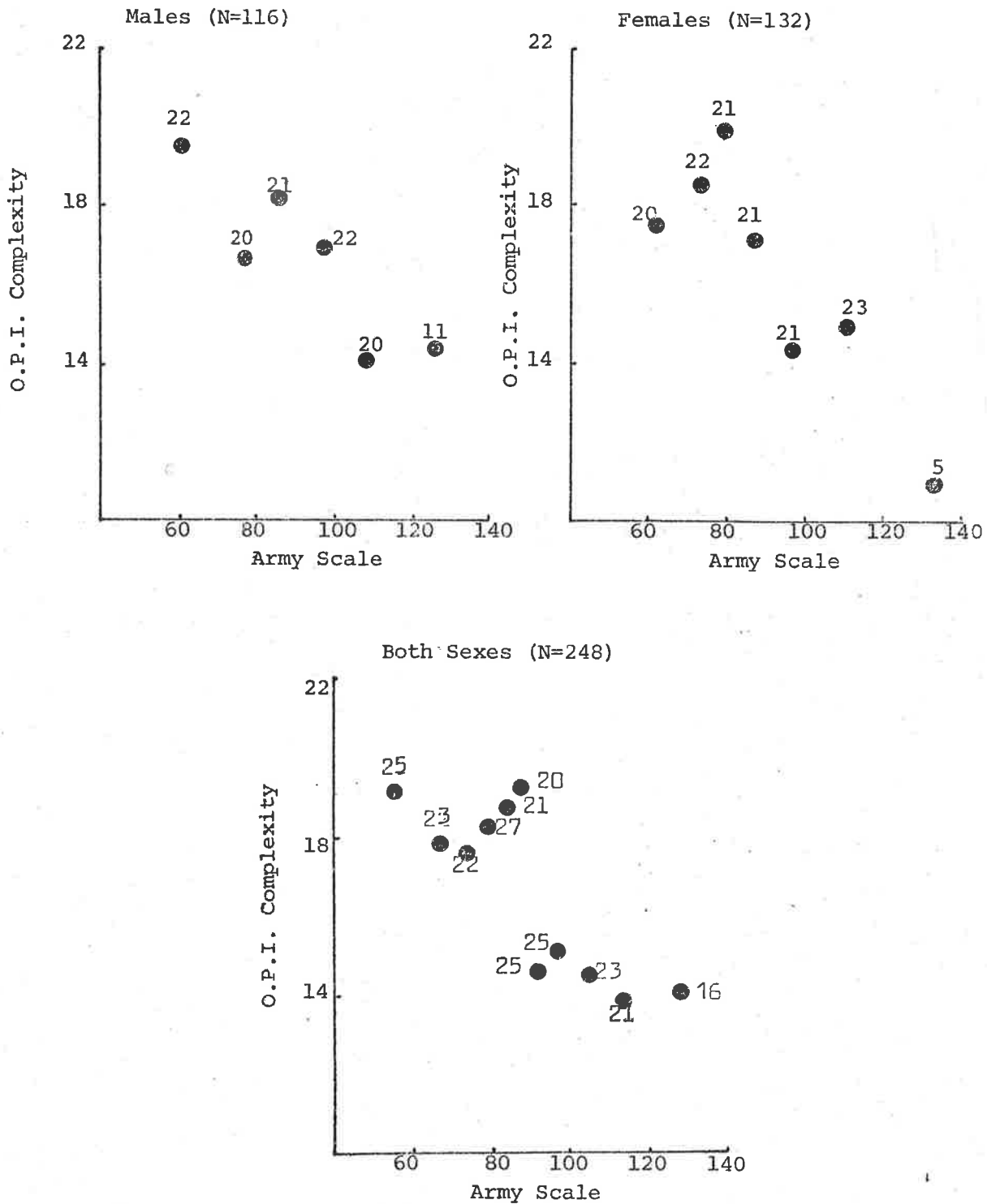
1975 sample: 116 males, 122 females.

1971-2 sample: 60 males, 69 females.

E. Examining the personality-attitude relationship for curvilinearity. In the alternative hypothesis, proposed in Chapter 6, a curvilinear relationship between intolerance of ambiguity and attitude to authority was predicted, with both pro- and anti-authority subjects being relatively intolerant of ambiguity. This possibility is examined in Figures 14 and 15, for the two measures of attitude to authority separately.

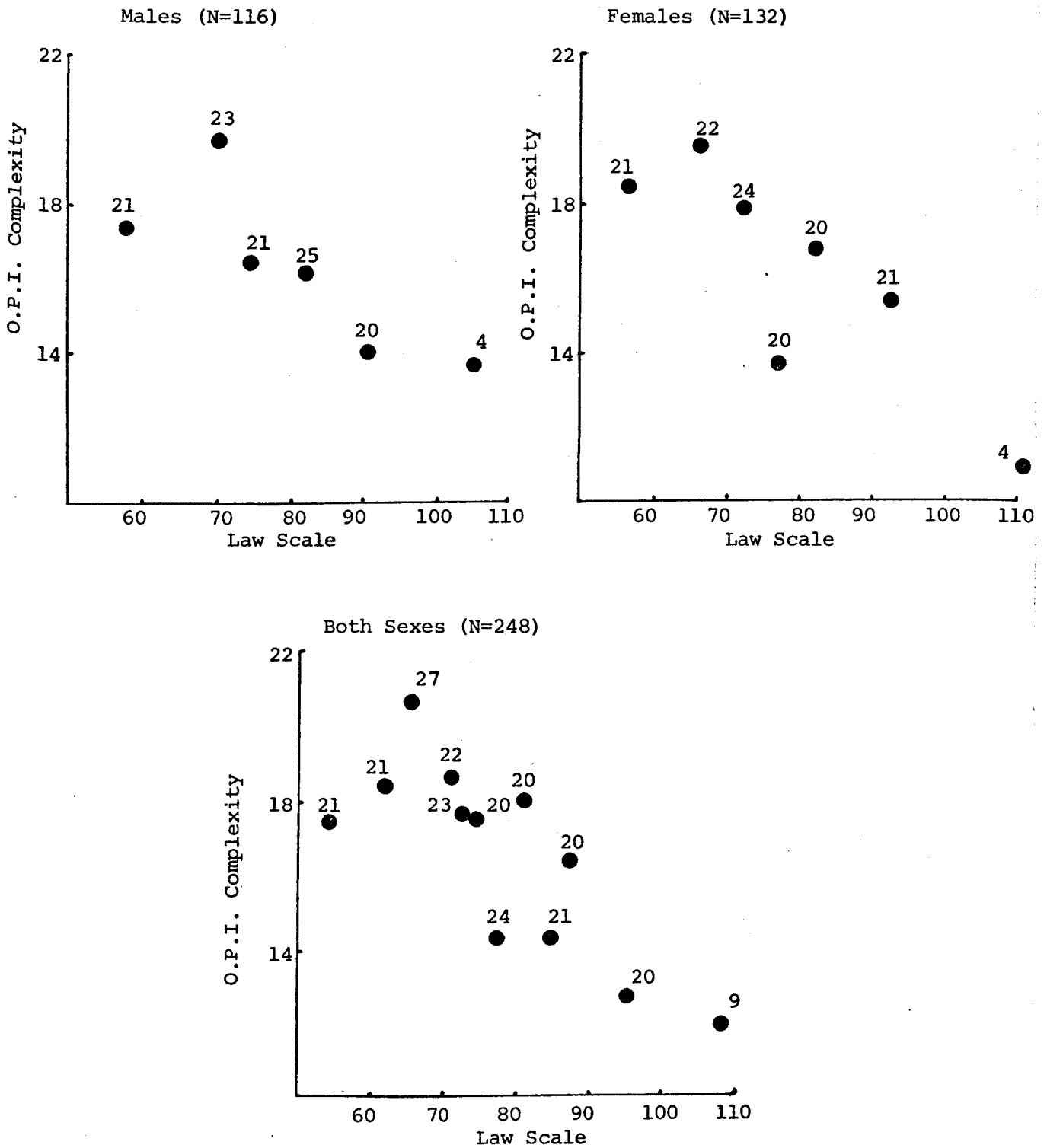
In general, the graphs for each of the scales and for the sexes individually show a linear trend, although the combined sex results for the Complexity Scale and the Army (Figure 14.) suggest a contrast between high and low scorers on the attitude to authority dimension. As in the case of the earlier S.A.I.T. study there is no evidence of the postulated curvilinear relationship between attitude to authority and intolerance of ambiguity, as measured by the O.P.I. scale. The curvilinear hypothesis is not supported in either the original study or in the replication three years later.

Figure 14. Relationship between the Complexity subscale of the O.P.I. (measuring Tolerance of Ambiguity) and the Army Scale for U. of A. students (1975).



Note: The numbers of subjects are indicated by each dot.

Figure 15. Relationship between the Complexity subscale of the O.P.I. (measuring Tolerance of Ambiguity) and the Law Scale for U. of A. students (1975).



Note: The numbers of subjects are indicated by each dot.

10. (iv) Discussion

The major aim of this replication was to confirm the positive correlation (and the linear relationship) between attitude to authority and intolerance of ambiguity, a relationship found in earlier results obtained from a sample of S.A.I.T. subjects. The successful replication of these results with a sample of University of Adelaide students in 1975 enables the generality of the finding to be extended substantially.

The two samples of students used in these tests differed with respect to the institution they attended and the time period during which they were tested. Differences with respect to institution are explored in some detail in the following chapter. Here it may be noted that, in general, the S.A.I.T. students were in 1971-2 older and more pro-authority than the University students tested during this period and that this is particularly true for the male subjects. The S.A.I.T. students were also more heterogeneous in that they were drawn from a variety of courses and years of study, while the University students were all from First Year Psychology classes. The comparative homogeneity of the University sample minimises the likelihood of a spurious correlation due to variations in educational background being claimed for the variables in question. Differences due to the time of testing may be considered in the light of differences in the mean scores on the attitude scales for similar samples of University students over the three year period. As one might expect, with the significance of the Army's involvement in the Vietnam War receding into the background, attitudes towards the Army had become more favourable. A less pronounced but unexpected tendency is apparent for the Law to be viewed less favourably

on the second occasion of testing.

It is unclear why there should have been such a movement against the Law among tertiary students over this three year period. On the international scene one could point to the widespread cynicism engendered by the abuses of the Nixon Administration in the U.S.A. in seeking to operate the law for their own protection in the course of the protracted Watergate investigation, 1973 to 1974 (Bernstein & Woodward, 1974). Locally, the confrontation between student and staff at the nearby Flinders University in 1974, leading to the legal prosecution of the Flinders University President of the Students' Union (Milne, 1974), may well have strengthened the hostility of some radical students or their sympathisers at Adelaide University. Whatever the explanation, it is apparent that in this period there were directionally opposing movements in group attitudes towards the two authorities, indicating that the social and political climate was changing.

Correlations between the attitudes of individuals toward the Law and the Army were significantly smaller than before. The association of the two would therefore appear to depend to some degree on the particular historical context of the operation of these two authorities. However, the correlations between the two authorities for individual students of both sexes were still highly significant, despite group changes, and the replication of the predicted relationships between the two authorities and between each of these authorities and the measure of Intolerance of Ambiguity thus appears to be comparatively independent of the events of the day. The generality of the findings has been considerably extended by this replication.

CHAPTER 11: SEX AND INSTITUTION COMPARISONS
AND AGE TRENDS

In the course of this investigation results have been obtained for the sexes separately and for the two different institutions: The S.A.I.T. and The University of Adelaide. Data have also been gathered in relation to the age of the respondents. Before discussing the main results of this study in the following chapter, one may first examine the similarities and differences between the sexes and the institutions, and any differences in attitude that may be related to age. Many of these results have been reported in different places earlier in this thesis. In this chapter it is intended that they shall be brought together, summarised and examined in further detail, and the implications of the similarities, differences and age trends discussed.

11. (i) The reliability and validity of the attitude scales:
sex comparisons

The scales that have been developed for this study are as follows: the Likert-type attitude to authority scales measuring attitudes towards Symbolic Authority, Teachers, the Army, the Law, and the Police; the Radicalism Scale; and a modified version of Hudson's Independence Scale. They may now be considered with respect to their reliability and validity, in relation to the subject's sex.

A. Reliability. The subjects used in the development of these scales were all tertiary students, and results have been presented for the sexes separately in Chapter 2. It has been shown that, with the exception of the Independence Scale, which has generally low reliability and was not used in subsequent

analyses, the attitude scales developed in this study are quite reliable instruments for assessing the attitudes of both male and female tertiary students. In the comparisons to be presented, data have been used for each scale from the larger of the samples available (S.A.I.T. or University). It will be seen in the following table that slight but somewhat consistent differences appear between the sexes with respect to the reliability of the scales.

Table 39: Indices of Reliability for the Likert-type attitude scales and the Independence Scale, with sex comparisons.

Scale	Cronbach's Alpha Coefficients		Correlations between positive & negative parts of the scales		Significance of sex difference in correlations	
	Males	Females	Males	Females	z	p <
Symb. Auth.	.86	.82	.39	.21	1.94	ns.
Teacher	.92	.90	.57	.32	2.98	.01
Army	.95	.94	.75	.59	2.80	.01
Law	.93	.88	.63	.34	3.66	.001
Police	.92	.93	.75	.77	0.37	ns.
Radicalism	.93	.80	Not applicable			
Independence	.65	.62	Not applicable			

It is not possible to conduct a test of significance over all scales conjointly since the samples involved are not all independent. Pairs of coefficients, however, may be compared. Using the 5% confidence limits for the Alpha coefficients (Kristof, 1972), for each of the sex pairs there is some degree of overlap (See Appendices 0_a and 22), so by this test

none of these differences in Alpha values may be regarded as significant. The pooling of data for a joint analysis of male and female results is therefore justified. However, as Table 39 indicates, the correlations between positive and negative parts of the Army, Teacher and Law Scales are significantly different for males and females, using the conventional method for the comparison of a difference between correlations for unrelated samples (Blalock, 1960, p.310). These results suggest that the relationship between certain parts of the attitude scales may be different for the sexes. A comparison of item-total (corrected) correlations for males and females for each scale provides results that are consistent with this view. For the total of 150 items in the attitude scales (see Tables 1,3,5,7,9 and 12B) significant differences between correlations were found for 30 comparisons, and for 28 of them the item-total correlations were higher for the male students. (The items for which significant differences were found are given in Appendix 23).

It may be concluded that although the attitude scales do not give significant differences between the sexes for overall reliability, as indicated by Cronbach's Alpha, correlations between certain parts of the scales have been found to differ according to sex. In particular, for three scales, the Teacher, the Army and the Law Scales, the positively and negatively scaled parts of the scales are significantly more highly correlated for male subjects, and for each one of the attitude scales significant differences in correlations between items and totals have been found, in nearly all cases indicating a higher reliability for males in relation to such items.

B. Validity. Comparisons of validity indices between sexes for the Likert-type attitude to authority scales may be made on the basis of results obtained from University of Adelaide subjects. As far as concurrent validity is concerned, correlations between each of the attitude scales and appropriate Eleven-point Rating Scales are all significant ($p < .05$) for each sex considered separately (see Table 24). However, as in the case of the reliability indices just considered, the values are consistently higher for males than for females (see Table 40). The mean correlation coefficient for male subjects ($N = 32$) is .77, compared with a mean correlation of .59 for female subjects ($N = 42$). In the case of the Low Scale the difference is significant ($p < .01$).

A second method of assessing validity, using reported behaviour indices, also provided support for the validity of the scales for each sex, at least with respect to the behaviour indices derived from self-reports of taking part in demonstrations and attending Church. Here there are no consistent differences between the sexes with respect to the magnitude of the associations between the attitude scales and those indices (see Appendix 9b and 9c). However, there do appear to be quite marked differences in the outcomes of predictions concerning reported behaviour at school. These are particularly striking with respect to indices relating to reports of "being in strife" with teachers and being punished by them, which are significantly correlated with each of the authority scales (and the Radicalism Scale) for females only. The consistency and magnitude of the sex differences are apparent in Table 41, derived from the results given in Appendix 9c.

Table 40. Correlations between Likert-type attitude to authority scales and corresponding Eleven-point Rating Scales, for males and for females.

<u>Subject's Sex</u>	<u>Object of the Attitude</u>				
	<u>Symbolic Authority</u>	<u>Teachers</u>	<u>Army</u>	<u>Law</u>	<u>Police</u>
Males (N = 32)	.76	.72	.79	.77	.80
Females (N = 42)	.59	.65	.75	.33	.64
Significance of sex differences	z 1.36 n.s.	.56 n.s.	.42 n.s.	2.89 .01	1.45 n.s.

Note: The correlation coefficients for Symbolic Authority are with the Eleven-point Rating Scale of "Authority in General".

Table 41. Sex differences in correlations between attitude scales and reported behaviour indices relating to two forms of reported behaviour at school, for 33 male and 47 female subjects from the University of Adelaide.

<u>Attitude Scale</u>	<u>Behaviour Index</u>							
	<u>Being "in strife" with teachers</u>		<u>Significance of sex differences</u>		<u>Being punished by teachers</u>		<u>Significance of sex differences</u>	
	<u>Males</u>	<u>Females</u>	<u>z</u>	<u>p <</u>	<u>Males</u>	<u>Females</u>	<u>z</u>	<u>p <</u>
Symbolic Auth.	-.01	-.47	2.20	.05	.04	-.45	2.31	.05
Teacher	-.27	-.35	0.04	n.s.	.06	-.34	1.82	n.s.
Army	-.12	-.56	2.26	.05	.19	-.49	3.21	.01
Law	.05	-.41	2.14	.05	.07	-.41	2.23	.05
Police	.07	-.50	2.73	.01	.10	-.42	2.41	.05
Radicalism	.16	.26	0.46	n.s.	.03	.29	1.19	n.s.

In all 12 cases in Table 41 females show a higher correlation than males, and in 8 cases the differences are significant. These relationships may be summarised by the correlations between each behaviour index and the C.A.S. The correlations between "Being in strife with teachers" and the C.A.S. were $-.57$ for females and only $-.01$ for males. The difference between the correlations is significant: $z = 2.77$, $p < .01$. The correlations between the C.A.S. and "Being punished by teachers" were $-.53$ for females and only $-.11$ for males, a difference which is also significant at the $.01$ level ($z = 2.96$).

These results suggest that in the area of relations with teachers the attitude scales may have different implications for the sexes. It is possible that an anti-authority disposition is related to having had "bad" relations with teachers for females only.

11. (ii) The generality of attitude to authority

To examine the generality of attitude to authority, results from the application of the attitude scales were correlated for samples of male and female students at both S.A.I.T. and the University of Adelaide. Significant intercorrelations between scores on the 5 Likert-type scales and the Radicalism scale have been reported for each of the four groups (S.A.I.T. males, S.A.I.T. females, University males and University females) in Chapter 3. It has been concluded that the generality of attitude towards institutionalised authority, as reflected by scores on scales assessing attitudes towards Symbolic Authority, Teachers, the Army, the Law and the Police, has been established independently for each of the sub-groups, and this general attitude in each case is significantly related to the Radicalism Scale.

However, it has also been noted that the generality of the attitude, as indicated by the magnitude of the correlation coefficients presented in Table 16, is somewhat greater for males than for females; the sex difference is particularly marked in the University sample, where the mean correlation (for the 15 correlation coefficients, including Radicalism) is .70 for males compared with the mean for females of .53, and all 15 of the correlations for males are higher than the corresponding ones for the female subjects. In the S.A.I.T. sample, the corresponding means are .56 for males and .48 for females, with 12 of the 15 correlations being higher for males. Consistent with these results, in the 1975 Replication Study (described in Chapter 10) the correlation between the Law and the Army Scales is greater for males (.56) than for female students (.43).

A further difference lies with institutions. It is apparent from the figures in the previous paragraph that the mean correlations are higher for the University samples compared with corresponding S.A.I.T. samples: among males, 14 of the 15 correlations are higher; among females, 10 of the 15 correlations are higher. The generality appears to be greater for males than for females and for the University of Adelaide subjects than for S.A.I.T. subjects. Thus attitude to authority would appear to form a rather more coherent pattern among male students than among female students, and among the Adelaide University students compared with those from the S.A.I.T. A summary of the sex and institutional differences which are significant with respect to these correlations is presented in Table 42.

Table 42. Significantly different correlations between attitude scales: sex and institution differences.

(a) Significant Sex Differences

<u>Scales correlated</u>	<u>Sample</u>	<u>Correlations</u>		<u>Significance of the difference</u>	
		<u>Males</u>	<u>Females</u>	<u>z</u>	<u>p<</u>
Symb. Authority and Law	U. of A.	.83	.48	2.92	.01
Symb. Authority and Police	U. of A.	.81	.59	1.98	.05
Law and Radicalism	U. of A.	-.81	-.51	2.48	.05

(b) Significant Institution Differences

<u>Scales correlated</u>	<u>Sample</u>	<u>Correlations</u>		<u>Significance of the difference</u>	
		<u>S.A.I.T.</u>	<u>U. of A.</u>	<u>z</u>	<u>p<</u>
Symb. Authority and the Army	Males	.55	.83	2.81	.01
Symb. Authority and the Police	Males	.47	.81	3.04	.01
Symb. Authority and the Law	Males	.62	.83	2.28	.05
Law and Radicalism	Males	-.62	-.81	1.98	.05

Note The above results are based upon the data presented in Table 16.

11. (iii) Inter-sex comparisons for correlations between attitudes to authority and personality

Correlations between attitudes to authority and personality variables have been carried out mainly with S.A.I.T. subjects. In general, the correlations follow a similar pattern for each sex. No major or consistent differences between the correlations are evident in the analysis of S.A.I.T. data reported in Chapter 7. Significant correlations with the C.A.S. were found for each sex with 3 measures of Intolerance of Ambiguity (the Budner Scale, the Budner subscale of Intolerance of Complexity and the Complexity subscale of the O.P.I.), the Dogmatism Scale and the Creative Independence Scale. Moreover, plots of the relationships for each sex were generally found to follow a similar linear trend. For the 1972 University sample a significant linear correlation between the Creative Independence scale and the C.A.S. was also found for each sex. In the 1975 University sample significant linear correlations were again found for both sexes between the Complexity subscale of the O.P.I. and the two measures of attitude to authority used in this replication study. The factor analysis of the S.A.I.T. data reported in Chapter 9 confirms the general similarity of the pattern of correlations for each sex. The first two factors extracted, an "authority factor" and a "personality factor", were basically similar for males and females, as was the relationship between them.

Despite the overall similarity of the correlations for each sex, minor discrepancies should be noted. The correlation between the C.A.S. and the Emotional Activation scale is significant for females only; while correlations between the C.A.S. and both Cognitive Simplicity and the Photo Ambiguity Test are significant

only for males. It follows that the existence of significant correlations between C.A.S. and each one of the personality variables examined in Chapter 7 using pooled data, should not obscure the fact that significant relationships in some cases may be limited to one sex only. Small discrepancies in factor loadings for each sex on similar factors, as described in Chapter 9, again suggest that caution must be exercised in extending generalisations based upon the pooled data to each sex. In particular, relatively high or moderate loadings on the "authority factors", for the Teacher Scale (.78) and Cognitive Simplicity (.43) in the case of males, are not paralleled by similar loadings for the female subjects, for whom the loadings are, respectively, .26 and .00. It is recognized that the "authority factor" is not precisely the same for each sex and exact comparisons cannot be made. The results do, however, suggest that the scores on the Teacher Scale and the Cognitive Simplicity scale may have different implications for the two sexes.

11. (iv) Subgroup differences in mean attitude to authority

In examining institutional differences on the attitude to authority scales, it must first be emphasised that the samples of students at the two institutions were not random samples, but were volunteers from particular courses. This must be regarded as a limitation with respect to making generalisations about the two institutions since it seems likely that choice of course within a college may be related to attitudes as central as attitude to authority. Feather and Collins (1974), for instance, found that Business Studies students at an Australian College of Advanced Education (Mitchell College) tended to adopt a more conservative stance on some issues than students enrolled in Teacher Education.

It may be claimed that in this study the S.A.I.T. sample of students were drawn from a wide range of courses, as described in Chapter 7. Subjects from the University of Adelaide, however, were drawn from the more restricted population of first-year Psychology students.

With such restrictions on any generality that may be claimed, differences between the two institutions and the sexes were examined. To separate the main effects of sex and institution and to examine the possibility of an interaction effect, a two way analysis of variance would normally be completed for each of the scales. However, the numbers in the four "sex by institution" subgroups vary considerably, so that the design lacks balance to such an extent that attempting to equalise group sizes by reducing all groups to the smallest size or by estimating "missing" values, would be inappropriate. For this reason, the four means for each of the attitude scales were subjected to analysis in the form of planned comparisons (see Hays, 1963, p. 466). In each case the comparisons analysed were simply the equivalents to the two main effects and the one interaction effect available in conventional ANOVA with 2 x 2 groups. It is recognised that the three comparisons are not precisely orthogonal owing to the inequality of the sizes. However, it is considered that the method gives a reasonable indication of the effects of interest, provided that care is exercised if more than one significant effects are interpreted for any variable. (The method is numerically equivalent to the one described by Winer (1971, p.402) as an unweighted means analysis using the harmonic mean number of subjects). The results of the planned comparisons are given in Table 43. They have been carried out using the data previously described in detail in Chapter 3.

Table 43. Planned comparisons of means on Attitude towards Authority scales and Radicalism for S.A.I.T. and University of Adelaide students, according to Institution and Sex subgroups.

(For each cell, means are given with standard deviations in parenthesis. The numbers for each of the comparisons are as follows: S.A.I.T. males, 93; S.A.I.T. females 87; University of Adelaide males, 33; University of Adelaide females, 47).

(a) Symbolic Authority Scale: Means and Standard Deviations

	<u>Male</u>	<u>Female</u>	<u>Both sexes</u>
S.A.I.T.	70.91 (11.02)	73.77 (9.95)	72.29 (10.62)
University of Adelaide	66.48 (11.49)	72.81 (9.17)	70.20 (10.66)
Both institutions	69.75 (11.26)	73.29 (9.65)	

Analysis by planned comparisons:

	<u>Contrast value</u>	<u>F</u>	<u>Significance</u>
Main effect of Institution (S.A.I.T. - U. of A.)	2.70	3.57	n.s.
Main effect of Sex (male - female)	-4.60	10.38	.01
Interaction of Institution and sex	1.73	1.48	n.s.

Table 43: (continued)

(b) Teacher

	<u>Male</u>	<u>Female</u>	<u>Both Sexes</u>
S.A.I.T.	99.17 (16.91)	93.90 (15.37)	96.62 (16.40)
University of Adelaide	93.18 (14.94)	93.58 (13.65)	93.48 (14.20)
Both institutions	97.60 (16.48)	93.82 (14.73)	

Analysis by planned comparisons:

	<u>Contrast value</u>	<u>F</u>	<u>Significance</u>
Main effect of Institution (S.A.I.T. - U. of A.)	3.11	2.11	n.s.
Main effect of Sex (male - female)	2.39	1.25	n.s.
Interaction of Institution & Sex	2.89	1.83	n.s.

(c) Army

	<u>Male</u>	<u>Female</u>	<u>Both Sexes</u>
S.A.I.T.	87.65 (22.84)	83.99 (19.80)	85.88 (21.50)
University of Adelaide	76.03 (20.88)	79.60 (16.58)	78.13 (18.56)
Both institutions	84.61 (22.93)	82.45 (18.79)	

Analysis by planned comparisons:

	<u>Contrast value</u>	<u>F</u>	<u>Significance</u>
Main effect of Institution (S.A.I.T. - U. of A.)	8.01	8.07	.01
Main effect of Sex (male - female)	0.05	0.00	n.s.
Interaction of Institution & Sex	3.62	1.65	n.s.

Table 43. (continued)

(d) Law

	<u>Male</u>	<u>Female</u>	<u>Both Sexes</u>
S.A.I.T.	89.52 (15.16)	89.52 (13.91)	89.52 (14.57)
University of Adelaide	81.00 (15.45)	83.68 (16.03)	82.58 (15.85)
Both institutions	87.29 (15.63)	87.47 (14.77)	

Analysis by planned comparisons:

	<u>Contrast value</u>	<u>F</u>	<u>Significance</u>
Main effect of Institution (S.A.I.T. - U. of A.)	7.18	12.29	.01
Main effect of Sex (male - female)	-1.34	.43	n.s.
Interaction of Institution & Sex	1.34	.43	n.s.

(e) Police

	<u>Male</u>	<u>Female</u>	<u>Both Sexes</u>
S.A.I.T.	80.06 (15.49)	81.00 (12.75)	80.52 (14.24)
University of Adelaide	71.91 (15.64)	75.98 (13.22)	74.30 (14.41)
Both institutions	76.93 (15.73)	79.24 (12.98)	

Analysis by planned comparisons:

	<u>Contrast value</u>	<u>F</u>	<u>Significance</u>
Main effect of Institution (S.A.I.T. - U. of A.)	6.59	11.40	.01
Main effect of Sex (male - female)	-2.51	1.65	n.s.
Interaction of Institution & Sex	1.57	.65	n.s.

Table 43: (continued)

(F) Radicalism Scale

	<u>Male</u>	<u>Female</u>	<u>Both Sexes</u>
S.A.I.T.	47.63 (10.09)	51.45 (8.80)	49.48 (9.68)
University of Adelaide	53.67 (11.84)	52.55 (9.02)	53.01 (10.29)
Both institutions	49.21 (10.86)	51.84 (8.85)	

Analysis by planned comparisons:

	<u>Contrast value</u>	<u>F</u>	<u>Significance</u>
Main effect of Institution (S.A.I.T. - U. of A.)	-3.57	7.17	.01
Main effect of Sex (male - female)	-1.35	1.03	n.s.
Interaction of Institution & Sex	2.47	3.43	n.s.

An examination of the analyses by planned comparison shows that the effect of institutions is positive for each of the attitude scales and negative for Radicalism: that is, the S.A.I.T. students consistently favour authority and conservatism more than University of Adelaide students. For the Army, the Law, the Police scales and Radicalism the effect is significant. The effect of sex is inconsistent in direction and in one case only is it significant (for Symbolic Authority). Although there is a slight tendency for University females to be more favourably disposed towards authority than the male University subjects, and in general, for the tendency to be opposite among S.A.I.T. students (the exception is for Symbolic Authority), no significant interaction effect was found. It may be concluded on the basis of this analysis that the only reliable effect of general importance is that of Institution.

One difficulty in interpreting the differences in attitude between the two institutions is that the two samples differ greatly in mean age. As reported in Chapter 3, the mean for the S.A.I.T. subjects is significantly higher than that for the University subjects. There is empirical evidence in this study that age is a factor to be considered, as far as attitude to authority is concerned. In the S.A.I.T. sample ($N = 180$), age was found to correlate significantly with C.A.S.: $r = .18$, $p < .05$. This contrasts with the correlation obtained from the younger University of Adelaide subjects ($N = 80$) for whom a correlation of $-.11$ was found. The difference between the correlations is, in fact, significant ($z = 2.14$, $p < .05$).

On this evidence, the relationship between age and attitude to authority appears to be complex, and it is therefore inappropriate to control for age with the commonly used method of analysis of covariance. The alternative method of examining scores by comparing those in the same age categories has therefore been adopted.

To compare S.A.I.T. and University subjects in the same age groups, divisions were made as indicated in Table 44. The mean age for the sub-sample of S.A.I.T. subjects over 20 was 25.68 years with a S.D. of 6.95. For the University subsample the corresponding mean was 24.42 years with an S.D. of 6.47. The ratios of male to female subjects tend, on the whole, to be fairly similar for the two institutions, and in view of the general lack of significance of the overall sex differences indicated in Table 43 (apart from Symbolic Authority) a pooling of the sex data in the subsequent analysis is justified.

Table 44. Numbers of male and female subjects from the S.A.I.T. and University of Adelaide used for comparison of attitude scores, according to age groups.

<u>Age group</u>	<u>S.A.I.T.</u>			<u>University of Adelaide</u>		
	<u>male</u>	<u>female</u>	<u>both sexes</u>	<u>male</u>	<u>female</u>	<u>both sexes</u>
17 years	4	20	24	3	11	14
18 years	10	40	50	15	24	39
19 years	11	18	29	6	9	15
Over 19 years	68	9	77	9	3	12
Totals	93	87	180	33	47	80

Table 45a Unweighted mean Attitude to Authority scores for S.A.I.T. and U. of A. students (1971-2), according to age groups.

<u>Age</u>	<u>U. of A.</u>			<u>S.A.I.T.</u>			<u>Significance of the Institutional difference</u>	
	<u>Mean</u>	<u>S.D.</u>	<u>N.</u>	<u>Mean</u>	<u>S.D.</u>	<u>N.</u>	<u>t</u>	<u>p <</u>
17	83.39	12.00	14	83.38	12.85	24	.00	n.s.
18	79.86	11.42	39	83.86	11.98	50	-1.58	n.s.
19	75.48	12.39	15	85.57	10.94	29	-2.71	.05
20+	80.38	14.86	12	85.95	12.37	77	-1.39	n.s.

Table 45b Mean scores for the Radicalism Scale for S.A.I.T. and U. of A. students (1971-2), according to age groups.

<u>Age</u>	<u>U. of A.</u>			<u>S.A.I.T.</u>			<u>Significance of the Institutional difference</u>	
	<u>Mean</u>	<u>S.D.</u>	<u>N.</u>	<u>Mean</u>	<u>S.D.</u>	<u>N.</u>	<u>t</u>	<u>p <</u>
17	50.43	9.08	14	49.75	9.27	24	+0.21	n.s.
18	54.21	8.50	39	50.78	10.91	50	+1.60	n.s.
19	55.80	9.33	15	48.83	9.18	29	+2.32	.05
20+	48.57	15.00	12	48.79	9.03	77	-0.04	n.s.

The means and standard deviations for the S.A.I.T. and University subjects are given for each attitude to authority scale by separate age groups in Appendix 20, with significance tests at each level. Here it is sufficient to note that with the comparatively small sample sizes the differences between means for particular age groups are generally not significant. The exception is for 19 year olds, for whom S.A.I.T. students are significantly more pro-authority on the Law Scale and the Police Scale, and significantly less radical on the Radicalism Scale, all these differences being significant at the .05 level (two tailed test). In order to summarise the age differences on attitude to authority, unweighted mean authority scores were computed from results on the 5 authority scales for students at the two institutions, and these scores are presented for comparison in Table 45a. Similar results for the Radicalism scores are presented in Table 45b.

From Table 45, it is apparent that differences in attitude towards authority and in Radicalism at the two institutions are particularly marked amongst 19 year olds: it is for this group only that the differences are significant.

11. (v) Age Trends

The relationship between age and attitude to authority and Radicalism may be examined by plotting the mean unweighted attitude to authority scores (and Radicalism scores) in relation to the four age groups. The age trends at the two institutions tend to be dissimilar. According to Figure 16, there is a slight tendency for S.A.I.T. students to appear more pro-authority with increasing years, and for University of Adelaide students to become more opposed to authority up to the age of 19 and less opposed thereafter. A corresponding tendency is apparent in the results for Radicalism presented in Figure 17; that is, while S.A.I.T. students tend to become somewhat less radical with age, University students appear as increasingly radical up to the age of 19 years and more conservative thereafter.

Figure 16. Mean pro-authority scores for four age-groups of S.A.I.T. and University of Adelaide students.

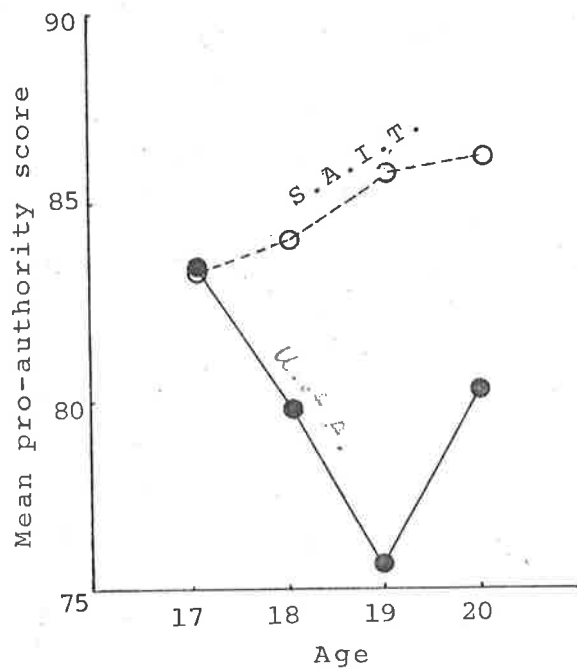


Figure 17. Mean Radicalism scores for four age-groups of S.A.I.T. and University of Adelaide students.

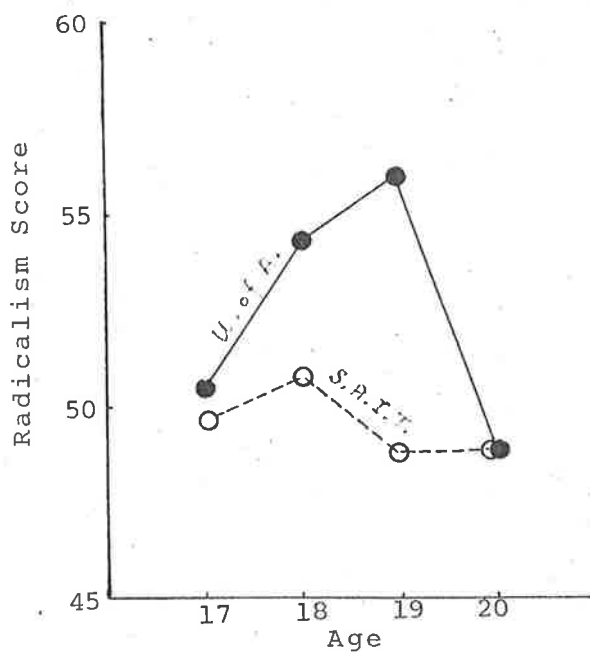
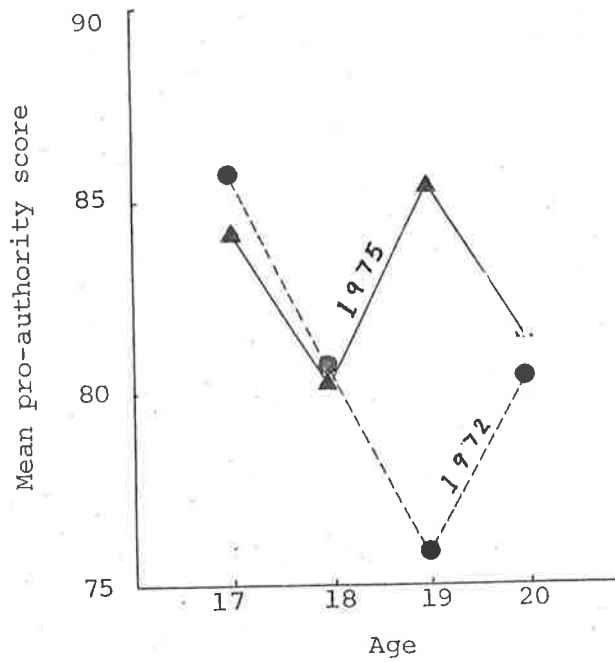


Figure 18. Mean pro-authority scores (based upon Law and Army Scales) for four age groups of Adelaide University, 1972 and 1975.



The results for the two institutions were examined further for the significance of the trends, using a polynomial trend analysis. Only in the case of Radicalism for the University results was a significant result obtained: the quadratic trend yielded an F ratio of 4.65, df 1.75, $p < .05$ (two tailed). In 1975 a further investigation of the relationship between age and attitude to authority was undertaken using the results for 247 first-year University students who completed the Army and the Law Scales. (One female subject who was aged 15 years only was omitted from this analysis). Mean pro-authority scores were computed, based upon results for the two scales, and are presented in Figure 18, together with corresponding results taken from the 1972 University sample, and based upon the same two scales. (The detailed results are given in Appendix 21).

In Figure 18 the suggestion of a quadratic relationship found in the 1972 University data is wholly absent from the 1975 results. There is a major difference between the two samples of 19 year olds: the two samples differ significantly ($t = 2.10$, df 47, $p < .05$) on the combined Law and Army Scales (see Appendix 21). The difference in trends for 1972 and 1975 may thus be seen to be largely due to a shift towards a significantly more favourable attitude towards Authority on the part of 19 year old students.

11. (vi) Sex differences within institutions

In the analysis of the combined data from the two institutions in Section 11 (iv), it was found that overall sex differences were limited to the Symbolic Authority Scale on which females scored significantly higher. However, a further examination within institutions indicates that there are differences which should be mentioned.

Differences between the sexes at S.A.I.T. may be examined in relation to the most comprehensive amount of data available (See Appendices 14 and 19). For two of the scales (Symbolic Authority and the Police Scale), the mean pro-authority scores are slightly higher for females, but not significantly so. On the remaining scales, males appear to be somewhat more pro-authority and conservative: differences are significant by the t test for the Teacher's Scale ($p < .05$) and the Radicalism Scale ($p < .01$). Male subjects were also more intolerant of ambiguity on 3 measures of Intolerance of Ambiguity: the Budner Scale ($p < .001$), the Complexity subscale of the O.P.I. ($p < .05$) and the Photo Ambiguity test ($p < .05$). They were also significantly more dogmatic on Ray's Dogmatism Scale ($p < .05$). On the basis of these data, no strong general contrast can be drawn between the sexes, but for attitude to teachers and radicalism male students at the S.A.I.T. are more pro-authority and less radical than the female students. It is possible that, in accordance with the linear hypothesis supported in this study, such differences may be related to the greater intolerance for ambiguity which is found among these male students.

Among the University students tested at approximately the same time as the S.A.I.T. students (1971 - 72) the direction of the differences between males and females on the attitude scales is entirely consistent: females on each of the scales have higher mean pro-authority scores and a lower mean score on Radicalism. However, the difference is significant on only one, the Symbolic Authority Scale ($p < .05$). (See Appendix 19 for further details). Thus while no significant interaction effects between sex and institution were identified in the analysis reported in the earlier section, the patterns of sex differences at the two institutions tend to be quite different.

11. (vii) Conclusions

The main conclusions that may be derived from the foregoing analyses may be summarised as follows:

- 1) The Likert-type scales developed for the measurement of attitude to authority and radicalism were found to be reliable and valid instruments for assessing such attitudes for both male and female students, though there is evidence that some scales may be slightly more reliable measures for males.
- 2) The generality of attitude towards authority, as indicated by significant intercorrelations between the Likert-type scales, was established for both male and female students drawn from The University of Adelaide and The S.A.I.T. The generality appears to be slightly but consistently greater among the University students, and greater for males compared with females.
- 3) Correlations between the Composite Authority Scale and the personality variables used in this study are generally similar for each sex among students at the S.A.I.T., with some minor exceptions. Such similarities enable one to claim a replication of the major findings regarding the linear relationship between attitude towards authority and the personality variables of intolerance of ambiguity, dogmatism and creative independence. Moreover, a factor analysis of S.A.I.T. data confirms such a relationship for both sexes, with only minor differences in factor loadings.
- 4) The linear relationships obtained for both sexes in the S.A.I.T. sample between attitude to authority and (a) Creative Independence and (b) Intolerance of Ambiguity, were replicated with samples of University of Adelaide subjects, (a) in 1972 and (b) in 1975. Dissimilar relationships were found, however, for the two institutions with respect to Emotional Activation, for which a

linear relationship was found for the S.A.I.T. sample and a curvilinear relationship for the 1972 University sample.

5) An analysis of the data for sex and institution differences revealed a main effect of institution on the Army, Law, Police and Radicalism Scales, with S.A.I.T. students being more in favour of authority and less radical. An analysis of results according to age groups indicated that it was among 19 year old University students in 1972 that attitudes were particularly unfavourable to authority, significantly more so than among S.A.I.T. students in the same age group at that time.

6) There was a suggestion of curvilinearity in the relationship between attitude to authority and age in the 1972 University sample, which was significant in the case of Radicalism, with 19 year olds tending to be more radical and more opposed to authority than others. However, this tendency was not found in the S.A.I.T. sample (where the trend was linear); nor in the 1975 University results in which 19 year olds were, in fact, the most favourable to authority of the four age groups.

7) An examination of sex differences within institutions indicated that male S.A.I.T. students were significantly more in favour of the authority of Teachers and less Radical than the female students. Consistent with the linear hypothesis, male students showed significantly less tolerance for ambiguity. Among the University sample, male students were significantly more opposed to Symbolic Authority than were the female students.

11. (vii) Some Implications

The first and most obvious implication relates to the general overall similarity of the findings with respect to the reliability, validity and generality of the scales for each sex, clearly justifying the pooling of data for various analyses. However, the small differences are sufficiently consistent to suggest that the scales are probably more appropriate for male

subjects. There are two possible reasons to be considered. First, the target and/or scale items chosen are perhaps more salient for male than female subjects. In so far as they relate to the issue of conscription (as, for instance, the Law, the Army and possibly the Police do), the "authorities" are more relevant to the potential conscripts (males), particularly so among the younger, generally more eligible University of Adelaide subjects. This is consistent with the finding that the generality is also more pronounced at the University of Adelaide than at the S.A.I.T. But additionally it may be that there is greater consistency in attitude to authority among males, irrespective of the authorities or particular circumstances. According to Davies and Encel (1970), higher status positions in the Australian society are more commonly occupied by males; to which Encel (1971) adds that "women in Australia, have, on the whole, been content to allow their roles to be defined as an adjunct to the roles of men" (p.63). It follows that a greater preoccupation with power and authority is more likely to be found among Australian males, so that attitude to authority scales are more salient for them.

Despite slight differences in the relative reliability of the scales for male and female subjects, the clear replication for each sex of the major findings of this study, that a linear relationship exists for tertiary students between attitude to authority and the personality variables of intolerance of ambiguity, dogmatism and creative independence, is of major importance. For both sexes, it can be claimed that a similar kind of personality is related to acceptance or non-acceptance of authority. In addition, similar relationships between attitude to authority and certain personality variables (namely Creative Independence

and Intolerance of Ambiguity) are found for both tertiary institutions, thus broadening the generality still further. However, the one major difference in the relationship between attitude to authority and personality characteristics, that is, with respect to Emotional Activation, does raise problems regarding generality, and these must be discussed in some detail in the next chapter. (See page 224).

The sex differences in mean pro-authority scale scores are slight and apart from the Symbolic Authority Scale neither sex nor sex/institution interactions are significant in an analysis of the combined S.A.I.T. and University results. Why should the Symbolic Authority Scale be an exception in providing a significant main sex effect, with females scoring more pro-authority in both institutions? It may be exceptional because of the nature of the response elicited by this test. The subject is asked to respond quickly in accordance with his or her feelings about certain persons and symbols presented visually. Compared with responding to a verbal set of attitude scale items, a rather more overtly aggressive style of responding seems to be required. To score as strongly anti-authority, it may be necessary to overcome inhibitions about the expression of hostile feelings towards generally respected persons and symbols. A difference between the sexes on this scale may reflect a difference between the sexes in the expression of aggressive feelings. This would be consistent with certain findings about sex differences in manifest aggression in our society: for instance, Wheeler (1969) has shown that among Australian tertiary students (in Western Australia), males score significantly higher on "need for aggression" on the Edwards Personal Preference Schedule.

Next we may consider the implications of the differences between the two institutions with respect to attitude scores. It has been shown that the S.A.I.T. students consistently favour authority more than the University students. Although the extent of the differences depends upon the age group under consideration, being least among 17 year olds and greatest for 19 year olds, it is reasonable to conclude on the basis of the analysis by planned comparisons, that students at the S.A.I.T. tend to support authority more (particularly the authority of the Law and the Police) than University students do. Why should this be so? Explanations may be offered in terms of the kinds of students that enter these institutions and/or in terms of the kinds of pressures, both faculty and student, that affect them. To assess the importance of these factors, and any interaction between them, it would be necessary to test students before they enrol at the two institutions and at intervals thereafter. On the present evidence, explanations must be speculative.

The differences in attitude between the two groups of students may perhaps be best understood in terms of the expectations and aspirations of students entering the two institutions. At the S.A.I.T. the students are preparing, and being trained, for a particular kind of job, as a physiotherapist, a social worker, a pharmacist, an engineer, a business executive, and so on. By and large such students may be presumed to know what they would like to do for a living, and to have in mind some sort of position in an organisation where they might fit. They will more likely be aware of the need to adapt to a status hierarchy, and to come to terms with the authorities. The stereotype to be adopted is one which accepts authority. Being

more sure of the kind of job they want to do, they would wish to have a stable world in which to do it. They would not as a group be much in favour of radical change. By contrast, the University Arts or Science student is not so committed perhaps. He is more likely to want to experiment with ideas, and (to use the popular phrase of the period) to "do his own thing". Moreover, the ethos of the two institutions, the more critical temper of the University and the more skill-oriented Institute of Technology, seems likely to inculcate divergent attitudes in the two sets of students, a point which would need to be verified by comparing students of both institutions at different stages of their tertiary educational careers. Whether the differences result from the adoption of self-images consistent with a choice of educational training or career, or are a result of the "environmental press" (Murray, 1939), or both, is a question needing to be answered before such speculations can be confirmed.

A further line of speculation concerning the differences between the two institutions is raised directly by this study.

It may be that a particular kind of personality is more likely to be drawn towards the kind of educational training which purports to lead towards a definite job. A dislike of ambiguity and uncertainty may well be a mark of such a personality. As the correlation between such personality characteristics and a relatively favourable perception of authority had been strongly supported by this study, it seems reasonable for further studies to compare the personalities of University and C.A.E. students in this area. In view of the obtained differences between male and female students at the S.A.I.T. on some attitude and personality scales, it is clear that subsequent inquiries should bear in mind the possibility of sex differences along such dimensions, particularly with respect to students at any C.A.E.

Finally, one must consider the implications of the analyses of age trends among S.A.I.T. and University students. It is apparent that no clear or consistent trend has emerged from the analyses. This is perhaps surprising in view of the belief that authority relations do undergo systematic changes with age, especially during adolescence. Ausubel (1954), for instance, suggests that as adolescents mature, the disparity between the demands made upon them and the status they are accorded becomes increasingly acute and leads to an increasingly negative perception of figures of authority. Ferguson and Kenneally (1974) have provided support for this view in their study of American preparatory students (aged 14 - 16 years), for whom a correlation of $-.25$ was reported between age and favourability of their perceptions of authority figures. By contrast, S.A.I.T. students show a slight tendency to be more accepting of authority with age. The University data for the 1972 study appear to give some support to Ausubel's theory in so far as a slight (non-significant) trend towards a less favourable attitude to authority is found over the years 17 to 19. However, the 1975 study provides results which suggest that University students are at their most accepting of authority at 19 years of age. Why this age group should be particularly susceptible to change in attitude to authority over the 3 year period is unclear. It may be surmised, however, that in 1972 students in this age group had been recently eligible for conscription for a war which many students opposed. Moreover, among first year University students these would have been older than most others on the course and might be expected to have adopted a more militant attitude. What - ever the explanation, it is clear that on the basis of these results, there is no support for the view that age is related in any systematic and enduring way to attitudes to authority among tertiary students.

CHAPTER 12: PERSONALITY AND ATTITUDE TO AUTHORITY

12. (i) Introduction

The primary aims of this thesis have been twofold:

(a) to develop valid measures of attitude to authority for use with tertiary students; and (b) to decide between two hypotheses, a linear and a curvilinear hypothesis, (both suggested in the psychological literature), concerning the relationship between certain personality variables and attitudes towards authority. In this chapter the intention is to examine further the relevant results that have been presented in Part II of this thesis, and to explore their implications.

It is necessary to be quite clear about the nature of the attitude dimension in relation to which the personality variables were examined. The factor analysis presented in Chapter 8 (see Table 33) yielded a factor on which each of the 5 Likert-type Attitude to Authority scales was loaded at least moderately; and, in addition, a moderately high negative loading was found on this factor for the measure of left-wing Radicalism. The Composite Authority Scale, in relation to which the hypotheses were mainly tested, may thus be regarded as a general measure of attitude towards institutionalised authorities. It is a measure that could not be distinguished factorially from the test of left-wing radicalism designed to tap students' political orientations at that time. It is reasonable to regard both the C.A.S. and the Radicalism Scale as predictive of such anti-authority activities as taking part in demonstrations, and such pro-authority activities as "attending Church" (see Table 25).

In seeking to generalise about the personality dimensions, it is useful to consider again the results of the factor analysis.

It is apparent that a number of variables form a constellation, central to which is the variable described as Tolerance or Intolerance of Ambiguity. This variable is related closely to both Dogmatism and Creative Independence. Somewhat less strongly related to the constellation is the variable of Emotional Activation. Finally, there is Cognitive Simplicity, which appears to be unrelated to the other personality variables, but which has a slight positive relationship with the pro-authority factor.

It has been shown that among S.A.I.T. students each of the personality variables was significantly correlated with attitude to authority, using Pearson's r , as predicted by the linear hypothesis (see Tables 28a, b and c). The linearity of the relationship was also, in general, confirmed by inspection of relevant graphs (see Figures 1-10). Two of these relationships with attitude to authority were replicated in subsequent investigations with University of Adelaide students, namely the relationship with Creative Independence in 1972 (see Table 31 and Figure 11) and with Intolerance of Ambiguity in 1975 (see Table 38 and Figures 14 and 15). For one variable, Emotional Activation, the linear relationship was not confirmed in the results for the 1972 University sample; instead, the alternative hypothesis predicting an inverted-U relationship was supported (see Figure 12).

12. (ii) Pro-authority and anti-authority students

On the basis of these results it is now possible to describe the way in which tertiary students in South Australia during the early 1970s varied with respect to certain personality characteristics along the dimension of attitude to

institutionalised authority. The linear relationship obtained, particularly with respect to personality characteristics in the cognitive area, allows one to contrast the students who tended to have relatively favourable attitudes to authorities with those who did not.

A. Intolerance of Ambiguity. The conservative, pro-authority student tends to be relatively intolerant of ambiguity. This finding was repeatedly confirmed by the results of this thesis. On a variety of measures (the Budner Intolerance of Ambiguity Scale, the three subscales of the Budner Test, the Complexity subscale of the D.P.I. and the Photo Ambiguity Test) significant correlations were obtained with the C.A.S. in the direction predicted by the linear hypothesis. Indications of curvilinearity are very slight and limited to single sex samples. Such a general contrast between pro- and anti-authority students with respect to Intolerance of Ambiguity is clearly consistent with the low intolerance of ambiguity scores of American left-wing radical activist students reported by Trent and Craise (1967) and Pierce and Schwartz (1971), and is also consistent with the relatively high level of intolerance of ambiguity shown by church attenders, if these are regarded as tending to favour institutionalized authority (Budner, 1962; Feather, 1967; MacDonald, 1970).

It was noted in Chapter 7 that results favouring the curvilinear hypothesis with respect to intolerance of ambiguity were all obtained using "performance" measures, as opposed to questionnaire tests, and this adds particular importance to the results obtained using the Photo Ambiguity Test. The correlation between this test and the C.A.S. though low, ($r = .19$, $N=114$) is nonetheless significant, and gives no

indication of curvilinearity. The results reported by Eysenck (1954), Taylor (1960) and Weitman (1962) suggesting a curvilinear relationship between attitude to authority and intolerance of ambiguity are not confirmed. Possible reasons for this are examined in the next section, 12(iii), in the context of the theoretical implications of the results.

In view of the nature of the intolerance of ambiguity concept, and its correlates, it may be concluded that the conservative pro-authority student tends to have a somewhat fixed way of viewing and organising social phenomena, and dislikes and feels threatened by social situations which contain novelty, uncertainty or insolubility. He will if possible try to avoid such situations or to change them: witness the reactions of the pro-authority students to the Photo Ambiguity Test. The more radical, anti-authority student may be characterized as having a more experimental and flexible orientation; indeed, he appears to have a positive liking for novelty, uncertainty and diversity.

B. Dogmatism. The contrast between pro- and anti-authority students with respect to Dogmatism is also marked, and again the contrast is consistent with the bulk of findings relating to American radical students, particularly those of Watts and Whittaker (1967), Karabenick and Wilson (1969), Bailes and Guller (1970), Hampden-Turner (1970), Steininger (1972) and Lorentz (1972). Hampden-Turner's study is particularly relevant since he, too, tested the possibility of a curvilinear relationship with dogmatism, and found detailed evidence that the relationship was in fact linear for a number of Dogmatism subscales. In addition, other results consistent with the linear relationship under discussion were reported with reference to pro-authority

subjects: for instance, if a favourable attitude to authority is suggested by church attendance, consistently high dogmatism has been reported by Feather (1967), Ray (1970) and Steininger et al (1972). Ray's study, it should be noted, made use of the Dogmatism scale employed in this thesis.

In view of the very clear evidence of a linear relationship between dogmatism and attitude to authority revealed in this study and the supporting evidence of the studies quoted above, it is puzzling that results supporting the curvilinear hypothesis with respect to dogmatism have occasionally been reported, for example by Rokeach (1960); and it is astonishing that linear relationships in the opposite direction are suggested by some results, in particular by La Giapa (1969) and by Ray (1974). The possible reasons for such discrepancies are examined in a later section, 12(iii), following a further elucidation of the theoretical implications of the present results.

Here it may be concluded that the pro-authority students may be seen as possessing a relatively high degree of dogmatism. The salient features of this characteristic were identified in Section 6iiA as an inability to judge the worth of a communication apart from the nature of its source; a marked difficulty in entertaining and synthesising new beliefs; and a relatively high level of anxiety and defensiveness in relation to threats from the environment. It should be noted that the concepts of intolerance of ambiguity and dogmatism are closely related both conceptually and (on the basis of this study) empirically. Though differing in detail, both may be considered to reflect a high preference for certainty as opposed to uncertainty, particularly in relation to social situations.

C. Creative Independence. The pro-authority student differs from the anti-authority student in reporting himself to have characteristics reflecting creative independence in terms of a check-list of relevant adjectives; the self-perceptions of the two sets of students are clearly different. This finding is strongly supported using samples from both educational institutions. The curvilinear relationship can be clearly rejected.

It should be noted that there is no direct inconsistency between the suggestion of curvilinearity obtained between "creativity" and attitude to authority in Carol's (1972) study, and the definite linear trend obtained in this thesis. Carol used measures of the fluency of divergent thinking (from Guilford's battery) rather than self-reports of creative independence. Although the Creative Independence test was found to be correlated significantly with a battery of divergent thinking tests by Rump (1968), the correlation was small ($r = .26$ with $N=100$). It would seem, then, that pro-authority students perceive themselves as lacking certain characteristics, such as feelings of autonomy and spontaneity, that are generally thought to accompany creativeness; but they do not necessarily have less than average divergent thinking ability. As the variable of Creative Independence is correlated negatively and significantly with both dogmatism and intolerance of ambiguity, it may well be that the association of these variables with attitude to authority has a single explanation.

D. Emotional Activation. With Emotional Activation it is difficult to reach any firm conclusion concerning its relationship with attitude to authority. Broadly, the relationship appears to

be linear among S.A.I.T. females, indeterminate among S.A.I.T. males, and curvilinear among University of Adelaide students. It does not appear therefore that any stable relationship exists between this variable and attitude to authority, and one may examine other aspects than personality factors to account for these discrepant results. (This is attempted in Chapter 13, pp.238-240). Such results do, at least, enable one to confirm that under some circumstances a linear relationship of the kind suggested by the data of McClosky (1958), Heist (1965), Winborn and Jansen (1967) and Pierce and Schwartz (1971) may be found, while under other circumstances, as Vetter's (1930) results suggest, a curvilinear relationship may be obtained. Such results should attract attention to the need to determine the circumstances under which these discrepant results may be obtained.

Although the precise relationship between Emotional Activation and attitude to authority appears to be uncertain, it nevertheless remains true that highly pro-authority students in both samples have relatively low levels of emotional activation (compared with subjects intermediate in attitude to authority); and for the S.A.I.T. sample correlations between Emotional Activation and the Budner and O.P.I. Intolerance of Ambiguity scales are significant with the largest sample of data - see Appendix 16c. One may therefore be justified in assuming that some common explanation involving all these variables is possible.

E. Cognitive Simplicity. Although the linear hypothesis is not clearly supported with respect to the variable of cognitive simplicity (there being a suggestion of curvilinearity among the male S.A.I.T. subjects, in Figure 8), again it may be claimed that there is a general contrast observable between the cognitively

simple pro-authority students and the more cognitively complex anti-authority students. This result is consistent with the finding of Lundy and Berkowitz (1957) that cognitively simple people are more favourably influenced by authority figures than are the more cognitively complex. It is apparent, however, that there is a suggestion of curvilinearity in the trend for the male S.A.I.T. students in that relatively high levels of cognitive simplicity are found at the extreme anti-authority end of the range of attitude to authority scores. There is the possibility that a clearer curvilinear trend might have occurred if more S.A.I.T. male students were, in general, strongly opposed to authority. In fact, there are probably only a small number of the kind that Harvey (1967) categorised as anti-authoritarians belonging to System 2 of his conceptual scheme and these are types which Vannoy's (1966) factor analysis suggested may be high on cognitive simplicity.

In general, it may be concluded on the basis of these results that the pro-authority student is likely to be relatively undifferentiating in his use of constructs in judging people. It may also be the case, as Bieri (1955) and Plotnick (1961) suggest, that the judgements of such people are not only less discriminating but also less accurate, presumably as a result of a tendency to assume that others are like themselves (Bieri, 1955; Leventhal, 1957; Adams-Webber, 1969). Cognitively simple people and authoritarians are thought to be similar in tending to make simplistic judgements. However, despite the claim by Vannoy (1966) that cognitive simplicity is significantly correlated with results from the F Scale, in this thesis there is no evidence of a linear relationship between the cognitive

simplicity test and any other of the personality characteristics. The results are, in fact, similar to those obtained by Pyron and Lambert (1967) who found that among American High School students authoritarianism, as assessed by a dogmatism scale, was not significantly correlated with a revised version of Kelly's role - reportory grid, which is conceptually similar to the Bieri measure used in this study. Both the cognitively simple and the dogmatic may tend to make simplistic social judgements, but the absence of a significant relationship between the two variables suggests that the two types are otherwise distinct; explanations based upon the personality characteristics of one need not apply to the other. The results for both the factor analysis and the canonical correlation analysis support the above conclusions.

12. (iii) Theoretical Implications

How may the pattern of relationships between the personality characteristics and attitude to authority be explained in terms of a general personality theory?

The finding that pro-authority subjects tend to be intolerant of ambiguities and dogmatic is perhaps more easily accounted for in terms of existing personality theory than the others. Probably the most influential contribution to theory in this area is still that of Adorno et al (1950) in "The Authoritarian Personality". These authors were, however, not exclusively concerned with attitude to authority, but rather with a general syndrome of pre-fascist, right-wing ethnocentric attitudes, which included a strongly pro-authority attitude. It was to this syndrome that Frenkel Brunswik (1950) in particular related the concept of intolerance of ambiguity, which has been shown to be of central importance among the personality characteristics examined in this study. The authoritarian syndrome was explained

in terms of ego-defences against anxiety. The question may be raised whether attitudes to authority may be accounted for in a similar way, derived originally from psychoanalytical theory.

The theoretical analysis of Frenkel Brunswik (1949) emphasised the underlying feeling of insecurity of people who are intolerant of ambiguity; Budner (1962) conceived such people as threatened by situations involving novelty, complexity and insolubility; Rokeach (1960) conceptualised highly dogmatic people as seeking defences against a pervasive sense of anxiety. The relatively high scores of the conservative, pro-authority students on intolerance of ambiguity and dogmatism confirm the expectation of these views. A strongly favourable attitude to authority may be seen as a strategy (possibly unconscious) for diminishing the fears that arise in confronting a threatening ambiguity-ridden world.

In psychoanalytical theory, a sense of insecurity is also seen as arising from internal impulses, usually of a sexual or aggressive nature. The "authoritarian personality" was conceived as possessing a strongly censorious super-ego, which magnified the fears of being overwhelmed from within and the consequent need for repression. To the extent that the pro-authority person resembles the authoritarian, he may be expected to have an emotionally repressed or over-controlled personality.

Relatively low scores on the Emotional Activation variable are consistent with this expectation. One may also deduce from psychoanalytical theory that the pro-authority person will show little striving for creative independence, even if possessing high capability. Deeply concerned with maintaining defences against both intrapsychic and external demands, it seems unlikely

that he will be able to liberate energies in an individual or creative manner.

The explanation of attitude to authority thus far considered, in terms of a personality "syndrome" having as its basis a generalised sense of insecurity, is however a limited one. First, there would appear to be a significant group of students who are "simplistic" in their mode of judging people as well as strongly pro-authority, but who are not intolerant of ambiguity, dogmatic, or low in creative independence. As the educational level of the subjects tends to be very uniform, it is unlikely that the differences have an educational origin. However, it is possible that the paucity of distinctively different personal constructs (which characterises the cognitively simple) may reflect a limited experience of a diversity of types of people, a kind of naivete which may well accompany the acceptance of conventional claims regarding the probity of authorities. Secondly, it must be emphasised that the kind of explanation put forward by Adorno et al (1950), and considered to have some explanatory value in this thesis, was concerned primarily with accounting for the extreme authoritarian (or pro-authority) type of personality, whose motives are often regarded as pathological. It is this, presumably small, group of persons whose affective and cognitive personality characteristics are contrasted with the majority of "normals". The confirmation of the linear hypotheses in this study, however, suggests that differences on the personality characteristics in question, with the exception of Emotional Activation, extend along the entire continuum.

Bay (1967) has suggested an extension of the above theory to accommodate results relating to the personality characteristics

of American radical students, results that, in some respect, are similar to those obtained in this thesis. Following the attitude theory of Smith et al (1960), Bay distinguishes between the various functions that attitudes may serve. In addition to the ego-defensive function, an attitude may also serve the purpose of social adjustment and reality appraisal. As defensive motivations decrease in importance, so attitudes are assumed by Bay to serve more the function of realistic object appraisal. It follows that the radical anti-authority student is likely to perceive authority in a relatively objective manner, unless, of course, his attitude stems from some other form of neurotic motivation such as displaced anger.

Bay pictures the radical student as a kind of outsider, who does not care about his career prospects, his financial future, or his reputation; he is unconcerned about impressing reference groups or people. Bay concedes that some radical students may be pursuing social-acceptance goals through compliance with the demands of radical groups to which they belong; but compared with more conservative students he regards such goals as relatively unlikely in radical students. Indeed, the radical student is viewed as superior in psychological health and moral value. Bay writes: "A sense of justice, as well as a capacity for rationality is, according to this theory, a likely development in relatively secure individuals, whose politics if any, will therefore tend towards the left - towards supporting the champions of the underdog, not the defenders of the established, always unjust, institutions" (p.90). According to this view the radical is seen as a self-actualising realist. He is a rebel because authority is unjust.

There are some difficulties in accepting Bay's conclusion with regard to the present results. First, one must consider the results relating to Emotional Activation. If Emotional Activation may be regarded as reflecting the degree of emotional expressiveness, in accordance with Bay's position one would expect the anti-authority student, being least ego-defensive, to score relatively highly on this scale. While this prediction is supported in the S.A.I.T. data, in the University sample the two extreme types of student resemble each other in appearing to be relatively repressed. It may be noted also that the consistency between affective and cognitive characteristics expected by an oversimplified psychoanalytical theory is obviously not supported by these results. Secondly, it is useful to examine Bay's argument more closely; it has about it an obvious evaluative flavour. It appears that he has converted what may be described as a "negative" form of argument into a "positive" one. Because a student feels "secure", and may therefore be expected to avoid a distorted and oversimplified perception of authority, it does not follow (as Bay suggests) that he will perceive political institutions realistically. It is, in fact, difficult to assign any clear operational meaning to the term "realistic" in this context. Rather than assume that the motivation of the radical anti-authority student must reflect a disinterested desire for truth, it seems more useful to consider further the kinds of motives and interests that are suggested by the results from the personality tests.

One finds in examining the results of anti-authority students not only an apparent lack of concern about uncertainty, as reflected by low intolerance of ambiguity on dogmatism scores, but also a positive liking for novelty, complexity and insolubility

(indicated particularly by low scores on the Budner subscales). It may also be noted that this interpretation is consistent with the result reported by Kish (1973), of a significant negative correlation between Zuckermann's Sensation Seeking Scale and Conservatism. It seems reasonable to suppose that authorities will be opposed most strenuously by people who are particularly interested in novelty and diversity, for it is to such people that the suppressive and controlling aspects of authority are likely to be most frustrating. Authority may be regarded as primarily the means by which limits are set to what behaviour is acceptable, and, in consequence, what experiences may result. It may also be the case that such students, being relatively free of the insecurity and uncertainty that are thought to characterise those with dogmatic views, are able to sustain an attitude of opposition to authority without experiencing so much stress.

In general, the curvilinear hypothesis has been disconfirmed. Yet there are clear indications in the psychological literature that data have been gathered from tertiary students which appear to support it. How have such results arisen? One possibility is that the populations sampled in this study were insufficiently extreme in anti-authority attitudes to enable a group of "authoritarian" personality types to be identified. The relatively pro-authority attitudes of the bulk of the S.A.I.T. students tested gives some credence to this view. However, the testing of a large sample of the more anti-authority University of Adelaide students (N=248) with regard to their intolerance of ambiguity in 1975 without finding a curvilinear relationship with attitude scales, renders this explanation unlikely.

More plausibly, it may be argued that the personality variables used in this study, particularly intolerance of ambiguity, have a looseness of definition such that different investigators have used the same term to describe quite unrelated variables. The demonstration of Kenny and Ginsberg (1958) of the frequent failure of such variables to intercorrelate significantly supports this view. The measures of intolerance of ambiguity that have yielded a curvilinear trend (see Coulter, 1953; Taylor, 1960; and Weitman, 1962) differ from those used in this study in being performance measures for which no judgements about persons were required. (The performance test used in this study did require the subject to scrutinise and compare pictures of people's faces). The results of this thesis suggest that the apparent contradictory results may have arisen because of a failure on the part of investigators to differentiate between areas of judgement (which may be broadly termed "social" and "non-social") in relation to which different kinds of intolerance of ambiguity may be inferred.

Finally, differences between some results may be due to differences in the populations sampled. It has been argued in this thesis that a tendency to identify with authorities is often a consequence of certain authoritarian personality characteristics. It is reasonable to suppose that in some situations the salient authority figures will be radicals whose anti-authority attitudes will be assimilated through a process of identification. The emergence of powerful, charismatic radical leaders, as may occur in times of student-faculty conflict, may provide an attractive source for identification among the relatively insecure. It is possible that the occasionally reported tendency for anti-

authoritarians to be dogmatic (see in particular La Giapa, 1969) may have such an origin. The paradoxical effects of "anti-authority authorities" obtaining support from authoritarians will be rare, and the results showing a resulting curvilinear relationship with personality variables may be regarded as anomalous.

To sum up, substantial support has been obtained from the results to confirm the linear hypothesis, particularly with respect to Intolerance of Ambiguity, Dogmatism and Creative Independence, and a contrast between the pro- and anti-authority student is also in evidence with respect to Cognitive Complexity. For Emotional Activation, however, the results are conflicting in the two samples. In seeking to explain the differences between pro- and anti-authority students it has been suggested that they may be derived from quite different motivational states. The pro-authority person is regarded as insecure and threatened by any complexity and ambiguity in his environment. A high degree of acceptance of authority may be considered as an ego defence. In addition, there would appear to be a significant number of students who are not "authoritarian" in the sense delineated by Adorno et al and Rokeach, but are "simple" in their social categorisation: that is, they tend to see people in a few black and white terms, possibly as a result of their limited experiences. Such students also tend to support authority.

In general, it would appear that the anti-authority student has relatively little need for submission as a defence against anxiety, and his higher feeling of security enables him to remain independent of, or even oppose, authority. At the same time, a

high degree of interest in novelty increases his motivation to oppose the frustrating power of authority. Differences in creative independence are also consistent with these arguments. The ego-defensive pro-authority students must find it hard to be open to new experiences; the novelty-loving radical is more likely to be able to draw upon a wider range of experiences. Such an explanation is consistent with the results of this study, which, in turn, are similar to those reported in the bulk of American studies. The reported exceptions may be accounted for in terms of variations in populations sampled or measures employed; a number of radicals identifying with radical leaders may be one other explanation. Finally, the anomalous finding with respect to emotional activation suggests that as far as reported affective states are concerned, differences between pro- and anti-authority students are unreliable.

PART THREE

REVIEW AND PERSPECTIVE

CHAPTER 13: ATTITUDE TO AUTHORITY: A REVIEW AND PERSPECTIVE

13. (i) Social Significance of the Study

The understanding of the psychological processes that accompany acceptance and rejection of authority is clearly a matter of considerable social importance. This has been recognized through the impact of recent studies on the psychology of obedience and conformity especially those of Milgram (1965) and Haney et al (1973) who have both demonstrated the conforming behaviour of a surprisingly high proportion of people when social pressures to obey are experimentally brought to bear upon them. Complementary to this work have been numerous studies, reviewed in this thesis, of opposition to, or non-compliance with, authority among radical students in recent times. In either case, whether undue acceptance or undue rejection of authority occurs, the psychological processes need to be understood, for either the autonomy of the individual or the security of society are threatened by the effects of extreme pro- or anti-authoritarian behaviour.

Whether obedience or disobedience has been responsible for the greater social evil has been a recurrent question in social and political thinking. Hobbes (1661) provided the classic defence of acceptance of authority as the alternative to anarchy in which life is conceived as "solitary, poor, nasty, brutish and short" (p.65). Acceptance of authority is seen as the means of self-preservation. Milgram (1974) has argued that a hierarchical social structure, which the human potential for obedience permits, is necessary for the survival of the species. He sees such a potential as a consequence of an evolutionary process. But has it on balance produced unfortunate social consequences? Snow

(1961) unhesitatingly condemns obedience: "When you think of the long and gloomy history of man, you will find more hideous crimes have been committed in the name of obedience than have ever been committed in the name of rebellion" (p.24). Snow instances the German Officer Corps brought up in the most rigorous code of obedience, who were "party to, and assisted in, the most wicked large scale actions in the history of world" (p.24). Milgram (1974) adds to this judgement a catalogue of crimes committed by American soldiers in Vietnam, in the name of obedience: ". . . . soldiers routinely burned villages, engaged in a "free-fire zone" policy, employed napalm extensively, utilized the most advanced technology against primitive armies, defoliated vast areas of the land, forced the evacuation of the sick and aged for the purposes of military expediency, and massacred outright hundreds of unarmed civilians" (p. 180).

Such pernicious social consequences Milgram sees as deriving from a biologically necessary but socially dangerous potential. There are related to this potential, according to Milgram, "certain highly specific mental structures" (p. 125) present in the organism, and these structures may be regarded as normally predisposing the organism towards the acceptance of authority. It would appear that as a result of social learning these structures may be altered, the "potential" strengthened or weakened, with a result that the predisposition to obey authority may vary widely. It is this modified potential that "attitude to authority" as assessed in this study may be said to reflect. Like the hypothesised "potential" it has a unitary character in that it shows a consistency in attitude towards a range of authorities. Unlike the "potential" it may contain both genetic and learned components.

The task set in this inquiry has been to relate the predisposition to obey or disobey authorities to certain personality factors which psychologists have thought were associated with such a predisposition. The task of determining socially desirable outcomes may be regarded as depending, in part, on an understanding of the personalities of those who vary in their attitudes to authority.

13. (ii) Situational and/or personality explanations of attitude to authority

Explanation of social behaviour and attitudes have sometimes emphasised situational factors and sometimes personality factors. Argyle and Little (1972), for instance, argue that personality factors are of comparatively little importance in accounting for social attitudes and behaviour. According to their view, behaviour is mainly a consequence of a particular social situation in which a person finds himself. Attitudes are seen as rationalisations. By contrast, more psychodynamically oriented psychologists following Freud have regarded attitudes and behaviour as the outcome of an interplay of intra-psychic forces. The results of this study suggest that both explanatory systems have some value in accounting for the present data.

There is strong evidence, already touched upon in Chapter 10, which indicates that situational influences were responsible for changes in attitude towards the Army and the Law among first year University students between 1972 and 1975. Mean differences between samples obtained in these years were significant on the two authority scales. Moreover, the changes were opposite in direction, with students appearing significantly more pro-Army in 1975 than in 1972, but also less pro-Law. Since Intolerance of Ambiguity, as assessed by the complexity subscale of the O.P.I.,

has been shown (in both the S.A.I.T. and the University 1975 sample) to be related to attitude to authority in a linear way, it is clear that such contradictory changes in attitude towards the two authorities could not be due to personality differences in the two samples, at least with respect to this dimension. It must be concluded that both situational and personality factors affect attitude towards authority among tertiary students.

In the main, the nature of the relationship between personality and attitude to authority appears to be unaffected by situational factors. The linear relationship between attitude to authority and Creative Independence is replicated in the University of Adelaide sample (in which more students are opposed to authority): and the relationship with Intolerance of Ambiguity is also replicated with the University of Adelaide sample four years later, despite changes in attitudes towards the two authorities. However, there is the exception of Emotional Activation, and this anomalous result warrants further discussion.

The relationship between Emotional Activation and Attitude towards Authority tends to be linear in the S.A.I.T. sample (see Figure 10) and curvilinear in the University of Adelaide sample (see Figure 12). How can this difference be accounted for? First, it is unlikely that it is due to the greater range of radicalism or opposition to authority of the University of Adelaide subjects, for the S.A.I.T. sample is much larger and contains extreme students who are equally anti-authority as the extreme university students. The S.A.I.T. sample tends to be older and to contain more part-time students; but such differences are attributable to the male subjects, and it is among the S.A.I.T. female subjects that the clearer linear relationship obtains. A final difference relates to the time at which the samples were

obtained. The S.A.I.T. groups were tested between June 1971 and March 1972, whereas the University samples were obtained in June 1972. One is left with differences that relate to time of testing and differences in Institutions, that is, to situational influences.

There is some evidence that during the period in which this study was conducted there was a change in the nature of student radicalism. Writing in "The Age" in August 1972, the journalist, Aldridge, observes that "the revolutionary zeal with which simple direct action confrontation politics was pursued in the 1960s and into 1971 has cooled" (p.9). The last Australian combat troops were withdrawn from Vietnam; within Universities students had increasingly become admitted to curriculum and other committees. Confrontation gave way to dialogue, mass meetings and demagoguery had become things of the past. The mood amongst radicals appears to have changed. Michael Rowan, President of the Students' Representative Council at Flinders University saw in it "a retreat into an introverted and essentially selfish escapism" (Milne, 1973). In place of strenuous involvement in social action there was in 1972 a new campus phenomenon: interest in transcendental meditation and Eastern religions.

According to Anne McMenamin, a prominent Adelaide student leader of this period, the starkness of the Vietnam conflict had produced a recoil to the philosophy of "Light and Love" (Milne, 1973). Such a change in mood and fashion might well be reflected by a change in self-description among radical students, in the direction of a lowered level of emotional activation. One is unable to separate the contributions of time and institution. It seems probable that the factors would have interacted: the change in mood would have had more time to gain momentum among

the University of Adelaide sample; most probably among students who attended full time and were younger and less career-oriented than the "technologists" at S.A.I.T., there would have been greater sensitivity to such a wind of change.

If this explanation is accepted, it must be concluded that the link between emotional and cognitive characteristics postulated with respect to the authoritarian type of personality by Frenkel-Brunswik (1949) and others and generally supported by this study does not apply invariably to radical anti-authoritarians. Emotionally, at least, the radical personality is apparently more "free to swing"; more precisely, the manner in which the radical student describes himself emotionally may vary. It is perhaps more dependent upon external circumstances, including fashion. Viewed in this way, there is no necessary contradiction between the results of American studies of the 1960s, especially those of Hiest (1965), Winborn and Jansen (1967), and Pierce and Schwartz (1971) which associate radical attitudes with emotional expressiveness, and those of Vetter (1930) and the present study, in which both extremely conservative and radical University students appear to be relatively introverted or low in emotional activation.

It may be concluded that both personality and situational factors play a part not only in affecting the degree of favourableness and unfavourableness of attitude to authority, but also in the case of Emotional Activation, in the relationship between personality and attitude to authority. It must be emphasised, however, that this result with Emotional Activation is an anomalous one. As far as each of the other variables are concerned there is no evidence that situational factors alter relationships between personality and attitude variables.

13. (iii) The main contribution of the study

This thesis has been concerned primarily with the personality characteristics of tertiary students who differ in their attitude to authority. In exploring this area, a much needed empirical basis for research has been established, the importance of maintaining a distinction between "attitudes to authority" and "authoritarianism" has been highlighted and, while confirming a generally accepted association between certain personality characteristics and strongly favourable attitudes to authority, clear and generally consistent findings have also been reported concerning the personality characteristics of students at the anti-authority end of the attitude continuum, which suggest further lines of inquiry into the personalities of students who oppose authority.

The need for an empirical basis for research into "attitude to authority" has been made particularly evident by Burwen and Campbell (1957) study, discussed earlier in Chapter 1, which raised considerable doubt regarding the generality of attitude to authority. It is striking, however, that despite the previous absence of clear empirical support for such generality, it has not only been widely assumed that generalised attitudes to authority commonly exist, but also that they are related in particular ways to specific personality variables. The works of Adorno et al (1950) and Rokeach (1960) are based upon such assumptions. If attitudes to authority were not general, then the question of how personality is related to such an attitude simply could not be investigated.

The results of the first part of this thesis may be regarded as providing positive support for the notion that attitude to authority is unitary and general. It has already been suggested

in Chapter 1, that the negative result of Burwen and Campbell (1957) may have been the result of these authors using measurement techniques that were relatively unreliable and of questionable validity. By contrast the scales used in this study were highly reliable and valid. Further, attitude "targets" were chosen that were highly salient to the subjects; that is, they were likely to impinge upon their lives in an important way. Such attitudes were assessed when "authority" was an "issue" on the campus, as the frequent "demonstration" activities, recorded in Chapter 4 clearly show. Unlike the servicemen used in Burwen and Campbell's study, the tertiary students in this study might reasonably be regarded as being under some educational and social pressure to become articulate and consistent in their attitude to authority. It has been shown in this thesis that differences in attitude correspond closely to left-right ideological differences among students. It is possible that the generality of attitude to authority is limited to special kinds of populations where thinking is ideologically structured. However, the association of differences in attitude with more basic personality differences suggests that attitude to authority probably has a generality which extends beyond the student population. An extension of this demonstration now appears to be desirable, again using comparatively reliable "direct" tests, but choosing authorities as targets for assessing attitudes that are perhaps more salient for the population in question. For instance, "boss" may be a more appropriate target for non-student groups.

It has been stressed that the general attitude to authority measured in this study is distinct conceptually from authoritarianism, in that it is free of prior assumptions, particularly psychopathological ones, about the personality of students who tend to

favour or oppose authorities. Though related to "attitude to authority", the personality variables appear to be factorially distinct. It is because this distinction has been maintained that the present study may be seen as critical of studies in which the distinction has been blurred; those studies have regarded both attitudes and personality traits as common symptoms of a psychopathological syndrome.

An example of such a study is that of Kohn (1972) in which the author presents the results of a study entitled "The Authoritarian-Rebellion Scale: A balanced F Scale with Left Wing Reversals". As the title indicates, this scale was obtained by using F Scale items and writing direct reversals of those items. A factor analysis of the results from an application of the scale to Canadian tertiary students revealed a near zero correlation (.04) between two factors identified as "rebelliousness" and "authoritarianism". Kohn goes on to conclude that "left-right ideological concepts such as the authoritarianism-rebelliousness dimension do not apply meaningfully to N. American students in general" (p. 137). It is possible that the thinking of N. American students is less ideologically structured than that of Adelaide students; but more plausibly the differences between this and Kohn's study may be attributed to the use of different kinds of scales. Inspection of Kohn's scale shows that it contains items which are part of the so-called "authoritarian syndrome", for instance, a belief in astronomy, in the desirability of punishing sex offenders and a distrust of people generally. Such items may reasonably be regarded as only marginally related to attitude to authority as such.

The present thesis has thus avoided the conceptual confusion that arises from identifying the left-right ideological continuum with "authoritarianism". The pro-authority anti-authority

dimension in this study could not be distinguished from a measure of acceptance of left-wing radical propositions that were appropriate at the time of testing. As these attitude measures correlated significantly and as predicted with self-reports on anti-authority behaviour (taking part in demonstrations) and pro-authority behaviour (attending Church), it is claimed that such measures provide a more appropriate means of assessing ideological differences than do measures of authoritarianism which include other disparate items.

A further contribution of this thesis concerns the relationship between attitude to authority and certain personality variables, the implications of which have been explored in Chapter 12. Milgram (1974) in his discussion of individual differences among the subjects of his "obedience" experiments, concludes that he is "certain that there is a complex personality basis to obedience and disobedience" (p. 205). He postulates an "agentic shift" which, in some cases, seems to deprive a person of his autonomy when he is placed in a situation in which an authority may gain control over him. "The agentic state", he writes, "is the master attitude from which the observed behaviour flows" (p.133). Milgram's analysis suggests that the relationship between attitude and personality may be of crucial importance. Elms (1972), who undertook the personality testing on obedient and disobedient subjects in Milgram's experiments, reports that F Scale results did discriminate significantly between these types of subjects, and he observes that "it does look as if those researchers in the late 40s (Adorno et al) had something which can be translated from abstract tendencies into actual authoritarian behaviour.... (p. 133). The present thesis, while broadly agreeing that something resembling the "authoritarian syndrome" is related to attitude to authority,

suggests that earlier studies have been too limited in scope. Hitherto most studies have concentrated upon the personality characteristics of people who have very favourable attitudes to authority and have found ego-defensive reasons for such attitudes, but now the continuation of the linear trend through to the most anti-authority students suggests that explanations other than those proposed by the authors of "the Authoritarian Personality" must be examined. It seems that one can often be more sure of why people obey authority than why they do not. One must now, in Milgram's terms, explain why the "agentic shift" thought to be necessary for the survival of the species in some cases does not take place. It is not sufficient to account for anti-authority attitudes, as Bay (1967) does, simply in terms of the absence of neurotic motivations.

The thesis therefore directs attention to the less familiar area of the personality characteristics of those who are much more likely to disobey authority than are others. The general disconfirmation of the curvilinear hypothesis indicates that it is unlikely that anti-authority attitudes in tertiary students can be explained in terms of the kinds of uncertainties and rigidities that appear to underlie extreme pro-authority attitudes, particularly with respect to social judgements. Cognitive similarities predicted by the curvilinear hypothesis have not been found. However, some of the characteristics that appear to promote attitudes of opposition to authority have been identified as a desire for novelty, diversity and complexity, a strong feeling of creative independence, and a tendency to make highly differentiated judgements of people.

Bay's (1967) article on the personality characteristics of American student radicals was aptly sub-titled: "Facts in Search of a Theory". The "facts" that were gathered from South Australian students in the early 1970s were, in general, very similar to those

to which Bay drew attention. It has been argued that Bay's own theoretical contribution provides an inadequate explanation for differences in attitude to authority. The position is taken in this thesis that while the absence of ego-defensive motivations may enable a person to be independent of, or oppose authority, a fuller theoretical understanding of such radical attitudes is needed to explain why there is in some students such a strong need for novelty, diversity and differentiation which predisposes such people to oppose authorities.

13. (iv) Implications for change

The results of this study suggest that it is the extremely pro-authority student, being intolerant of ambiguities, dogmatic, and low in both emotional activation and creative independence, who is likely to be in need of psychological help to free his restricted personality in some way. This is not to suggest that the "anti-authoritarian" is the ideal type. For example, a strong and persistent desire for novelty and diversity may be a result of a need for continual distraction deriving from difficulties in coping with everyday life; similarly open-mindedness may be interpreted as an inability to maintain firm beliefs in anything, however strong the evidence may be; cognitive complexity may be a consequence of an inability or unwillingness to recognize similarities between people, and a high degree of creative independence may reflect an immature desire to appear different from others. In many respects the anti-authority students identified in this study resemble the "sensitisers" whose personality characteristics have been contrasted with "repressives" by Weissman and Ritter (1970). On the basis of results obtained from the Byrne R.S. Scale and a variety of personality measures, these authors concluded that sensitizers were rebellious and

critical, less bound than repressives by rigid rules and conventional schemata, unplanful, preferring complexity and variety, relatively open to experience, impatient and action-oriented. Unlike Bay's conception of the anti-authority student, however, they also appeared as relatively unsociable and personally troubled, qualities which are hard to reconcile with the positive characterisations of student activist radicals elaborated by Keniston (1967), Hampden-Turner (1970) and others.

These are, then, possibilities that should be examined before the extreme personality scores of the anti-authority student are taken as providing desirable objectives for people who are concerned with encouraging particular modes of psychological development. It seems that one can be more sure of the restrictiveness of the personalities of many pro-authority students than one can be confident of the psychological healthiness or maturity of personality characteristics associated with the extreme radical student. This is largely because of the theoretical consistency of the characteristics of the "authoritarian personality", which overlap considerably with the personality correlates of attitude to authority found in this study.

It must be emphasised that pro-authority attitudes may, in some cases, be explained in ways that are probably unrelated to ego-defensive theory; correlations between the personality characteristics and attitudes though significant are low, and there are many instances in the samples of pro-authority students who do not conform to this predicted personality type. Some students may support authorities strongly as a result of a closely reasoned view of the necessity for obedience to authority in the interests of social cohesion, efficiency or even survival. (Such attitudes may be more than rationalisations). Authorities may, in the experiences

of some students, have appeared generally expert, trustworthy and reasonable, and such attitudes may be regarded as fulfilling the function of realistic object appraisal (Smith et al, 1960). In addition, pro-authority students who are cognitively simple without apparently being ego-defensive have been suggested. Other students favouring authority strongly may do so because of a temporary need to conform, so as to cope with a short-term sense of insecurity that is more transient than ego-defensive theory usually assumes. Wilkinson (1972) refers to such a reaction as "situational authoritarianism" to distinguish it from the more deeply based type described by Adorno et al (1950) and Rokeach (1960).

Having said this, however, there is clear evidence that a substantial proportion of pro-authority students do conform to a particular personality type, and the most likely explanation for the characteristics they show is in terms of ego-defence against uncertainties that arise from both internal and external sources. In other words, one may regard the strongly pro-authority student as frequently adopting very favourable attitudes to authority because they help him to cope with a deep sense of insecurity.

It is clear, as Kelman (1961) has shown, that attitudes are formed according to different processes and may be regarded as serving particular functions for the individual who holds them. An understanding of how a particular attitude has been formed is necessary for any systematic attempt to change it. Sarnoff (1960) argues that pro-authority attitudes are unlikely to be affected by rational argument, or by demonstrating the "benefits" of attitude change. Where a system of thinking is relatively closed, it is difficult or impossible for a person to entertain new notions or to experiment with new behaviour. The anxieties aroused are too great. In attempting to change pro-authority attitudes a paradoxical

situation may arise, where the potential agent of change is perceived as an authority and any direct instruction to be independent or to oppose authority is likely to be responded to, if at all, in a superficial or role-playing way.

Opposing authority "because authority says so" is thought to be unlikely to affect a change of much significance. What can reasonably be attempted, however, is to encourage the student to trust more his own powers of judgement; to help him towards a greater degree of self-acceptance, by accepting him as Rogers (1951) has argued, in a significant relationship. In this way an attitude towards authority may develop that is more rationally based.

A P P E N D I C E S

Appendix 0.a.Confidence Limits for Alpha Reliability Estimates

In Chapters 2 and 11 Alpha values for the same scale given to different independent samples of subjects are compared. No conventional method of estimating the significance of the difference between two independent alpha values is known.

However, Kristof (1972) has presented formulae which may be used to estimate the confidence intervals for a particular Alpha value. In particular, formula 21 (op. cit., p. 383) gives a conversion to Student's t as follows :

$$t = \frac{\hat{\alpha} - \rho}{2 \sqrt{(1 - \hat{\alpha})(1 - \rho)}} \sqrt{N - 1}, \quad df = N - 1,$$

where $\hat{\alpha}$ is the estimated reliability of the total test, and ρ is the population reliability coefficient.

In this formula, $\hat{\alpha}$ was defined by Kristof in terms of a maximum-likelihood estimation of α . However, it would seem possible to regard Cronbach's Alpha as an approximation to $\hat{\alpha}$, and to use the above formula to calculate confidence limits. The assumptions underlying the formula are those of binormality and equivalence of the parts of the test.

The formula may be used to obtain approximate confidence limits for each of the obtained Alphas, as described in detail below. If two Alpha values have non-overlapping confidence intervals using say the 5% two-tail criterion, then the values may confidently be regarded as significantly different. If, however, some part of the confidence interval of one Alpha overlaps the confidence interval of the second Alpha, the difference is not regarded as significant,

Appendix O.a. (continued)

using this conservative procedure.

In order to calculate the confidence intervals, the above formula for testing point hypotheses must first be converted to the form for calculating confidence limits. In this case, t is known (for the 5% level with $df = N-2$) and $\hat{\alpha}$ is the obtained Alpha value. The confidence limits are given by the solutions to the following quadratic equation which has been derived from that given above :

$$(N-1)\rho^2 + \{4t^2(1-\hat{\alpha}) - 2(N-1)\hat{\alpha}\} \rho + \{(N-1)\hat{\alpha}^2 - 4t^2(1-\hat{\alpha})\} = 0$$

The three constants for the equation were calculated for each Alpha value, and these were then submitted to a programme for the solution of quadratic equations (supplied by Texas Instruments for their S.R. 52 calculator). As a check, the example given by Kristof (op.cit., p.383) was used, and his published values for the upper and lower p values were confirmed.

Appendix O.b.

Alpha values for samples of subjects completing the same attitude scales, with 5% confidence limits, showing extent of overlap of the confidence intervals.

Scale	Sample	Alpha (A)	N	5% confidence limits		Range of confidence (graph. display)				
				Lower	Upper	0.6	0.7	0.8	0.9	1.0
Police	A	.96	112	.942	.972					
	B	.92	261	.898	.937					
	C	.92	82	.876	.948					
Teacher	Initial	.92	279	.899	.937					
	Replication	.89	80	.828	.929					
Army	Initial	.95	280	.937	.960					
	Replication	.91	80	.860	.942					
Law	Initial	.92	277	.899	.937					
	Replication	.89	80	.828	.929					
Symbolic Authority	Initial	.86	299	.824	.888					
	Replication	.82	83	.681	.924					

Appendix 1a.

Inter-item correlation matrix for the Police Scale given to
82 first-year University of Adelaide students (34 males and 48 females)

(Decimal points have been omitted)

	I T E M S																						
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	41	56	39	24	30	41	25	48	38	37	23	36	31	30	01	15	44	23	39	14	20	05	37
2		48	53	40	37	64	16	64	23	38	33	43	41	46	36	43	49	23	52	38	31	43	18
3			51	31	42	50	33	49	34	47	26	45	37	29	29	41	49	42	43	30	29	19	35
4				44	47	51	46	57	29	55	49	61	39	36	44	30	52	34	51	24	30	24	26
5					35	27	24	33	40	42	48	49	32	35	27	40	34	33	24	42	26	26	40
6						51	21	41	25	26	25	40	21	43	33	24	30	28	34	39	32	36	31
7							35	70	18	41	25	45	27	48	35	33	54	27	52	25	26	48	21
8								28	34	37	27	42	33	23	29	21	45	31	34	20	22	23	33
9									41	49	36	49	37	46	31	23	51	44	57	30	31	39	29
10										30	29	35	30	17	01	19	29	41	23	32	32	03	51
11											56	46	30	33	20	11	47	25	59	10	22	22	24
12												36	37	30	15	28	49	37	46	24	28	10	29
13													31	42	29	31	51	38	59	25	26	28	39
14														21	27	48	66	42	41	38	31	18	22
15															40	29	32	22	46	22	28	57	21
16																30	14	13	24	33	05	53	07
17																	35	27	30	34	42	24	26
18																		43	60	32	40	28	23
19																			40	20	34	07	39
20																				17	35	32	32
21																					29	38	36
22																						22	30
23																							10

Note: The items are as given in Table 1.

Appendix 1b. Inter-item correlation matrix for the Police Scale given to 261 S.A.I.T. students (164 males and 97 females)

(Decimal points have been omitted)

	I T E M S																							
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	54	38	58	40	40	49	33	54	28	26	33	48	36	40	24	20	43	39	35	37	28	46	35	
2		31	54	36	37	60	28	52	22	17	30	47	31	40	34	22	40	37	36	34	27	51	26	
3			45	36	44	36	24	44	27	31	22	43	35	35	22	34	40	33	30	36	25	30	28	
4				44	41	56	36	55	34	25	30	50	40	39	24	27	45	37	39	33	27	42	34	
5					33	38	25	37	30	23	30	34	26	29	17	30	29	23	20	20	21	35	35	
6						46	27	40	36	27	25	39	32	41	32	27	34	34	36	28	30	45	29	
7							29	64	33	17	30	39	37	37	34	24	45	34	39	23	32	46	32	
8								28	21	18	24	35	17	21	18	21	24	25	17	36	24	31	26	
9									36	24	37	43	40	46	38	30	46	39	44	28	28	58	35	
10										25	23	37	18	21	18	13	32	25	21	33	32	24	32	
11											42	26	31	18	20	20	24	19	22	19	24	24	25	
12												30	33	27	34	35	25	22	32	18	22	27	21	
13													25	40	34	37	31	39	38	52	40	45	39	
14														37	29	35	41	28	42	22	21	37	22	
15															42	27	23	26	34	16	17	55	24	
16																	29	20	20	34	11	22	39	17
17																		23	27	24	17	29	27	
18																			29	38	25	34	35	
19																				31	34	28	39	
20																					23	43	27	
21																						25	43	
22																						27	38	
23																							31	

Note: The items are as given in Table 1.

Appendix 2. Inter-item correlation matrix for the Army Scale, given to 360 first-year University of Adelaide students (192 males and 168 females)

(Decimal points have been omitted)

	I T E M S																													
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	40	44	32	35	52	38	38	37	47	35	46	44	51	32	47	35	31	36	37	31	39	28	40	42	41	44	41	49	27	
2		35	42	39	39	47	32	32	38	43	52	37	40	27	43	33	33	28	42	38	43	36	41	34	37	44	37	34	30	
3			28	29	39	28	34	40	33	23	38	26	38	28	37	28	27	26	29	31	39	25	28	40	35	32	36	38	12	
4				53	35	41	35	28	39	33	39	38	29	38	39	29	40	33	53	37	35	35	48	44	48	44	48	40	51	
5					29	52	32	29	33	38	39	36	30	35	51	24	31	34	54	36	32	28	54	38	46	40	43	43	41	
6						36	36	42	38	31	46	38	45	19	39	38	36	40	37	39	40	22	35	46	38	41	41	47	29	
7							35	31	37	41	42	36	36	30	47	32	34	31	51	35	37	35	53	41	52	35	46	40	39	
8								34	29	30	39	35	39	22	40	28	29	20	37	31	31	28	41	30	35	37	43	44	34	
9									42	38	42	32	31	19	33	33	30	35	30	36	39	27	32	36	32	26	37	44	16	
10										36	50	35	46	25	41	31	32	33	33	31	45	23	32	29	31	35	39	44	30	
11											43	43	31	22	40	28	31	27	37	34	39	26	41	30	32	33	35	44	34	
12												37	48	24	46	38	33	43	40	44	48	30	39	46	37	42	39	46	36	
13													38	35	45	30	43	35	42	38	36	29	50	41	44	50	42	39	35	
14														31	41	28	29	35	37	34	36	28	36	41	39	44	39	46	31	
15															37	26	17	28	38	31	28	25	30	33	34	31	34	26	28	
16																30	35	36	48	36	42	29	57	47	57	50	44	46	36	
17																	18	38	31	35	31	27	28	30	26	26	34	33	24	
18																		33	37	32	29	23	37	32	32	36	34	40	28	
19																			41	40	35	25	38	41	36	33	37	36	24	
20																				50	38	30	55	44	51	44	50	38	40	
21																					34	22	40	45	35	41	33	36	28	
22																						33	43	43	43	37	45	38	31	
23																							37	25	38	38	33	38	25	
24																								41	59	51	47	44	44	
25																									51	46	51	50	37	
26																													34	
27																														40
28																														40
29																														38

Note: The items are as given in Table 3.

Appendix 3. Inter-item correlation matrix for the Law Scale given to 357 University of Adelaide students (178 males and 179 females)

(Decimal points have been omitted)

I T E M S

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	26	21	39	25	31	31	07	32	18	37	29	12	29	32	31	32	28	29	18	33	06	15	25	28	24	24	24
2		54	26	18	35	32	03	30	23	23	25	20	22	24	33	29	27	26	30	23	17	17	15	29	23	13	11
3			30	22	52	29	13	23	39	22	37	35	16	25	49	29	44	25	42	27	21	32	26	40	25	20	21
4				31	33	24	05	35	22	39	29	27	29	39	35	37	30	28	30	41	21	23	22	34	36	26	31
5					33	36	12	35	19	35	30	16	21	28	28	37	28	30	23	37	21	20	20	29	23	36	24
6						37	15	30	38	28	44	34	14	32	56	41	49	32	43	29	22	31	33	45	34	28	23
7							15	40	22	32	33	12	26	23	30	38	26	38	28	28	14	21	19	34	26	28	20
8								18	23	05	21	13	11	20	17	13	20	19	20	04	21	11	12	13	13	19	08
9									23	39	39	16	39	33	26	40	21	37	20	37	11	23	20	29	24	34	20
10										20	36	27	14	26	47	29	38	23	33	31	21	30	34	38	20	19	16
11											32	13	32	39	27	40	27	31	17	40	12	21	19	32	31	33	25
12												27	32	28	37	47	37	49	32	32	17	37	35	41	24	46	20
13													14	15	37	17	34	19	32	20	28	23	18	31	28	16	15
14														24	17	32	24	29	17	26	06	14	12	24	22	27	23
15															37	33	40	30	32	31	22	26	24	29	44	20	20
16																40	61	29	45	35	33	32	34	50	31	28	26
17																	41	44	30	47	11	21	19	44	26	39	20
18																		34	42	30	30	34	34	50	29	37	25
19																			28	36	17	37	26	45	26	41	21
20																				21	31	27	28	35	22	22	16
21																					13	30	23	35	32	34	27
22																						32	15	21	22	24	14
23																							41	31	24	34	17
24																								25	20	31	20
25																									30	45	29
26																										23	22
27																											17

Note: The items are as given in Table 5.

Appendix 4. Inter-item correlation matrix for the Teacher Scale given to 359 University of Adelaide students (178 males and 181 females)

(Decimal points have been omitted)

	I T E M S																													
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1	06	30	24	20	18	26	22	21	16	23	24	24	19	21	17	30	20	31	22	29	19	24	31	25	30	20	27	29	26	
2		19	22	17	38	24	00	15	18	22	19	15	15	30	20	21	14	18	18	27	11	27	18	18	27	30	27	22	24	
3			25	15	25	23	33	31	14	25	37	38	19	23	14	33	30	33	27	31	19	25	31	34	36	31	44	39	38	
4				20	32	08	10	20	12	29	28	13	06	31	14	24	23	21	07	27	16	25	14	16	20	23	23	26	28	
5					37	22	07	33	08	31	15	18	11	30	27	25	32	26	23	31	15	23	22	19	20	25	31	31	34	
6						22	16	34	11	33	30	20	11	40	28	39	31	30	31	31	19	29	28	26	32	43	39	35	47	
7							12	11	13	19	19	16	31	27	27	13	14	33	23	30	03	15	30	37	23	23	24	21	24	
8								20	13	20	22	31	11	16	08	16	15	26	15	21	26	24	15	14	23	09	24	13	17	
9									07	36	35	31	15	36	20	48	34	27	26	34	22	18	21	19	32	41	47	31	45	
10										15	15	17	07	15	00	17	09	11	15	18	10	06	24	20	21	12	18	16	15	
11											42	29	14	38	23	30	34	37	23	43	22	35	26	18	26	34	43	35	37	
12												37	19	39	16	35	31	26	22	36	16	30	20	24	36	39	36	41	42	
13													20	18	12	36	19	20	19	21	15	27	22	28	28	25	34	35	27	
14														20	19	16	10	26	24	18	06	06	28	29	15	12	14	16	12	
15															20	39	34	33	24	41	22	31	31	30	30	45	36	31	38	
16																16	10	31	29	35	14	22	32	23	17	26	27	17	21	
17																	30	34	20	29	22	18	31	34	48	47	47	45	42	
18																		37	14	36	23	22	27	25	26	30	38	31	40	
19																				36	42	24	33	40	34	37	33	39	33	31
20																					40	16	24	24	34	20	25	30	24	29
21																						30	35	34	30	28	37	41	33	37
22																							36	26	19	19	23	28	17	22
23																								24	21	24	30	25	31	24
24																									41	34	26	31	36	23
25																										33	25	28	28	23
26																											43	43	41	36
27																												55	46	54
28																													49	51
29																														47

Note: The items are as given in Table 7.

Appendix 5. Item-total correlation matrix for the Symbolic Authority Scale, given to 382 University of Adelaide students (193 males and 189 females)

(Decimal points have been omitted)

	I T E M S																							
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	04	13	17	06	19	24	14	04	18	09	12	17	20	28	01	08	16	-02	25	14	15	15	11	
2		15	24	13	32	12	32	19	13	05	16	28	19	24	12	08	14	12	20	29	01	15	21	
3			41	08	22	40	21	18	33	27	06	25	33	45	08	08	29	16	31	13	41	15	17	
4				10	28	39	24	10	30	29	18	28	27	37	16	03	36	06	29	14	27	13	14	
5					18	17	16	12	24	14	51	31	13	17	12	07	08	08	00	15	08	17	04	
6						27	36	28	20	12	27	52	31	32	23	14	27	19	27	27	14	24	22	
7							23	12	42	36	22	29	34	43	02	06	38	08	35	12	38	24	18	
8								25	28	24	29	44	24	36	18	08	17	23	31	22	18	23	15	
9									17	08	10	32	08	16	19	10	08	11	17	16	09	12	13	
10										32	23	36	29	42	06	13	25	10	24	19	24	24	17	
11											23	23	20	22	07	06	23	08	25	10	25	20	05	
12												32	08	18	05	10	22	12	13	13	08	22	04	
13													29	31	17	13	22	17	28	27	16	31	19	
14														43	06	09	28	09	35	15	24	12	30	
15															11	16	38	16	34	18	34	23	26	
16																04	05	15	06	14	08	08	10	
17																	03	08	12	05	08	10	02	
18																		05	20	08	24	16	15	
19																			14	21	13	09	08	
20																				21	23	08	20	
21																					12	21	12	
22																						09	25	
23																							10	

Note: The items are as given in Table 9.

Appendix 6a.Revised version of Hudson's Independence ScaleOPINION QUESTIONNAIRE

The following questions are a matter of personal judgement. Obviously, there are no right answers. However, in making up your mind, you may like to take into account the opinions of other people. These same questions have recently been put to a group of graduating students, and their answers are recorded for you to see. The alternative answers to each of questions 1 to 25 have been arranged so that the first alternative is the most popular one among the third year students, the second alternative is the second most popular, and third alternative is the third most popular, and so on. Thus, in question 1, Clarissa is the most popular name for the foolish debutante and Anne the least popular.

Which of the following seem to you the most suitable names for characters in a television play? Pick one from each group of 6 and encircle it.

1. The beautiful but foolish debutante: Clarissa, Alicia, Hermione, Sybil, Patricia, Anne.
2. The portly and slightly dishonest business tycoon who would like his son to marry the debutante:
Snyder, Ramsbottom, Bunton, McCulloch, Robins, Jones.
3. The tycoon's ambitious, unscrupulous girlfriend:
Marilyn, Barbara, Ethel, Wendy, Joan, Margaret.
4. The blackmailer - the tycoon's girlfriend's younger brother:
Monty, Sidney, Cedric, Rupert, Arthur, John.
5. The middle aged detective who unmasks the blackmailer, and marries the debutante:
Ames, McIlroy, Marshall, Sneddon, Prufrock, Smith.

Consider Australia in the year A.D. 2000. What, in your opinion, is most likely?

6. Number of motor cars on the roads: 3 million, 2.5 million, 2 million, 1.5 million, 1.0 million, 0.5 million.
7. Average expectation of life:
75-79, 70-74, 80-84, 65-69, 60-64, 55-59 years.
8. Number of television sets:
9 million, 11 million, 7 million, 5 million,
3 million, 13 million.

Revised version of Hudson's Independence Scale (continued)

9. Average age at which people will marry:
20-21, 22-23, 18-19, 24-25, 16-17, 14-15.

10. Total population:
30 million, 20 million, 50 million, 10 million,
70 million, 90 million.

Which one of the following places would you like to visit on a holiday? Pick one from each group of six:

11. Athens, Venice, Oslo, Lisbon, Edinburgh, Dublin.
12. Paris, Vienna, Madrid, London, Naples, Budapest.
13. Mexico, San Francisco, New York, New Orleans, Boston, Chicago.
14. Tokyo, Singapore, Peking, Istanbul, Calcutta, Lhasa.
15. Rio de Janeiro, Tahiti, Cape Town, Brasilia, Bermuda, Lima.

Of the following colours or combinations of colours, which strike you as:-

16. The most pleasant:
blue and green, red and blue, blue and yellow,
red and yellow, red and orange, blue and brown.
17. The least pleasant:
yellow and pink, orange and pink, red and green,
orange and yellow, yellow and blue, black and white.
18. The most suitable colour for a sports car:
red, white, green, blue, brown, black.
19. The most suitable colour for a family saloon car:
white, blue, green, black, red, brown.
20. The most suitable colour for a young woman's dress:
blue, red, yellow, pink, fawn, grey.

Which of the following forms of crime, vice or misbehaviour strikes you as worst? Pick one from each group of six:

21. Assault and battery, blackmail, drunken-driving, robbing banks, forgery, tax evasion.
22. Obscene films, gambling, prostitution, obscene books, strip tease, homosexuality.
23. Dangerous driving, cruelty to animals, unfaithfulness, financial dishonesty, drunkenness, blasphemy.
24. Deceitfulness, avarice, greed, disloyalty, conceit, cowardice.

Revised version of Hudson's Independence Scale (continued)

25. Bullying, stealing, cheating in exams, lying, being a bad loser, telling tales.

Note: Modifications to Hudson's original version:

1. The second section (Questions 6-10) has been altered so as to be more appropriate to Australian subjects.
2. Questions 22, 23, 24 were changed in view of Hudson's criticisms of the original items that preferences for certain choices were too strong.

Appendix 6b.

Sums of ranks for preferences given to alternative answers provided in the revised version of Hudson's Independence Scale by thirty-one Third-Year Social Work students at the S.A.I.T. (5 males and 26 females).

<u>Item</u>	<u>Obtained order of responses</u>					
	<u>(as in the final version)</u>					
	1	2	3	4	5	6
1	54	88	111	113	132	153
2	71	91	97	100	141	151
3	75	89	115	118	121	133
4	79	89	106	112	125	140
5	86	88	92	110	123	152
6*#	60	67	89	109	125	-
7*	62	75	96	99	134	164
8*	84	89	90	110	116	141
9*	69	69	85	113	129	165
10*	50	56	91	132	132	169
11	83	90	91	125	127	135
12	70	97	113	121	122	128
13	83	86	87	115	136	144
14	81	97	97	100	130	146
15	76	77	112	116	126	144
16	64	103	111	120	123	130
17	75	85	103	113	124	151
18	60	63	106	109	146	167
19	61	83	93	136	137	141
20	66	97	100	104	132	152
21*	50	75	100	117	122	166
22	86	90	101	114	119	141
23*	65	80	98	104	125	158
24	80	93	98	106	120	154
25	87	88	105	106	132	133

Notes:

1. Items are as given in Appendix 6a.
2. * N = 30 in these cases, as one subject left out Questions 6-10, another left out Question 21, and a third left out Question 23.
3. # Question 6 was typed incorrectly in the pilot version, with 5 not 6 alternatives. It has been assumed that the 6th choice would have been 0.5 million since the obtained order was 3.0m, 2.5m, 2.0m, 1.5m, 1.0m.

Appendix 6c.

Inter-item correlation matrix for the Independence Scale given to 175 S.A.I.T. students (106 males and 69 females). (Decimal points have been omitted).

		I T E M S																								
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
1	05	05	17	18	-08	-06	08	17	05	05	00	10	12	20	16	-05	22	02	11	17	07	-03	10	-02		
2		-01	07	05	06	06	-01	01	-10	-11	-03	09	08	02	07	16	02	-08	-01	-03	-11	06	10	21		
3			21	10	06	-03	-01	-07	04	03	03	13	-02	17	10	06	11	-04	01	08	10	03	06	04		
4				05	-05	-03	08	06	04	-02	02	02	09	01	13	-03	07	12	06	04	06	-04	21	-02		
5					-14	08	00	03	05	05	-06	-01	10	08	09	00	05	-03	09	06	02	-05	11	08		
6						04	11	18	10	-04	07	03	-04	04	10	-01	05	-01	14	-05	08	05	11	08		
7							01	05	12	-11	-02	-10	05	-01	10	05	-03	10	02	13	11	16	14	-09		
8								15	17	-01	-10	10	07	01	09	10	04	02	04	00	10	11	05	00		
9									18	06	02	-01	10	08	13	12	07	-05	06	15	03	08	03	-01		
10										08	-04	05	13	16	03	-04	10	07	-04	02	03	05	-01	-08		
11											05	10	-02	12	-17	03	-01	17	03	20	-06	01	02	03		
12												01	-01	13	-02	05	06	03	06	-04	-04	-01	04	-05		
13													01	11	10	-03	01	-02	01	00	08	14	02	08		
14														17	-13	-02	-01	08	02	10	-15	03	-16	-03		
15															-04	01	20	05	05	10	-07	01	-04	12		
16																05	03	-02	12	03	15	01	16	00		
17																	05	-02	01	13	07	06	-15	-01		
18																		-06	-02	01	13	07	06	-15	-01	
19																			-05	08	01	-11	02	10	11	
20																				02	05	-04	-04	-01	-12	
21																					-07	14	-07	13	-02	
22																						-06	07	02	02	
23																							15	16	03	
24																								14	15	00

The items are given in Appendix 6a.

Appendix 6dThe Independence Scale : item-total correlations
(corrected).

Item (abbreviated*)	Samples			
	A	B	C	D
<u>Characters in a television play</u>				
1. The beautiful but foolish debutante	.19	.35	.27	.20
2. The portly, dishonest tycoon	.18	.05	.09	.20
3. The tycoon's girl friend	.02	.38	.18	.18
4. The blackmailer	.18	.20	.20	.28
5. The middle-aged detective	.03	.21	.10	.15
<u>Australia in A.D. 2000</u>				
6. Number of motor cars	.04	.30	.13	.13
7. Average expectation of life	.00	.32	.12	.19
8. Number of television sets	.28	.07	.17	.08
9. Average age of marrying	.22	.22	.23	.32
10. Size of total population	.15	.25	.17	.19
<u>Preferred places to visit</u>				
11. Athens, Venice ...	.05	.06	.06	.00
12. Paris, Vienna ...	-.03	.05	.01	.01
13. Mexico, San Francisco ...	.07	.23	.16	.27
14. Tokyo, Singapore ...	.18	.07	.05	.14
15. Rio de Janeiro, Tahiti ...	.31	.19	.23	.19
<u>Choice of colours</u>				
16. The most pleasant	.09	.26	.19	.16
17. The least pleasant	-.04	.14	.06	.12
18. The most suitable for a sports car	.08	.21	.16	.19
19. The most suitable for a family saloon	.10	-.01	.04	.10
20. The most suitable for a young woman's dress	.10	.25	.17	.11
<u>The worst crime, vice or misbehaviour</u>				
21. Assault and battery ...	.08	.24	.16	.35
22. Obscene films ...	.01	.26	.13	.06
23. Dangerous driving ...	.11	.15	.15	.19
24. Deceitfulness ...	.21	.12	.19	.16
25. Bullying ...	.05	.09	.07	.05

*See Appendix 6a for expanded version of the test.

Sample A : 106 males (56 first year and 50 later year)

Sample B : 69 females (44 first year and 25 later year)

Sample C : Sample A + Sample B

Sample D : A sub-sample of Sample C - 100 first year students
(50 males and 44 females)

Appendix 7

Inter-item correlation matrix for the Radicalism Scale,
 given to 80 University of Adelaide students (33 males
 and 47 females).

	2	3	4	5	6	7	8	9	10	11	12	13	14
1	40	25	40	44	11	31	20	29	37	41	44	36	43
2		37	54	20	32	30	40	30	38	46	26	53	44
3			26	30	28	10	18	14	28	30	17	27	23
4				47	34	45	49	40	36	55	50	53	42
5					17	24	26	16	38	48	23	24	38
6						47	37	20	48	46	20	36	46
7							46	44	33	46	30	34	28
8								21	32	35	40	38	23
9									33	30	21	32	29
10										65	25	43	53
11											30	53	63
12												37	32
13													43

Note: The items are as given in Table 13.

Appendix 8Eleven-point Rating Scales assessing attitudes towards various authorities.Instructions

This brief questionnaire is intended for people who recently took part in a study of students' attitudes towards various authorities. It would be interesting and useful to know how students assess themselves (without a questionnaire) on dimensions of attitude toward authority.

Could you please put a mark in the position that best represents your attitude in each case.

Pro army	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	Anti-army
Pro police	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	Anti-police
Pro teachers	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	Anti-teacher
Pro law	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	Anti-law
Pro authority (generally)	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	:-:	Anti-authority (generally)

Thank you for co-operating in this study. I hope the results will be of interest to you in due course.

Appendix 9aBiographical Report Questionnaire

The following questions are mainly about your relations with various kinds of authorities. As they are of a personal nature, it is emphasised that your responses will be anonymous and can appear in subsequent analyses only as statistics. It is hoped that the answers will be useful in validating the scales and in providing some norms of student behaviour.

In each case tick the alternative closest to your position.

1. Looking back on your school days, do you think you were in strife with your teachers,
 - (1) Much less than most students.
 - (2) Rather less than most students.
 - (3) About the same as most students.
 - (4) Rather more than most students.
 - (5) Much more than most students.
2. Would you say you were punished by teachers at school,
 - (1) Less than average.
 - (2) About the same as most students.
 - (3) More than average.
3. Did you, at any time during your school career, work towards sabotaging or disrupting lessons,
 - (1) No, never.
 - (2) Occasionally.
 - (3) Quite often.
 - (4) Most of the time.
4. Were you a prefect at school?
 - (1) Yes.
 - (2) No.

Biographical Report Questionnaire (continued)

This section is about demonstrations, which may be defined as public displays, e.g. a march, designed to draw attention to some social evil or abuse. Only tick if you have actively taken part in one or more.

- 5(a) (1) Opposition to the draft.
- (2) Against the war in Vietnam.
- (3) Against American foreign policies or Imperialism.
- (4) Against racial discrimination.
- (5) For greater student power in Education.
- (6) In favour of Women's Liberation.
- (7) The abuse of Psychiatry.
- (8) Against censorship.
- 5(b) In particular, did you take part in either
- (a) Vietnam Moratorium marches.
- (b) Demonstrations against the South African Rugby tour.
- Add any further demonstrations in which you have taken part.
- (1)
- (2)
- (3)
- (4)
- (5)
6. Have you ever been "picked on" by the Police?
- (1) Never.
- (2) Occasionally.
- (3) Frequently.
7. Have you ever been treated roughly (physically) by the Police?
- (1) Never.
- (2) Occasionally.
- (3) Frequently.

Biographical Report Questionnaire (continued)

8. Do you attend Church?

(1) Never.

(2) Occasionally.

(3) Frequently.

9. Would you say that you got on with your parents,

(1) Better than most people do.

(2) About the same as most.

(3) Worse than most people do.

10. List any voluntary organisation to which you belong, e.g. Y.M.C.A., Football Club, etc.

(1) (5)

(2) (6)

(3) (7)

(4) (8)

11. In any of the above organisations have you occupied any positions of authority, e.g. treasurer, group leader, etc. List positions.

(1)

(2)

(3)

(4)

(5)

Appendix 9b

Contingency tables relating to the validity of the C.A.S. and the Radicalism Scale for 80 University of Adelaide students, based upon autobiographical reports.

Subjects scoring below the median on the C.A.S. were categorised as AA (anti-authority), the remainder as A (pro-authority). Subjects scoring above the median on the Radicalism Scale were categorised as Rad (Radical), the remainder as Cons (Conservative).

A.

Participation in Demonstrations(a) Number of demonstrations reported

				<u>Males</u>			
	None	1 or more		None	1 or more		
A	14	3		Cons.	15	2	
AA	4	12		Rad.	3	13	
	Chi square = 8.74 p < .001			Chi square = 13.37 p < .001			
				<u>Females</u>			
	None	1 or 2	More than 2	None	1 or 2	More than 2	
A	20	4	0	Cons.	22	5	0
AA	7	6	10	Rad.	5	5	10
	Chi square = 16.65 p < .001			Chi square = 20.11 p < .001			
				<u>Both sexes</u>			
	None	1 or 2	More than 2	None	1 or 2	More than 2	
A	31	8	1	Cons.	37	7	0
AA	14	10	16	Rad.	8	11	17
	Chi square = 19.88 p < .001			Chi square = 36.13 p < .001			

Note: The median position for Tables A -F was found separately for male and female sub-groups. For the Radicalism Scale, owing to tied scores at the median the numbers of respondents above and below the median are unequal.

Appendix 9b (continued)

- (b) Taking part in either a Vietnam Moratorium march or the South African Football Tour demonstration. Persons taking part in either are categorised as Dems.; those not taking part in either as Non-dems.

Males

	Dems.	Non-dems.		Dems.	Non-dems.
A	0	17	Cons.	1	16
AA	11	5	Rad.	10	6
	Chi square = 14.57 p < .001			Chi square = 9.48 p < .001	

Females

	Dems.	Non-dems.		Dems.	Non-dems.
A	1	23	Cons.	1	26
AA	11	12	Rad.	11	9
	Chi square = 9.59 p < .01			Chi square = 13.32 p < .001	

Both sexes

	Dems.	Non-dems.		Dems.	Non-dems.
A	2	38	Cons.	2	42
AA	21	19	Rad.	21	15
	Chi square = 19.77 p < .001			Chi square = 25.40 p < .001	

Appendix 9b (continued)B. Attendance at Church

Subjects were categorised as "never" attending or "sometimes" attending Church.

		<u>Males</u>				
		Never	Sometimes		Never	Sometimes
A	5	12	Cons.	4	13	
AA	10	6	Rad.	11	5	
Chi square = 2.43 (n.s.)			Chi square = 5.10 p < .05			

		<u>Females</u>				
		Never	Sometimes		Never	Sometimes
A	3	21	Cons.	7	20	
AA	10	13	Rad.	6	14	
Chi square = 4.19 p < .05			Chi square = 00 (n.s.)			

		<u>Both Sexes</u>				
		Never	Sometimes		Never	Sometimes
A	7	33	Cons.	11	33	
AA	21	19	Rad.	17	19	
Chi square = 9.29 p < .001			Chi square = 3.38 p < .05			

Appendix 9b (continued)C. Relations with the Police

(a) Being "picked on" by the police. Persons were categorised as reporting "never" or "sometimes" having been picked on by the police.

		<u>Males</u>			
		Never	Sometimes	Never	Sometimes
A		12	5	Cons. 10	7
AA		5	11	Rad. 7	9
Chi square = 5.11		Chi square = .27			
p < .05		(n.s.)			

		<u>Females</u>			
		Never	Sometimes	Never	Sometimes
A		24	0	Cons. 25	2
AA		20	3	Rad. 19	1
By Fisher's Exact Test		By Fisher's Exact Test			
p > .05		p > .05			

		<u>Both sexes</u>			
		Never	Sometimes	Never	Sometimes
A		36	4	Cons. 35	9
AA		25	15	Rad. 26	10
Chi square = 6.90		Chi square = .25			
p < .01		(n.s.)			

Note The probability values for Fisher's Exact Test were obtained using a programme written by Dr. P. Delin, Department of Psychology, The University of Adelaide, for a Texas Instruments S.R. 52 calculator.

Appendix 9b (continued)Relations with the Police

- (b) Being roughly treated by the Police. Persons were categorised as reporting "never" or "sometimes" having been roughly treated by the police. (Due to the small number of persons in the "sometimes" category the results are presented for both sexes combined only).

	Never	Sometimes	<u>Both sexes</u>	
			Never	Sometimes
A	39	1	Cons. 43	1
AA	34	6	Rad. 30	6
	By Fisher's Exact Test		By Fisher's Exact Test	
	p = .05		p < .05	

Appendix 9b (continued)D. School experiences

- (a) Being "in strife" with teachers. Persons were categorised according to how much "strife" they judged themselves to have been in compared with others, that is "less" than most students, the "same" as most students, or "more" than most students.

		<u>Males</u>				
		Less	Same or More		Less	Same or more
A	7	10		Cons.	6	11
AA	6	10		Rad.	7	9
Chi square = .05.			Chi square = .02			
(n.s.)			(n.s.)			

		<u>Females</u>				
		Less	Same or More		Less	Same or more
A	18	6		Cons.	17	10
AA	8	15		Rad.	9	11
Chi square = 6.14			Chi square = .86			
p < .01			(n.s.)			

		<u>Both sexes</u>						
		Less	Same	More		Less	Same	More
A	24	16	0		Cons.	23	19	2
AA	15	13	12		Rad.	16	10	10
Chi square = 14.39			Chi square = 8.67					
p < .001			p < .01					

Appendix 9b (continued)

School experiences

- (b) Being punished by teachers. Persons were categorised as reporting having been punished "less" than average, the "same" as most students or "more" than average.

		<u>Males</u>				<u>Males</u>	
		Less	Same or More			Less	Same or more
A		8	9	Cons.		8	9
AA		6	10	Rad.		6	10
Chi square = .04 (n.s.)				Chi square = .04 (n.s.)			

		<u>Females</u>				<u>Females</u>	
		Less	Same or more			Less	Same or more
A		17	7	Cons.		15	12
AA		8	15	Rad.		10	10
Chi square = 4.77 p < .05				Chi square = .01 (n.s.)			

		<u>Both sexes</u>				<u>Both sexes</u>	
		Less	Same or more			Less	Same or more
A		22	18	Cons.		23	21
AA		17	23	Rad.		16	20
Chi square = .80 (n.s.)				Chi square = .22 (n.s.)			

Appendix 9b (continued)School experiences

(c) Sabotaging or disrupting lessons. Persons were categorized as reporting "never" or "sometimes" disrupting or sabotaging classes.

		<u>Males</u>					
		Never	Sometimes		Never	Sometimes	
A		9	8	Cons.	8	9	
AA		3	13	Rad.	4	12	
Chi square = 4.16				Chi square = .91			
p < .05				(n.s.)			

		<u>Females</u>					
		Never	Sometimes		Never	Sometimes	
A		11	13	Cons.	8	19	
AA		7	16	Rad.	10	10	
Chi square = .62				Chi square = 1.25			
(n.s.)				(n.s.)			

		<u>Both sexes</u>					
		Never	Sometimes		Never	Sometimes	
A		19	21	Cons.	16	28	
AA		11	29	Rad.	14	22	
Chi square = 2.61				Chi square = 00			
(n.s.)				(n.s.)			

Appendix 9b (continued)

- E. Relationships with parents. Persons were categorised as reporting "getting on" with parents "better" or "not better" than most students.

		<u>Males</u>			
		Better	Not better	Better	Not better
A		5	12	Cons.	6 11
AA		6	10	Rad.	5 11
Chi square = .02 (n.s.)			Chi square = .02 (n.s.)		

		<u>Females</u>			
		Better	Not better	Better	Not better
A		12	12	Cons.	11 16
AA		9	14	Rad.	10 10
Chi square = .21 (n.s.)			Chi square = .11 (n.s.)		

		<u>Both sexes</u>			
		Better	Not better	Better	Not better
A		19	21	Cons.	17 27
AA		13	27	Rad.	15 21
Chi square = 1.88 (n.s.)			Chi square = .00 (n.s.)		

Appendix 9b (continued)

F. Positions of Authority

(b) Having occupied positions of authority. Persons were categorised according to whether they reported having occupied a position of authority: if so, "yes"; if not, "no".

		<u>Males</u>				
		Yes	No		Yes	No
A		12	5	Cons.	11	6
AA		9	7	Rad.	10	6
Chi square = .24		(n.s.)		Chi square = .05		(n.s.)

		<u>Females</u>				
		Yes	No		Yes	No
A		15	9	Cons.	18	9
AA		14	9	Rad.	11	9
Chi square = .03		(n.s.)		Chi square = .26		(n.s.)

		<u>Both sexes</u>				
		Yes	No		Yes	No
A		26	14	Cons.	29	15
AA		24	16	Rad.	21	15
Chi square = .05		(n.s.)		Chi square = .22		(n.s.)

Appendix 9b (continued)Positions of Authority

- (a) Having been a prefect. Persons were categorised according to whether they had been a prefect at school: if so, "yes"; if not, "no".

		<u>Males</u>			
		Yes	No	Yes	No
A		6	11	Cons.	6 11
AA		6	10	Rad.	6 10
Chi square = .05		Chi square = .05			
(n.s.)		(n.s.)			

		<u>Females</u>			
		Yes	No	Yes	No
A		15	9	Cons.	13 14
AA		6	17	Rad.	8 12
Chi square = 4.91		Chi square = .07			
p < .05		(n.s.)			

		<u>Both sexes</u>			
		Yes	No	Yes	No
A		19	21	Cons.	19 25
AA		14	26	Rad.	14 22
Chi square = .82		Chi square = .03			
(n.s.)		(n.s.)			

Appendix 9cCorrelation Coefficients between attitude scales and reported behaviour indices.

The indices are numbered according to their appearance on the Biographical Report Questionnaire (see Appendix 9a). The direction of the predictions are given below:

Predicted positive correlation with the attitude to authority scales:

4. Being a prefect at school.
8. Attending Church.
9. Getting on well with parents.
11. Having occupied a position of authority.

Predicted negative correlations with attitude towards authority scales:

1. Being in strife with teachers.
2. Being punished by teachers.
3. Working towards sabotaging and disrupting lessons at school.
- 5a. Number of demonstrations participated in.
- 5b. Participating in the Vietnam Moratorium and/or the South African Football tour demonstration.
6. Having been picked on by the police.
7. Having been treated roughly by the police.

Correlation coefficients between attitude to authority scales and reported behaviour indices.

Males (N=33)	Predicted positive, rs				Predicted negative rs						
	4	8	9	11	1	2	3	5a	5b	6	7
Symbolic Authority	00	42	17	01	-01	04	-28	-54	-51	-21	-16
Teacher	-01	38	-03	08	-27	06	-33	-21	-32	-20	15
Army	-07	35	-03	01	12	19	-06	-61	-51	-13	-17
Law	00	34	17	-06	05	07	-21	-62	-52	-16	-22
Police	22	37	23	07	07	10	-20	-56	-51	-40	-28
G.A.S.	03	42	11	-01	-01	11	-25	-58	-54	-25	-16

Note: .05 level of significance (one tailed test) = .29.

Appendix 9c (continued)

Females (N=47)	Predicted positive rs				Predicted negative rs						
	4	8	9	11	1	2	3	5a	5b	6	7
Scale	4	8	9	11	1	2	3	5a	5b	6	7
Symbolic Authority	17	33	08	04	-47	-45	11	-53	-58	-10	-32
Teacher	14	13	14	05	-35	-34	01	-29	-30	-13	-18
Army	31	44	15	19	-56	-49	03	-49	-51	-04	-22
Law	14	42	15	14	-41	-41	-01	-33	-39	-10	-04
Police	46	51	23	17	-50	-42	-04	-33	-40	-11	-05
C.A.S.	16	46	19	15	-57	-53	02	-49	-54	-12	-19

Note: .05 level of significance (one tailed test) = .24.

Both sexes (N=80)	Predicted positive rs				Predicted negative rs						
	4	8	9	11	1	2	3	5a	5b	6	7
Scale	4	8	9	11	1	2	3	5a	5b	6	7
Symbolic Authority	11	40	14	-09	-30	-24	-08	-53	-54	-28	-26
Teacher	08	23	07	-07	-31	-17	-14	-25	-31	-15	01
Army	14	41	07	06	-28	-18	-02	-56	-51	-13	-20
Law	09	40	16	04	-25	-23	-09	-47	-45	-15	-15
Police	36	46	24	07	-28	-20	-12	-46	-45	-31	-20
C.A.S.	19	46	16	00	-34	-25	-11	-54	-54	-24	-19

Note: .05 level of significance (one tailed test) = .19.

Correlation coefficients between the Radicalism Scale and reported behaviour indices.

In the case of Radicalism, the direction of the predictions was reversed, with negative correlations predicted in relation to questions 4, 8, 9, and 11 and positive correlations predicted for 1, 2, 3, 5a, 5b, 6 and 7.

Questions	Predicted negative correlations				Predicted positive correlations						
	4	8	9	11	1	2	3	5a	5b	6	7
Males(N=33)	10	-41	-16	10	02	03	29	59	55	12	13
Females (N=47)	16	-21	03	-14	26	29	-10	59	57	00	19
Both sexes (N=80)	04	-30	-07	-01	16	17	09	59	56	09	15

Note: .05 levels of significance (one tailed test):
males = .29; females = .24; both sexes = .19

Appendix 10Correlations between the Photo Ambiguity Test and Budner's Intolerance of Ambiguity.Budner Scales

	Males (N=147)	Females (N=83)	Both Sexes (N=230)
Total Scale	.21**	.25**	.25***
Complexity subscale	.24**	.20*	.25***
Novelty subscale	.13	.21*	.17**
Insolubility subscale	.05	.12	.08

Budner Items (in order of magnitude of correlation for both sexes)

<u>Item</u>	Budner's Designation	Scoring + or -	Males	Females	Both
2. Often the most interesting and stimulating people are those who don't mind being different and original.	P.S.C.	-	-.35***	-.09	-.27***
16. What we are used to is always preferable to what is unfamiliar.	P.S.N.	+	.19**	.22*	.25***
9. A good teacher is one who makes you wonder about your way of looking at things.	O.S.C.	-	-.15*	-.05	-.15**
5. In the long run it is possible to get more done by tackling small, simple problems rather than large and complicated ones.	O.S.C.	+	.14*	.20*	.14*
14. Teachers or supervisors who hand out vague assignments give a chance for one to show initiative and originality.	O.S.C.	-	-.15*	-.06	-.13*

Appendix 10 (continued)

Item	Budner's Designation	Scoring + or -	Males	Females	Both
10. I would like to live in a foreign country for a while.	P.S.N.	-	-.04	-.22*	-.11*
6. People who insist on a Yes or No answer just don't know how complicated things really are.	P.D.C.	-	-.08	-.01	-.10
8. The sooner we all acquire similar values and ideals the better.	O.D.C.	+	.10	.03	.09
3. A good job is one where what is to be done and how it is to be done are always clear.	O.S.C.	+	.06	.08	.09
11. It is more fun to tackle a complicated problem than to solve a simple one.	P.S.C.	-	-.06	-.05	-.06
4. There is really no such thing as a problem that can't be solved.	P.D.I.	+	.03	.06	.05
7. An expert who doesn't come up with a definite answer probably doesn't know too much.	P.D.I.	+	.05	.06	.05
1. Many of our most important decisions are based upon insufficient evidence.	P.D.I.	-	-.02	-.09	-.04
15. I like parties where I know most of the people more than ones where all or most of the people are complete strangers.	P.S.N.	+	.00	.09	.03
13. People who fit their lives to a schedule probably miss most of the joy of living.	P.S.C.	-	+.06 [#]	-.16	-.03

Appendix 10 (continued)

<u>Item</u>	<u>Budner's Designation</u>	<u>Scoring + or -</u>	<u>Males</u>	<u>Females</u>	<u>Both</u>
12. A person who leads an even regular life in which few surprises or unexpected happenings arise, really has a lot to be grateful for.	P.S.C.	+	.06	.05	.05

Notes:

One tailed probabilities

• = .05

•• = .01

••• = .001

indicates a correlation in the non-predicted direction

Budner's designations: P= Phenomenological
 O= Operative
 S= Submission
 D= Denial
 C= Complexity
 I= Insolubility
 N= Novelty

Appendix 11The Cognitive Simplicity TestINSTRUCTIONS

The persons described on the right hand side of the grid represent individuals who you know personally. You are asked first to write down the initials of a person who fits each of the descriptions. Write them on the slip of paper stapled at the edge of the paper. This should be detached and kept afterwards. It is simply there to help you to concentrate on the persons you are going to rate. In space 1 you should write your own initials; in space 2 the initials of a person you dislike etc. Do not repeat any names. If a person is already listed, select a second choice.

You will notice that at the bottom of the grid there are 10 pairs of words. The first is "outgoing-shy". Now for each person you have listed decide how he or she should be rated on this dimension. For instance, if you regard yourself as very outgoing, place +3 in the box at the top right hand corner of the grid. If you think you are very shy, place -3 in that space. If you think some intermediate position best describes you, choose +2 +1, -1 or -2. After you have rated yourself on the dimension "outgoing-shy", go on to rate all the other individuals on this dimension. When this is complete, consider the next dimension, "adjusted-maladjusted", and rate all the persons on this one. Continue until all the dimensions have been used with all the persons. When you have finished there should be a number with a sign before it in every box. Do not leave any blank.

On completion detach the slip of paper on which you have written the names and keep it.

Appendix 11 (continued)

Spaces *
for
Initials

1. Yourself
2. Person you dislike
3. Mother (or person most like a mother)
4. Person you'd like to help
5. Father (or person most like a father)
6. Friend of same sex
7. Friend of opposite sex (or spouse)
8. Person with whom you feel most uncomfortable
9. Lecturer
10. Person difficult to understand

+3	+2	+1	-1	-2	-3
outgoing				shy	
adjusted				maladjusted	
decisive				indecisive	
calm				excitable	
interested in others				self-absorbed	
cheerful				ill-humoured	
responsible				irresponsible	
considerate				inconsiderate	
independent				dependent	
interesting				dull	

Note: *In the sheet provided, a detachable slip of paper was placed under this heading.

Appendix 12Self-description Check List

Tick each word listed that you feel applies to yourself, in the corresponding circle.

Tick about half the items if possible.

Leave the circle blank if you feel the word does not apply to yourself.

versatile	<input type="checkbox"/>	independent	<input type="checkbox"/>	conventional	<input type="checkbox"/>	cynical	<input type="checkbox"/>
energetic	<input type="checkbox"/>	hurried	<input type="checkbox"/>	stable	<input type="checkbox"/>	moody	<input type="checkbox"/>
imaginative	<input type="checkbox"/>	peaceable	<input type="checkbox"/>	aggressive	<input type="checkbox"/>	outspoken	<input type="checkbox"/>
reserved	<input type="checkbox"/>	touchy	<input type="checkbox"/>	different from others	<input type="checkbox"/>	unadventurous	<input type="checkbox"/>
patient	<input type="checkbox"/>	rebellious	<input type="checkbox"/>	creative	<input type="checkbox"/>	boring	<input type="checkbox"/>
self-conscious	<input type="checkbox"/>	restless	<input type="checkbox"/>	play it safe	<input type="checkbox"/>	do not take risks	<input type="checkbox"/>
enthusiastic	<input type="checkbox"/>	pleasure-seeking	<input type="checkbox"/>	conservative	<input type="checkbox"/>	contented	<input type="checkbox"/>
easygoing	<input type="checkbox"/>	gentle	<input type="checkbox"/>	unemotional	<input type="checkbox"/>	few novel ideas	<input type="checkbox"/>
irritable	<input type="checkbox"/>	tired	<input type="checkbox"/>	individualistic	<input type="checkbox"/>	easily influenced	<input type="checkbox"/>

Check that you have read through each of the four lists.
Thank you.

Note: The Creative Independence and Emotional Activation Scales are derived from this Self-description Check List. Items are scored according to whether they are positively keyed or negatively keyed (see Chapter 6 (iv)B and 6 (v)B for details).

Appendix 13

Numbers of full-time and part-time male and female subjects in samples used in Table 26, with mean ages and their standard deviations

Scale	Males					Females				
	Attendance			Age		Attendance			Age	
	FT	PT	Total	\bar{X}	S.D.	FT	PT	Total	\bar{X}	S.D.
Intol. of Ambiguity (Budner)	35	26	61	22.89	5.24	65	3	68	18.18	1.00
Complexity subscale (O.P.I.)	34	26	60	22.97	5.24	66	3	69	18.19	1.00
Photo Ambiguity Test	32	25	57	23.14	5.32	54	3	57	18.16	1.02
Dogmatism	34	26	60	24.20	6.77	57	6	63	19.03	5.02
Cognitive Simplicity	36	28	64	24.17	6.62	58	6	64	18.98	4.99
Creative Independence and Emotional Activation	56	35	91	23.71	6.34	80	7	87	18.84	4.33

Scale	Both sexes				
	Attendance			Age	
	FT	PT	Total	\bar{X}	S.D.
Intol. of Ambiguity (Budner)	100	29	129	20.40	4.36
Complexity subscale (O.P.I.)	100	29	129	20.41	4.36
Photo Ambiguity Test	86	28	114	20.65	4.57
Dogmatism	91	32	123	21.55	6.48
Cognitive Simplicity	94	34	128	21.58	6.41
Creative Independence and Emotional Activation	136	42	178	21.33	5.96

Note: Attendance is indicated as FT (full-time) or PT (part-time).

Appendix 14

Means and Standard Deviations of all attitude scales and personality variables for (a) all subjects who completed that test, and (b) only subjects who completed all tests.

Variable	(a)		MALES		
	\bar{X}	S.D.	N	\bar{X}	S.D.
1. Symbolic Authority	70.68	11.02	109	72.41	10.92
2. Teacher	98.28	16.63	109	101.67	18.61
3. Army	86.56	23.10	111	90.79	23.79
4. Law	88.76	15.35	110	91.05	14.03
5. Police	79.16	15.50	185	83.93	15.35
6. Composite Authority Scale (C.A.S.)	50.20	10.92	93	52.25	10.83
7. Radicalism	47.89	10.06	110	45.90	9.48
8. Budner's Intolerance of Ambiguity	48.76	9.18	154	49.33	9.56
9. Complexity subscale (Budner)	26.67	6.06	154	26.93	5.79
10. Insolubility subscale (Budner)	8.16	2.88	154	8.14	2.64
11. Novelty subscale (Budner)	13.81	3.35	154	13.83	3.52
12. Complexity subscale (O.P.I.)	15.13	5.46	154	15.07	5.75
13. Photo Ambiguity Test (P.A.T.)	9.05	4.03	149	9.10	4.14
14. Dogmatism (Ray)	90.14	11.95	166	90.21	10.78
15. Cognitive Simplicity	134.45	30.30	152	135.17	24.54
16. Creative Independence	10.49	2.80	109	11.05	3.10
17. Emotional Activation	8.03	3.22	109	7.64	2.53
18. Independence	63.37	10.14	159	63.60	8.61
19. Age	21.90	4.92	250	22.45	4.48

Appendix 14 (continued)

Variable	FEMALES			(b) N=45	
	(a) \bar{X}	S.D.	N	\bar{X}	S.D.
1. Symbolic Authority	73.12	10.28	103	73.82	10.57
2. Teacher	92.86	16.37	103	93.93	15.14
3. Army	82.65	20.17	106	84.09	19.42
4. Law	88.46	14.69	106	90.40	13.43
5. Police	81.09	12.96	113	79.67	14.04
6. Composite Authority Scale (C.A.S.)	49.84	9.08	88	49.68	9.27
7. Radicalism	51.60	8.95	106	49.80	7.91
8. Budner's Intolerance of Ambiguity	44.44	9.26	101	44.31	10.08
9. Complexity subscale (Budner)	23.86	5.53	101	23.98	5.79
10. Insolubility subscale (Budner)	7.65	2.68	101	8.09	2.66
11. Novelty subscale (Budner)	12.92	4.15	101	12.24	4.48
12. Complexity subscale (O.P.I.)	16.96	5.91	102	17.38	6.15
13. Photo Ambiguity Test (P.A.T.)	7.86	3.53	84	7.16	3.13
14. Dogmatism (Ray)	86.36	10.67	98	86.42	11.18
15. Cognitive Simplicity	136.43	26.81	90	132.36	23.00
16. Creative Independence	10.13	3.48	102	9.96	3.83
17. Emotional Activation	8.76	3.51	102	8.73	3.63
18. Independence	58.47	9.98	102	59.93	10.47
19. Age	19.06	4.40	152	18.16	1.05

Appendix 14 (continued)

Variable	BOTH SEXES				
	(a)			(b) N=87	
	\bar{X}	S.D.	N	\bar{X}	S.D.
1. Symbolic Authority	71.86	10.71	212	73.13	10.76
2. Teacher	95.65	16.69	212	97.66	17.34
3. Army	84.65	21.76	217	87.32	21.90
4. Law	88.62	14.99	216	90.71	13.73
5. Police	79.89	14.60	298	81.72	14.84
6. Composite Authority Scale (C.A.S.).	50.02	10.04	181	50.92	10.14
7. Radicalism	49.71	9.69	216	47.91	8.91
8. Budner's Intolerance of Ambiguity	47.04	9.43	255	46.74	10.15
9. Complexity subscale (Budner)	25.56	6.00	255	25.40	5.97
10. Insolubility subscale (Budner)	7.96	2.81	255	8.11	2.65
11. Novelty subscale (Budner)	13.46	3.70	255	13.01	4.12
12. Complexity subscale, (O.P.I.)	15.86	5.70	255	16.26	6.06
13. Photo Ambiguity Test (P.A.T.)	8.62	3.89	233	8.09	3.78
14. Dogmatism (Ray)	88.73	11.62	264	88.25	11.15
15. Cognitive Simplicity	135.19	29.01	242	133.71	23.80
16. Creative Independence	10.31	3.14	211	10.48	3.54
17. Emotional Activation	8.38	3.38	211	8.20	3.20
18. Independence	61.46	10.34	261	61.70	9.79
19. Age	20.83	4.92	402	20.23	3.86

Appendix 15a

Intercorrelation matrix for all personality and attitude variables for S.A.I.T. subjects who completed all tests, for females (N=45) at top right, and males (N=42) bottom left.
 Decimal points have been omitted)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	KEY
	20	66	67	56	81	-69	56	57	34	32	-42	26	38	24	-33	-35	26	07	1. Symbolic Authority
38		17	30	29	51	-36	31	34	09	21	-34	-03	27	-17	-24	-22	-04	-07	2. Teacher
46	61		68	66	83	-57	25	21	20	18	-24	07	39	22	-35	-31	19	-08	3. Army
49	60	67		63	85	-70	40	37	22	30	-42	13	36	02	-39	-33	05	00	4. Law
35	58	58	71		82	-44	24	21	24	12	-20	14	26	05	-17	-26	12	-09	5. Police
67	80	84	86	81		-72	46	45	29	29	-42	15	43	10	-39	-38	15	-04	6. C.A.S.
46	-39	-60	-59	-55	-65		-45	-46	-25	-28	43	-19	-42	-17	38	38	-37	04	7. Radicalism
37	-07	30	26	18	25	-14		90	50	80	-71	28	64	00	-48	-41	15	-05	8. Intolerance of Ambiguity (Budner)
36	-09	28	16	05	19	-06	89		30	54	-62	26	55	02	-37	-23	14	-02	9. Complexity subscale (Budner)
13	09	22	29	19	23	-03	48	24		15	-16	38	26	14	-15	-32	19	-05	10. Insolubility subscale (Budner)
26	-12	14	16	28	18	-31	68	54	-04		-72	07	58	-10	-52	-43	05	-05	11. Novelty subscale (Budner)
51	-29	-49	-53	-46	-57	28	-60	-51	-42	-40		-22	-73	23	68	48	07	19	12. Complexity subscale (O.P.I.)
28	23	02	14	08	19	-07	11	15	05	10	-11		11	07	-27	-21	05	-08	13. P.A.T.
18	12	16	32	20	24	03	34	30	43	05	-26	20		14	-62	-39	03	-24	14. Dogmatism
32	42	40	53	40	52	-34	32	20	19	27	-34	11	16		-02	-14	26	17	15. Cognitive Simplicity
29	-01	-24	-37	-24	-28	30	-44	-41	-21	-32	51	13	-37	07		44	-06	22	16. Creative Independence
28	-15	-07	-09	-31	-23	10	-08	03	-22	-21	11	-08	-26	09	07		-08	-05	17. Emotional Activation
01	03	01	-09	-18	-06	18	-21	-24	-08	-25	28	05	-01	-04	27	15		-12	18. Independence
42	19	18	21	17	29	-19	12	03	21	06	-18	-08	22	32	-26	-22	-11		19. Age

Critical values: Significance level for females (N=45) at .05 level (2 tailed test) = .30
 Significance level for males (N=42) at .05 level (2 tailed test) = .29

Appendix 15b

Intercorrelation matrix for all personality and attitude variables for S.A.I.T. subjects who completed all tests, for both sexes combined (N=87). (Decimal points have been omitted)

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
27	53	58	44	72	-54	43	44	23	27	-44	25	27	28	-32	-30	12	21
	44	45	47	68	-41	16	16	09	09	-34	18	22	16	-09	-21	04	23
		67	63	84	-60	30	27	21	18	-38	08	29	32	-26	-22	12	19
			66	85	-63	33	27	26	24	-47	14	34	28	-37	-23	-01	14
				82	-51	23	16	21	21	-34	13	25	24	-18	-29	01	17
					-58	37	33	25	25	-50	20	35	33	-31	-32	08	24
						-33	-29	-13	-32	37	-17	-22	-27	29	28	-14	-23
							90	48	75	-68	24	52	17	-40	-31	05	20
								27	56	-59	25	45	12	-33	-16	02	15
									07	-28	12	34	17	-17	-27	08	11
										-60	13	38	07	-40	-38	-02	13
											-20	-53	-06	56	35	12	18
												20	10	-02	-18	10	09
													15	-47	-35	04	18
														-05	-05	13	24
															27	10	-01
																-05	-20
																	03

- KEY
1. Symbolic Authority
 2. Teacher
 3. Army
 4. Law
 5. Politics
 6. C.A.S.
 7. Radicalism
 8. Intolerance of Ambiguity
 9. Complexity subscale (Budner)
 10. Insolubility subscale (Budner)
 11. Novelty subscale (Budner)
 12. Complexity subscale (O.P.I.)
 13. P.A.T.
 14. Dogmatism
 15. Cognitive Simplicity
 16. Creative Independence
 17. Emotional Activation
 18. Independence
 19. Age

Critical values: Significance level for N=87 at .05 level (2 tailed test) = .21

Appendix 16a

Intercorrelation matrix for all attitude and personality variables and age, using maximum data, with numbers of subjects given (bottom left) for each correlation for all male S.A.I.T. subjects.
(Decimal points have been omitted)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	KEY
	40*	53*	56*	47*	76*	-50*	30*	36*	05	15	-51*	29*	29*	23	-24*	-15	00	24*	1. Symbolic Authority
108		50*	57*	52*	76*	-43*	05	02	11	00	-28*	31*	14	21	-12	-07	-06	13	2. Teacher
109	109		71*	54*	83*	-61*	21	19	18	03	-37*	03	19	17	-19	-11	02	20*	3. Army
109	110	110		67*	89*	-62*	14	12	11	05	-44*	13	37*	36*	-31*	-08	-06	21*	4. Law
94	94	96	95		79*	49*	21*	15	18*	14	-32*	12	12	24*	-17	-14	01	13	5. Police
93	93	93	93	93		-68*	26*	23	19	13	-53*	22	31*	32*	-26*	-11	01	22*	6. C.A.S.
109	108	110	109	95	93		-14	-10	01	-23	37*	-13	-26*	-18	17	00	25	01	7. Radicalism
63	63	65	64	151	61	64		89*	51*	63*	-56*	21*	21*	07	-27	-02	-14	01	8. Intolerance of Ambiguity (Budner)
63	65	65	64	151	61	64	154		25*	38*	-47*	24*	14	03	-29*	01	-10	00	9. Complexity subscale (Budner)
63	63	65	64	151	61	64	154	154		05	-30*	05	26*	12	-11	-13	-12	01	10. Insolubility subscale (Budner)
63	63	65	64	151	61	64	154	154	154		-39*	13	08	-01	-15	-02	-16	-02	11. Novelty subscale (Budner)
59	59	60	59	149	60	64	152	152	152	152		19*	-27*	-17	39*	-05	19*	04	12. Complexity subscale (O.P.I.)
65	66	66	66	114	60	65	98	98	98	98	97	95		13	-18	-09	07	01	13. P.A.T.
65	66	66	66	146	64	65	130	130	130	130	131	130	111		-02	10	-07	21*	14. Dogmatism (Ray)
106	106	108	107	94	91	107	65	65	65	65	65	60	66	67		19	17	-20*	15. Cognitive Simplicity
106	106	108	107	94	91	107	65	65	65	65	65	60	66	67	109		-09	-06	16. Creative Independence
62	61	63	62	110	55	63	109	109	109	109	108	104	144	90	63	63		10	17. Emotional Activation
109	109	111	110	185	93	110	154	154	154	154	153	149	166	152	109	109	159		18. Independence
																			19. Age

*Correlation significant at the .05 level (2 tailed test)

Appendix 16b

Intercorrelation matrix for all attitude and personality variables and age, using maximum data with numbers of subjects given (bottom left) for each correlation for all female S.A.I.T. subjects.
(Decimal points have been omitted)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	KEY
	29*	67*	57*	57*	78*	-61*	48*	48*	24*	34*	-45*	29*	42*	29*	-29*	-19	16	03	1. Symbolic Authority
103		45*	47*	28*	59*	-32*	27*	28*	11	20	-29*	-13	29*	-04	-20*	-26*	-08	15	2. Teacher
102	102		69*	59*	85*	-59*	24*	21	16	17	-31*	03	45*	26*	-29*	-29*	09	09	3. Army
102	102	106		49*	81*	-57*	37*	36*	16	26*	-35*	-03	44*	07	-26*	-23*	03	16	4. Law
88	88	90	90		77*	-40*	15	10	10	12	-14	16	23*	26*	-12	-15	-02	12	5. Police
88	88	88	88	88		-64*	39*	37*	22	25*	-40*	10	49*	21	-30*	-29*	06	15	6. C.A.S.
102	102	105	105	89	87		-37*	-37*	-31*	-18	36*	-15	-46*	-20	28*	20*	-21	-06	7. Radicalism
71	71	74	74	93	68	75		88*	45*	77*	-60*	25*	59*	08	-46*	-27*	04	10	8. Intolerance of Ambiguity (Budner)
71	71	74	74	93	68	75	101		22*	49*	-53*	20	50*	09	-36*	-15	07	09	9. Complexity subscale (Budner)
71	71	74	74	93	68	75	101	101		08	-04	12	20	06	-13	-26*	11	06	10. Insolubility subscale (Budner)
71	71	74	74	93	68	75	101	101	101		-61*	21	52*	01	-46*	-25*	-06	07	11. Novelty subscale (Budner)
72	72	75	75	94	69	76	101	101	101	101		-17	-71*	00	61*	35*	14	06	12. Complexity subscale (O.P.I.)
58	58	60	60	80	57	60	83	83	83	83	84		07	16	-24	-13	04	12	13. P.A.T.
65	65	65	65	79	63	65	64	64	64	64	65	64		18	-61*	-40*	-01	-02	14. Dogmatism
66	66	66	66	85	64	66	70	70	70	70	71	70	81		-15	-14	25	-08	15. Cognitive Simplicity
99	99	101	101	90	88	100	70	70	70	70	71	57	65	66		45*	01	-02	16. Creative Independence
99	99	101	101	90	88	100	70	70	70	70	71	57	65	66	102		06	-16	17. Emotional Activation
76	76	78	78	78	67	77	76	76	76	76	77	63	70	56	78	78		-05	18. Independence
103	103	106	106	113	88	106	101	101	101	101	102	84	98	90	102	102	102		19. Age

*Correlations significant at the .05 level (2 tailed test)

Appendix 16c

Intercorrelation matrix for all attitudes and personality variables and age, using maximum data with numbers of subjects given (bottom left) for each correlation for all S.A.I.T. subjects.
(Decimal points have been omitted)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	KEY
	33*	57*	56*	51*	76*	-56*	36*	38*	13	24*	-45*	27*	34*	26*	-26*	-15*	06	10	1. Symbolic Authority
211		48*	52*	41*	68*	-40*	20*	19*	12	13	-31*	15	24*	09	-15*	-17*	-03	18*	2. Teacher
211	211		69*	55*	63*	-61*	23*	21*	17*	11	-35*	06	31*	22*	-23*	-20*	08	18*	3. Army
211	211	216		59*	85*	-59*	27*	26*	14	18*	-40*	06	41*	22*	-28*	-15*	-02	18*	4. Law
182	182	186	185		78*	-44*	17*	12	15*	12*	-25*	12	16*	24*	-14*	-14*	-01	10	5. Police
181	181	181	181	181		-65*	32*	30*	20*	19*	-47*	19*	40*	27*	-28*	-19*	05	18*	6. C.A.S.
211	210	215	214	184	180		-29*	-27*	-16*	-20*	38*	-16	-36*	-19	20*	11	-04	-09	7. Radicalism
134	134	139	138	244	129	139		89*	50*	69*	-59*	25*	40*	06	-35*	-19*	00	12	8. Intolerance of Ambiguity (Budner)
134	134	139	138	244	129	139	255		25*	44*	-51*	25*	31*	04	-29*	-11	03	11	9. Complexity subscales (Budner)
134	134	139	138	244	129	139	255	255		07	-20*	08	25*	10	-11	-21*	00	05	10. Insolubility subscale (Budner)
134	134	139	138	244	129	139	255	255	255		-50*	17*	31*	-01	-34*	-17*	-08	05	11. Novelty subscale (Budner)
135	135	140	139	243	129	140	253	253	253	253		-20*	-48*	-10	48*	20*	12	-04	12. Complexity subscale (O.P.I.)
117	117	120	119	225	114	120	230	230	230	230	231		12	08	-02	-10	12	02	13. P.A.T.
130	131	131	131	193	123	130	162	162	162	162	162	159		14	-39*	-26*	07	04	14. Dogmatism
131	132	132	132	231	128	131	200	200	200	200	202	200	192		-09	-03	10	10	15. Cognitive Simplicity
205	205	209	208	184	179	207	135	135	135	135	136	117	131	133		32*	11	-08	16. Creative Independence
205	205	209	208	184	179	207	135	135	135	135	136	117	131	133	211		-05	-18*	17. Emotional Activation
138	137	141	140	188	122	140	185	185	185	185	185	167	214	146	141	141		13*	18. Independence
212	212	217	216	298	181	216	255	255	255	255	255	233	264	242	211	211	261		19. Age

*Correlations significant at the .05 level (2 tailed test)

correlation for all S.A.I.T. subjects.
 (Decimal points have been omitted)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	KEY
	33*	57*	56*	51*	76*	-56*	36*	38*	13	24*	-45*	27*	34*	26*	-26*	-15*	06	10	1. Symbolic Authority
211		48*	52*	41*	68*	-40*	20*	19*	12	13	-31*	15	24*	09	-15*	-17*	-03	18*	2. Teacher
211	211		69*	55*	83*	-61*	23*	21*	17*	11	-35*	06	31*	22*	-23*	-20*	08	18*	3. Army
211	211	216		59*	85*	-59*	27*	26*	14	18*	-40*	06	41*	22*	-28*	-15*	-02	18*	4. Law
182	182	186	185		78*	-44*	17*	12	15*	12*	-25*	12	16*	24*	-14*	-14*	-01	10	5. Police
181	181	181	181	181		-65*	32*	30*	20*	19*	-47*	19*	40*	27*	-28*	-19*	05	18*	6. C.A.S.
211	210	215	214	184	180		-29*	-27*	-16*	-20*	38*	-16	-36*	-19	20*	11	-04	-09	7. Radicalism
134	134	139	138	244	129	139		89*	50*	69*	-59*	25*	40*	06	-35*	-19*	00	12	8. Intolerance of Ambiguity (Budner)
134	134	139	138	244	129	139	255		25*	44*	-51*	25*	31*	04	-29*	-11	03	11	9. Complexity subscales (Budner)
134	134	139	138	244	129	139	255	255		07	-20*	08	25*	10	-11	-21*	00	05	10. Insolubility subscale (Budner)
134	134	139	138	244	129	139	255	255	255		-50*	17*	31*	-01	-34*	-17*	-08	05	11. Novelty subscale (Budner)
135	135	140	139	243	129	140	253	253	253	253		-20*	-48*	-10	48*	20*	12	-04	12. Complexity subscale (O.P.I.)
117	117	120	119	225	114	120	230	230	230	230	231		12	08	-02	-10	12	02	13. P.A.T.
130	131	131	131	193	123	130	162	162	162	162	162	159		14	-39*	-26*	07	04	14. Dogmatism
131	132	132	132	231	128	131	200	200	200	200	202	200	192		-09	-03	10	10	15. Cognitive Simplicity
205	205	209	208	184	179	207	135	135	135	135	136	117	131	133		32*	11	-08	16. Creative Independence
205	205	209	208	184	179	207	135	135	135	135	136	117	131	133	211		-05	-18*	17. Emotional Activation
138	137	141	140	188	122	140	185	185	185	185	165	167	214	146	141	141		13*	18. Independence
212	212	217	216	298	181	216	255	255	255	255	255	233	264	242	211	211	261		19. Age

*Correlations significant at the .05 level (2 tailed test)

Appendix 17.

Mean scores, standard deviations and t-test results for S.A.I.T. and University of Adelaide subjects on Creative Independence, Emotional Activation and Attitude and Radicalism Scales for males and females separately.

Males

Variable	S.A.I.T. (N=91)		U. of A. (N=33)		Significance of Differences	
	\bar{X}	S.D.	\bar{X}	S.D.	t	p
Creative Independence	10.60	2.86	10.60	3.09	0	n.s.
Emotional Activation	7.85	3.03	8.67	2.96	-1.33	n.s.
Symbolic Authority	70.91	11.08	66.48	11.49	1.93	n.s.
Teacher Scale	99.14	9.95	93.18	14.94	2.53	.02
Army Scale	87.74	27.88	76.03	20.88	2.18	.05
Law Scale	89.58	15.26	81.00	15.45	2.74	.01
Police Scale	80.24	15.38	71.91	15.64	2.63	.01
Radicalism Scale	47.90	10.01	53.67	11.84	-2.67	.01

Females

Variable	S.A.I.T. (N=87)		U. of A. (N=47)		Significance of Differences	
	\bar{X}	S.D.	\bar{X}	S.D.	t	p
Creative Independence	10.18	3.57	10.21	3.21	-.05	n.s.
Emotional Activation	8.71	3.65	8.23	3.33	.74	n.s.
Symbolic Authority	73.77	9.95	72.81	9.17	.54	n.s.
Teacher Scale	93.90	15.37	93.68	13.65	.08	n.s.
Army Scale	83.99	19.80	79.60	16.58	1.29	n.s.
Law Scale	89.51	13.91	83.68	16.03	2.18	.05
Police Scale	81.00	12.75	75.98	13.22	2.14	.05
Radicalism Scale	51.45	8.80	52.55	9.02	.68	n.s.

Appendix 18.

The Complexity subscale of the O.P.I. measuring Tolerance of Ambiguity showing item-total correlations (corrected).

Key*		Item-total biserial correlation. #
-	1. Usually I prefer known ways of doing things rather than trying out new ways.	.46
+	2. It is a good rule to accept nothing as certain or proved.	.26
+	3. The unfinished and the imperfect often have greater appeal for me than the completed and polished.	.40
-	4. I want to know that something will really work before I am willing to take a chance on it.	.40
+	5. I dislike following a set schedule.	.40
+	6. Novelty has a great appeal to me.	.26
+	7. I have always hated regulations.	.29
-	8. I don't like things to be uncertain and unpredictable.	.52
+	9. I like to go alone to visit new and strange places.	.30
+	10. Politically I am probably something of a radical.	.32
+	11. I like to fool around with new ideas even if they turn out later to have been a total waste of time.	.51
+	12. I showed individuality and originality in my schoolwork.	.37
-	13. I always see to it that my work is carefully planned and organized.	.26
-	14. I prefer to engage in activities from which I can see definite results rather than those from which no tangible or objective results are apparent.	.42
-	15. Perfect balance is the essence of all good composition.	.33
-	16. Straightforward reasoning appeals to me more than metaphors and the search for analogies.	.20

Appendix 18: (continued)

Key*		Item-total biserial correlation. #
-	17. I don't like to work on a problem unless there is a possibility of coming out with a clear-cut and unambiguous answer.	.35
+	18. My way of doing things is apt to be misunderstood by others.	.38
-	19. I like to have a place for everything and everything in its place.	.38
+	20. It doesn't bother me when things are uncertain and unpredictable.	.50
-	21. For most questions there is just one right answer once a person is able to get all the facts.	.18
+	22. I have had very peculiar and strange experiences.	.25
+	23. I like to listen to primitive music.	.33
+	24. I have had strange and peculiar thoughts.	.30
+	25. Many of my friends would probably be considered unconventional by other people.	.37
-	26. I find it difficult to give up ideas and opinions which I hold.	.17
-	27. Trends towards abstractionism and the distortion of reality have corrupted much art in recent years.	.20
-	28. I much prefer friends who are pleasant to have around to those who are always involved in some difficult problem.	.28
+	29. Some of my friends think that my ideas are impractical if not a bit wild.	.40
+	30. I dislike having others deliberate and hesitate before acting.	-.01
+	31. I find that a well-ordered mode of life with regular hours is not congenial to my temperament.	.48
-	32. I don't like to undertake any project unless I have a pretty good idea how it will turn out.	.51

Appendix 18: (continued)Notes:

- * Items are responded to as "true" or "false".
Positively keyed items (+) endorsed as "true" score 1;
negatively keyed items (-) which are considered "false"
also score 1. Other responses are scored as zero.
A maximum score of 32 is possible.

- # The biserial correlation was calculated after negatively
keyed items have been reverse scored; and the
correlations included a correction for the contribution
of the item to the total.

Appendix 19. Sex differences: t test results for differences between mean scores on attitude scales and personality tests for S.A.I.T. and U. of A. students (1971-72).

Variable	S.A.I.T.			U. of A.		
	df	t	p	df	t	p
Symbolic Authority	210	- 1.66	n.s.	78	- 2.70	<.01
Teachers Scale	210	+ 2.38	<.05	78	- .15	n.s.
Army Scale	215	+ 1.32	n.s.	78	- .84	n.s.
Law Scale	214	+ .15	n.s.	78	- .74	n.s.
Police Scale	296	- 1.11	n.s.	78	- 1.24	n.s.
Radicalism Scale	214	- 2.85	<.01	78	+ .47	n.s.
Creative Independence	209	+ .83	n.s.	78	+ .54	n.s.
Emotional Activation	209	- 1.57	n.s.	78	+ .60	n.s.
Budner's Intolerance of Ambiguity	209	+ 3.30	<.001			
Complexity sub-scale (Budner)	253	+ 3.73	<.001			
Insolubility sub-scale (Budner)	253	+ 1.42	n.s.			
Novelty sub-scale (Budner)	253	+ 1.88	n.s.			
Complexity sub-scale (O.P.I.)	254	- 2.29	<.05			
Photo Ambiguity Scale	231	+ 2.20	<.05			
Dogmatism (Ray)	264	+ 2.24	<.05			
Cognitive Simplicity	250	+ .51	n.s.			
Independence	259	+ 3.82	<.001			

Note: (1) Mean, standard deviations and number of subjects are given in Appendix 14 for S.A.I.T. students and Appendix 17 for U. of A. students.

(2) In each case the t is given as positive if the mean score for males is greater than that for females.

Appendix 20.

Mean attitude to authority scores and standard deviations for S.A.I.T. and University of Adelaide subjects (1971-72) by separate groups, with significance tests for the comparisons between institutions.

(a) Symbolic Authority Scale

Age	University of Adelaide			S.A.I.T.			Significance	
	\bar{X}	S.D.	N	\bar{X}	S.D.	N	t	p <
17	73.43	9.55	14	71.42	11.32	24	+ 0.56	n.s.
18	70.41	10.01	39	73.32	11.19	50	- 1.26	n.s.
19	67.13	11.90	15	72.86	9.34	29	- 1.71	n.s.
Over 19	69.58	11.60	12	71.69	10.38	77	- 0.64	n.s.

(b) Teacher Scale

Age	\bar{X}	S.D.	N	\bar{X}	S.D.	N	t	p <
17	95.36	14.76	14	94.70	18.82	24	+ 0.11	n.s.
18	94.62	12.55	39	93.88	15.36	50	+ 0.24	n.s.
19	86.80	13.88	15	93.93	15.29	29	- 1.48	n.s.
Over 19	95.92	16.32	12	100.01	16.03	77	- 0.81	n.s.

(c) Army Scale

Age	\bar{X}	S.D.	N	\bar{X}	S.D.	N	t	p <
17	83.71	18.14	14	82.17	20.85	24	+ 0.22	n.s.
18	77.31	19.06	39	83.92	21.17	50	- 1.51	n.s.
19	76.87	16.85	15	86.47	22.01	29	- 1.45	n.s.
Over 19	75.83	21.59	12	88.10	21.45	77	- 1.82	n.s.

(d) Law Scale

Age	\bar{X}	S.D.	N	\bar{X}	S.D.	N	t	p <
17	87.43	12.67	14	85.92	15.11	24	+ 0.31	n.s.
18	83.38	14.66	39	89.20	14.15	50	- 1.86	n.s.
19	74.20	19.75	15	91.52	15.38	29	- 3.13	.01
Over 19	84.75	16.23	12	90.09	14.14	77	- 1.18	n.s.

(e) Police Scale

Age	\bar{X}	S.D.	N	\bar{X}	S.D.	N	t	p <
17	77.00	14.42	14	82.67	13.40	24	+ 1.19	n.s.
18	73.59	12.00	39	79.00	14.15	50	- 1.89	n.s.
19	72.40	15.81	15	83.10	12.11	29	- 2.44	.05
Over 19	75.83	18.56	12	79.86	15.06	77	- .83	n.s.

Appendix 21.

Mean attitude scores and standard deviations for University of Adelaide subjects 1972 and 1975, by separate age groups with significance tests for comparisons between the two samples.

(a) Army Scale

Age	University of Adelaide 1972			University of Adelaide 1975			t	p <
	\bar{X}	S.D.	N	\bar{X}	S.D.	N		
17	83.71	18.14	14	90.12	18.11	83	-1.22	n.s.
18	77.31	19.06	39	84.19	19.27	54	-1.69	n.s.
19	76.87	16.85	15	90.32	18.23	34	-2.38	.05
20	75.83	21.59	12	88.95	19.38	76	-2.12	.05

(b) Law Scale

Age	University of Adelaide 1972			University of Adelaide 1975			t	p <
	\bar{X}	S.D.	N	\bar{X}	S.D.	N		
17	87.43	12.67	14	78.16	13.39	83	+2.38	.05
18	83.38	14.66	39	76.11	12.87	54	+2.51	.05
19	74.20	19.75	15	80.03	14.07	34	-1.15	n.s.
20	84.75	16.23	12	74.22	11.56	76	+2.72	.01

(c) Law Scale and Army Scale

Age	University of Adelaide 1972			University of Adelaide 1975			t	p <
	\bar{X}	S.D.	N	\bar{X}	S.D.	N		
17	85.57	13.84	14	84.14	12.54	83	+ .38	n.s.
18	80.35	15.68	39	80.15	14.79	54	+ .06	n.s.
19	75.53	16.03	15	85.17	13.75	34	-2.10	.05
20	80.29	17.34	12	81.59	14.30	76	- .28	n.s.

APPENDIX 23

Significantly different item-total (corrected) correlations for U. of A. male and female students on the attitude to authority and Radicalism scales.

Serial position	Item-total (corrected) correlations		z	p <	
	Males	Females			
<u>The Police Scale (Sample C)</u>					
16.	The Police pay too much attention to the protection of property rather than people	.64	.22	2.39	.05
23.	The Police are unnecessarily violent in handling people they dislike	.64	.23	2.34	.05
12.	The Police are less intelligent than most citizens	.31	.67	-2.19	.05
6.	The Police are generally quite impartial and fair in the way they carry out the law	.73	.43	2.09	.05
17.	Policemen lack initiative in carrying out their duties	.67	.37	2.09	.05
<u>The Army Scale</u>					
12.	People should feel proud to serve in the Army	.74	.55	3.14	.01
10.	It's a man's life in the Regular Army	.65	.48	2.39	.05
26.	The Army teaches people not to think for themselves	.72	.60	2.03	.05
28.	The Army develops initiative	.72	.60	2.03	.05
<u>The Law Scale</u>					
3.	The Law is just another name for tyranny	.65	.39	3.43	.001
18.	Laws are so often made for the benefit of small, selfish groups that a man cannot respect the law	.70	.49	3.13	.01
20.	The Law is the enemy of freedom	.61	.38	2.92	.01
12.	The law is the embodiment of Justice and Equality	.70	.51	2.88	.01
9.	Obedience to the law constitutes a value indicative of the highest citizenship	.61	.41	2.58	.05
4.	A man should obey the laws, no matter how much they interfere with his personal ambitions	.62	.43	2.50	.05
21.	The individual who refuses to obey the law is a menace to civilisation	.63	.45	2.42	.05

Appendix 23 (continued)

	Males	Females	z	p <
<u>The Law Scale (continued)</u>				
The law rightly claims the allegiance of every citizen at all times	.67	.51	2.34	.05
<u>Teacher Scale</u>				
The discrepancy measures taken by teachers are usually well-considered and desirable	.67	.48	2.72	.01
Students are all too often discriminated against by teachers who are prejudiced against them	.57	.38	2.34	.05
In this day and age students should not be expected to call a teacher, "sir"	.48	.27	2.33	.05
Despite the conflicts that may arise between teachers and students, a person may be expected to look back on his teachers with appreciation	.58	.42	2.03	.05
<u>Symbolic Authority Scale (Description)</u>				
Girl in prison (Angela Davis)	.60	.31	3.64	.001
Man in crowd, fist raised	.60	.37	3.47	.001
Speaker with symbolic eagle in the background	.59	.39	2.60	.05
Priest	.23	.41	-1.97	.05
<u>Radicalism Scale</u>				
Support the struggle of people against Imperialism	.84	.39	3.57	.001
Legalise the use of "harmless" drugs such as marihuana	.89	.57	3.41	.001
Abolish the so-called White Australia Policy	.77	.35	2.89	.01
Aim at the overthrow of capitalism and its replacement by a free society	.85	.64	2.19	.05
"Recognize" Red China	.69	.36	2.08	.05

The use of groups of subjects in relation to the attitude measures
 (Elongated brackets indicate overlapping or identical samples within columns;
 overlapping on identical samples within rows are indicated separately and
 described in the footnote).

Attitude Scale (I)	Scale-Construction Samples (II)	Cross-Validation Samples (III)	Samples used in subsequent analyses*		
			S.A.I.T. (IV)	U.of A. (V)	U.of A.(replication) (VI)
Police	A, S.A.I.T. & Western T.C. N = 112	B, S.A.I.T., N = 261 C, U.of A., N = 82	{ (III B) + 37 N = 298 N = 217 N = 216 N = 212 N = 212 N = 216 (III) + 86 N = 261	{ (III C) - 2 N = 80 N = 80 (III) N = 80 (III) N = 80 (III) (III) - 3 = N=80 N = 80 (III)	{ N = 248 N = 248
Army	U.of A. N = 280	U.of A. N = 80			
Law	U.of A. N = 277	U.of A. N = 80			
Teacher	U.of A. N = 279	U.of A. N = 80			
Symbolic Authority	U.of A. N = 299	U.of A. N = 83			
Radicalism	S.A.I.T. N = 40	U.of A. N = 80			
Independence	S.A.I.T. N = 31	S.A.I.T. N = 175		---	

* Details of samples used in further analyses:

- (1) Generality Study (Ch.3): U.of A. (Col.V) N = 80; S.A.I.T. (from Col.IV) N = 180
- (2) Validation Studies (Ch.4): Using Eleven-point Scales: U.of A. (from Col.V) N = 74; Using behaviour indices: U.of A.(Col.V) N = 80; Using Personal Assessments: S.A.I.T. (from Col.IV) N = 15
- (3) Relationship with Personality (Ch.7,8,9,10): U.of A. (Col.V) N = 80, and (from Col.VI for replication study) N = 248; S.A.I.T. (from Col.IV) N values were 129,114,123,128 and 178 (see Table 28c)
- (4) Comparison of sex and institution groups (Ch.11): U.of A. (Col.V) N = 80; S.A.I.T. (Col.IV) N = 180.

BIBLIOGRAPHY

- ADAMS-WEBBER, J.R. Cognitive complexity and sociality. British Journal of Social and Clinical Psychology, 1969, 8, 211-216.
- ADORNO, T.W., FRENKEL-BRUNSWIK, E., LEVINSON, D., & SANFORD, R.N. The Authoritarian Personality. New York: Harper, 1950.
- ALDRIDGE, R. Campus Revolution takes a new turn. The Age, 22 August, 1972, p.9.
- ANDERSON, D.S., & WESTERN, An Inventory to measure students' attitudes. University of Queensland papers, Vol.3, No.3, University of Queensland Press, 1967.
- ARGYLE, M., & LITTLE, B.R. "Do personality traits apply to social behaviour?" Journal of the Theory of Social Behaviour, Vol.2, 1, 1972, pp.1-35.
- ARNOLD, LYNN, M.F. Student Protests: Aims and Methods. Paper given at the University of Adelaide seminar on Social Order and the Right to Dissent, November 28, 1970.
- ASCH, S.E. Studies of Independence and Conformity. A minority of one against a unanimous majority. Psychological Monographs, 1956, 70, (Whole No. 416).
- ASUBEL, D.P. Theory and Problems of Adolescent Development. New York: Greene & Stratton, 1954.
- BAGLEY, C.R. Racial preference and the Conservative Personality. Pol. Stud., 18, 1970, 134-141.
- BAILLES, D.W., & GULLER, I.B. Dogmatism and attitudes towards the Vietnam War. Sociometry, 1970, 33:2, 140-146.
- BARKER, E.N. Authoritarianism of the Political Right, Center and Left. Journal of Social Issues, 1963, 19, 63-74.
- BASS, B.M. Authoritarianism or acquiescence. Journal of Abnormal and Social Psychology, 1955, 51, 616-623.
- BAY, C. The structure of freedom. Stanford University Press, Stanford, California, 1958.
- BAY, C. Political and Apolitical students: Facts in search of theory. Journal of Social Issues, 3, 76-91, 1967.
- BECKER, G. Ability to differentiate message from source as a curvilinear function of scores on Rokeach's Dogmatism Scale. Journal of Social Psychology, 1967, 72, 265-273.
- BELL, C. Oedipal Politics? An Interpretation of Student Insurgency and its repercussions. Current Affairs Bulletin (Sydney), 1969, 43, No.12, May.
- BELLE, O.S. Anti-authoritarian behaviour. British Journal of Criminology, 1969, 9, 354-365.
- BERKOWITZ, N.H., & WOLKON, G.H. A force-choice form of the F scale - free of acquiescent response set. Sociometry, 1964, 24, 54-56.

- BERNSTEIN, G., & WOODWARD, S. All the President's Men. New York: Simon and Schuster, 1974.
- BETTELHEIM, B. Towards a Psychograph of Adolescent Rebellion. Encounter, 1969, September, p.29.
- BIERI, J. Cognitive complexity-simplicity and predictive behaviour. Journal of Abnormal and Social Psychology, 1955, 51, 263-268.
- BIERI, J., & LOBECK, R. Acceptance of authority and parental identification. Journal of Personality, 1959, 27, 74-86.
- BIERI, J., ATKINS, A.L., BRIAR, S., LOBECK, R., MILLER, H., & TRIPUDI, T. Clinical and Social Judgement. Wiley, 1966.
- BIERI, J.O. Cognitive complexity and personality development. In Experience, Structure and Adaptability (O.J. Harvey, Ed.), New York: Springer, 1966.
- BLALOCK, H.M. Social Statistics. New York: McGraw-Hill, 1960.
- BLOCK, JACK, & BLOCK, JEANNE. An investigation of the relationship between intolerance of ambiguity and ethnocentrism. Journal of Personality, 1950, 19, 303-311.
- BOSHIER, R. To Rotate or not to Rotate: The Question of the Conservatism Scale. British Journal of Social and Clinical Psychology, 1972, 11, 313-323.
- BROWN, R. Social Psychology. New York: Free Press, 1965.
- BUDNER, S. Intolerance of Ambiguity as a personality variable. Journal of Personality, 1962, 29-50.
- BURWEN, L.S., & CAMPBELL, D.T. The generality of attitudes toward authority and non-authority figures. Journal of Abnormal and Social Psychology, 1957, 54.
- CAMERON, N.S. & MAGARET, A. Behavior Pathology. New York: Houghton, Mifflin & Co., 1951.
- CAMPBELL, D.T., & CHAPMAN, J.P. Testing for stimulus equivalence among authority figures by similarity in trait description. Journal of Consulting Psychology, 1957, 21, 253-256.
- CAROL, A. The relationship of authoritarianism to independence and creativity among college students. Diss. Abstr. International, 1972, 32 (108), 6023.
- CATTELL, R.B. The parental early repressiveness hypothesis for the "authoritarian" personality factor, U.I. 28. Journal of Genetic Psychology, 1964, 106, 333-349.
- CHAPPELL, D., & WILSON, P.R. The Police and the Public in Australia and New Zealand. University of Queensland Press, 1969.
- CLOUD, J., & VAUGHAN, G.M. Using balanced scales to control acquiescence. Sociometry, 1970, 33:2, 193-202.
- COHN, T.S. The relation of the F Scale to a response to answer positively. American Psychologist, 1953, 8, 335.

- COLEMAN, P. Caution, school power in Australia. Champion, 8 Belo Street, N.S.W., 1970.
- CONFREY, A.L., & NEUMEYER, J.A. Measurement of Radicalism-Conservatism. Journal of Social Psychology, 1965, 67, 357-369.
- COUCH, A., & KENISTON, K. Yeasayers and Naysayers: Agreeing response as a personality variable. Journal of Abnormal and Social Psychology, 1960, 151-174.
- COULTER, T. An experimental and statistical study of the relationship of prejudice and certain personality variables. Unpublished doctoral thesis, University of London, 1953.
- CRONBACH, L.J. Coefficient alpha and the internal structure of tests. Psychometrika, 1951, 16, 3.
- CRUTCHFIELD, R.S. Conformity and Character. American Psychologist, 1955, 10, 191-198.
- DAVIDS, A. Some personality and intellectual correlates of intolerance of ambiguity. Journal of Abnormal and Social Psychology, 1955, 51, 415-420.
- DAVIDS, A. The influence of ego-involvement on relations between authoritarianism and intolerance of ambiguity. Journal of Consulting Psychology, 1956, 20, 179-184.
- DAVIDS, A., & ERIKSON, C.W. Some social and cultural factors determining relations between authoritarianism and measures of neuroticism. J. Consulting Psychology, 1957, 21, 155-159.
- DAVIES, A.F., & ENGELS, S. (Eds.). Australian Society. Cheshire, 1970.
- DIEN, K. (Ed.) Documenta Geigy Scientific Tables (6th Edition). Crows Nest, N.S.W.: Geigy, Australia, 1962.
- DRESS, I. A survey of a sampling of Boston student activists. Unpublished doctoral dissertation. Boston University, 1968.
- ELMS, A.C., & MILGRAM, S. Personality characteristics associated with obedience and defiance toward authoritative command. Journal of Experimental Research in Personality, 1966, 1(14), 282-289.
- ELMS, A.C. Social Psychology and Social Relevance. Boston: Little Brown, 1972.
- ENSEL, S. A Changing Australia. Australian Broadcasting Commission, Sydney, 1971.
- EYSENCK, H. The Psychology of Politics. Routledge & Kegan Paul, 1954.
- EYSENCK, H.J., & EYSENCK, S.B.G. Manual of the Eysenck Personality Inventory. University of London Press, 1964.
- EYSENCK, H.J. The dangers of the new zealots. Encounter, 1972, 79-91, December.
- EYSENCK, H.J. Social Attitudes and Social Class. British Journal of Social and Clinical Psychology, 1971, 10, 201-212.

- FEATHER, N.T. Acceptance and rejection of arguments in relation to attitude strength, critical ability and intolerance of inconsistency. Journal of Abnormal and Social Psychology, 1964, 69, 127-136.
- FEATHER, N.T. Evaluation of Religious and neutral arguments in religious and atheist student groups. Australian Journal of Psychology, 1967, 19, 1, 3-12.
- FEATHER, N.T. Value differences in relation to ethnocentrism, intolerance of ambiguity, and dogmatism. Personality, 1971, 2, 4, 349-365.
- FEATHER, N.T. Factor Structure of the Conservatism Scale. Australian Psychologist, July 1975, 10, No.2.
- FEATHER, N.T., & COLLINS, J.M. Differences in attitudes and values of students in relation to a programme of study at a College of Advanced Education. Australian Journal of Education, 1974, 18, No.1, 16-19.
- FISHBEIN, M. Attitude and the prediction of behavior. Readings in Attitude Theory and Measurement (M. Fishbein, Ed.), Wiley, 1967.
- FISHER, I. The memory process and certain psycho-social attitudes with reference to the law of pragnanz. Journal of Personality, 1951, 19, 406-420.
- FERGUSON, B., & KENNEALLY, K. Internal-External locus of control and perception of authority figures. Psychological Reports, 1974, 34, 1119-1123.
- FERGUSON, L.W. The stability of the primary social attitudes: Religionism and Humanitarianism. Journal of Psychology, 1941, 12, 283-288.
- FLACKS, R. The liberated generation: Roots of student protest. Journal of Social Issues, 1967, 23, 3, 52-75.
- FLINNER, L.P. Relationship between authoritarianism and attitude towards authority figures. Unpublished Ph.D. thesis, University of Pittsburgh, 1967.
- FRENKEL-BRUNSWIK, E. Intolerance of ambiguity as an emotional and perceptual variable. Journal of Personality, 1949, 18, 108-143.
- FRENKEL-BRUNSWIK, E., ADORNO, T.W., LEVINSON, D., & SANFORD, R.N. The Authoritarian Personality. New York: Harper, 1950.
- FREUD, S. An outline of psychoanalysis. (First Ed., 1940). New York: Norton, 1949.
- FROMM, E. Escape from Freedom. New York: Rinehart, 1941.
- FRUCHTER, B., ROKEACH, M., & NOVAK, E.G. A factorial study of dogmatism, opinionation and related scales. Psychological Reports, 1958, 4, 19-22.
- GREGORY, W.S. Ideology and affect regarding "law" and their relation to law-abidingness. Part One. Character and Personality, 1939, 7, 265-284.
- GUILFORD, J.P. Psychometric Methods (2nd Ed.). New York: McGraw Hill, 1954.

- HAMPDEN-TURNER, C. Radical Man: The process of psycho-social development. Schenkman Publishing Co., Cambridge, Mass., 1970.
- HANEY, C., BANKS, C., ZIMBARDO, P. Interpersonal dynamics in a simulated prison. International Journal of Criminology and Penology, 1973, 1, 69-97.
- HARRIS, T.A. I'm o.k., you're o.k. Pan Books Ltd., London, 1973.
- HARVEY, O.J., HUNT, D.E., & SCHRODER, H.M. Conceptual systems and personality organization. New York: Wiley, 1961.
- HARVEY, O.J. Conceptual systems and attitude change. In Attitude, Ego Involvement and Change (C.W. Sherif and H. Sherif, Eds.). Wiley, 1967. Published in Thought and Personality (P.B. Warr, Ed.,) Penguin Books, 1970, pp.315-333.
- HARVEY, J., & HAYS, O.G. Effect of dogmatism and authority of the source upon persuasion. Psychological Reports, 1972, 30 (1), 119-122.
- HAYS, W.L. Statistics. New York: Holt, Rinehart & Winston, 1963.
- HEIST, P. Intellect and Commitment: the faces of discontent. In Order and Freedom on the Campus: the rights and responsibilities of faculty and students (O.W. Knorr and W.J. Minter, Eds.). Western Interstate Commission for Higher Education, 1965, 61-69.
- HESS, E.H. Attitude and pupil size. Scientific American, 1965, 212, 46-54.
- HOBBS, T. Leviathan. Dent: London Everyman's Library, 1973 (Reproduction of 1661 edition).
- HOFFER, E. The true believer. New York: Harper, 1951.
- HORNE, D. The Lucky Country: Australia in the Sixties. Penguin, 1964.
- HUDSON, L. Frames of Mind. Methuen, 1968.
- HUDSON, L. The cult of fact. London: Cape, 1972.
- IZZETT, R.R. Authoritarianism and attitudes towards the Vietnam War as reflected in behavioural and self report measures. Journal of Personality and Social Psychology, 1971, 17, 145-148.
- JONES, M.B. Authoritarianism and intolerance of fluctuation. Journal of Abnormal and Social Psychology, 1956, 50, 125-126.
- KAGITCIBASI, C. Social norms and authoritarianism: A Turkish-American comparison. Journal of Personality and Social Psychology, 1970, 16, No.5, 444-451.
- KARABENICK, S.A., & WILSON, R.W. Dogmatism among war-hawks and peace doves. Psychological Reports, 1969, 25, 419-422.
- KATZ, J. The student activists: Rights needs and powers of undergraduates. Report prepared for the United States Office of Education, 1967.
- KATZ, M.R. Attitude towards the Law. In The Measurement of Social Attitudes (L.L. Thurstone, Ed.). University of Chicago Press, Chicago., Ill., 1931.

- SARNOFF, I. Psychoanalytical Theory and social attitudes. Public Opinion Quarterly, 1960, 24, 251-279.
- SHERIF, M. Group influences upon the formation of norms and attitudes. In Readings in Social Psychology (T.M. Newcomb and E.L. Hartley, Eds.). First Edition, New York: Holt, 1947.
- SIEGEL, S. Certain determinants and correlates of authoritarianism. Genetic Psychol. Monograph, 1954, 49, 187-229.
- SIEGEL, S. Non-parametric Statistics for the Behavioural Sciences. New York: McGraw-Hill, 1956.
- SMITH, M.B., BRUNER, J.S., & WHITE, R.W. Opinions and Personality. New York: Wiley, 1960.
- SNOW, C.P. Either-Or. Progressive. February, 1961.
- STAGNAR, R. Attitude towards authority: An exploratory study. Journal of Social Psychology, 1954, 40, 197-210.
- STEINER, I.D. Ethnocentrism and tolerance of trait inconsistency. Journal of Abnormal and Social Psychology, 1954, 49, 349-354.
- STEININGER, M.P., DURSO, B.E., & PASQUARIELLO, C. Dogmatism and attitudes. Psychological Reports, 1972, 30 (1), 151-157.
- TAFT, R. Intolerance of ambiguity and ethnocentrism. Journal of Consulting Psychology, 1956, 20, 153-154.
- TAFT, R., & WALKER, K.F. Australia. In The Institutions of Advanced Societies (A.M. Rose, Ed.). Minneapolis, University of Minnesota Press, 1958.
- TAYLOR, I.A. Similarities in the structure of extreme social attitudes. Psychological Monographs, 1960, 74, No.2, 1-38.
- THOMAS, L.E. Political generation gap: A study of Liberal and Conservative activist and non-activist students and their parents. Journal of Social Psychology, 1971, 84, 313-314.
- TILLICH, P. The Eternal Now. S.C.M. Press, 1963.
- THURSTONE, L.L. A factorial study of perception. Chicago: University of Chicago Press, 1944.
- TOFFLER, A. Future Shock. Bodley Head Ltd., 1970.
- TRENT, J.W., & CRAISE, J.L. Commitment and conformity in the American College. Journal of Social Issues, 1967, 23, 3.
- TRIPODI, T., & BIERI, J. Cognitive complexity as a function of own and provided constructs. Psychological Reports, 1963, 13, 26, 133-134.
- VACCHIANDI, R.B., STRAUSS, P.S., & SCHIEFFMAN, D. Personality correlates of dogmatism. Journal of Consulting and Clinical Psychology, 1968, 32, 83-85.

- LONG, R.E., & ZILLER, R.C. (1965) Dogmatism and pre-decisional information search. Journal of Applied Psychology, 1965, 49, 376-378.
- LORENTZ, R.J. Levels of dogmatism and attitudes towards marijuana. Psychological Reports, 1972, 30, 75-78.
- LUNDY, R.M., & BERKOWITZ, L. Cognitive complexity and assimilative projection in attitude change. Journal of Abnormal and Social Psychology, 1957, 55, 34-37.
- MCCANDLESS, B.R., & HOLLOWAY, H.D. Race prejudice and intolerance of ambiguity in children. Journal of Abnormal and Social Psychology, 1955, 51, 42-46.
- MCCARTHY, J., & JOHNSON, R.C. Interpretation of the "City Hall Riots" as a function of dogmatism. Psychological Reports, 1962, 11, 243-245.
- MACDONALD, A.P.Jr. Revised scale for ambiguity tolerance: reliability and validity. Psychological Reports, 1970, 26, 791-798.
- MCCLOSKEY, H. Conservatism and personality. American Political Science Review, 1958, 52, 27-45.
- MCGREGOR, C. Profile of Australia. London: Hodder & Staughton, 1966.
- MCGUIRE, W.J. The nature of attitudes and attitude research. In Handbook of Social Psychology (G. Lindzey and E. Aronson, Eds.), Second Edition, Vol.3. Addison-Wesley, 1969.
- MC LUHAN, H. Understanding Media. McGraw-Hill, 1964.
- MANN, L. Attitudes towards My Lai and obedience to orders: An Australian survey. Australian Journal of Psychology, 1973, 25, 1, 11-21.
- MARTIN, J.G., & WESTIE, F.R. The Tolerant Personality. American Social Review, 1959, 24, 521-526.
- MARTIN, J., & RAY, R. Anti-authoritarianism: an indicator of pathology. Australian Journal of Psychology, 1972, 24, No.1, 13-18.
- MASLOW, A.H. The authoritarian character structure. Journal of Social Psychology, 1943, 18, 401-411.
- MILGRAM, S. Some conditions of obedience and disobedience to authority. Human Relations, 1965, 18, 57-76.
- MILGRAM, S. Obedience to authority: an experimental view. Harper and Row, 1974.
- MILNE, C. Whatever happened to student protest: Australia, new forms emerging. The Advertiser, July 14, 1973, p.17.
- MILNE, C. Sit-in students to defy court. The Advertiser, September 19, 1974, p.1.
- MILLON, T.A. Authoritarianism, intolerance of ambiguity and rigidity under ego- and task involving conditions. Journal of Abnormal and Social Psychology, 1957, 55, 29-33.
- MOORE, H.T. Innate factors in radicalism and conservatism. Journal of Abnormal and Social Psychology, 1925, 20, 234-244.

- MORGAN/OSMOND. The state of student protest. Current Affairs Bulletin, 1970, 46, 8.
- MOUW, J.T. Effects of dogmatism on levels of cognitive processes. Journal of Educational Psychology, 1969, 60, 5, 365-369.
- MURRAY, H.A. (Ed.) Explorations in Personality. New York: Science Editions Inc., 1939.
- NIE, N.H.; BENT, D.H., HULL, C.H. Statistical package for the Social Sciences. New York: McGraw-Hill, 1970.
- NORMAN, R.P. Dogmatism and psychoneurosis in college women. Journal of Consulting Psychology, 1966, 30, 278.
- O'CONNOR, P. Ethnocentrism, intolerance of ambiguity and abstract reasoning ability. Journal of Abnormal and Social Psychology, 1952, 47, 526-530.
- OMNIBUS PERSONALITY INVENTORY. FORM F. Heist, P., and Younge, G. The Psychological Corporation, New York, 1968.
- ORNE, M.T. On the social psychology of the psychological experiment: with particular reference to demand characteristics. In Problems in Social Psychology (C. Backman and P.F. Secord, Eds.), New York: McGraw-Hill, 1966.
- OSGOOD, C.E., SUCI, G.J., & TANNENBAUM, P.H. The Measurement of Meaning. Urbana: University of Illinois Press, 1957.
- PARROTT, G., & BROWN, L. Political bias in the Rokeach Dogmatism Scale. Psychological Reports, 1972, 30, 805-806.
- PEABODY, D. Attitude content and agreement set on scales of authoritarianism, dogmatism, anti-semitism and economic conservatism. Journal of Abnormal and Social Psychology, 1961, 63, 1-12.
- PIAGET, J. Play, dreams and imitation in childhood. New York: Norton, 1951.
- PIERCE, R.A., & SCHWARTZ, A.J. Personality styles of student activists. Journal of Psychology, 1971, 79, 221-231.
- PLANT, W.T., TELFORD, C.W., & THOMAS, J.A. Some personality differences between dogmatic and non-dogmatic groups. Journal of Social Psychology, 1965, 67, 67-75.
- PLOTNICK, H.L. The relation between selected personality characteristics of social work students and accuracy in predicting the behaviour of clients. Unpublished doctoral dissertation. Columbia University, 1961.
- POWELL, F.A. Open and closed mindedness and the ability to differentiate source and message. Journal of Abnormal and Social Psychology, 1962, 65, 61-64.
- PYRON, B., & LAMBERT, P. The generality of simplicity-complexity of social perception in a high school population. The Journal of Psychology, 1967, 66, 265-273.
- RAY, J.J. The development and validation of a balanced dogmatism scale. Australian Journal of Psychology, 1970, 22, 253-260.

- RAY, J.J. An "Attitude to Authority" Scale. Australian Psychologist, 6, No.1, March, 1971, 31-50.
- RAY, J.J. Conservatism, Authoritarianism and related variables. A review and empirical study. In The Psychology of Conservatism (Wilson, G.D., Ed.), Academic Press, 1973.
- RAY, J.J. Conservatism as heresy: An Australian reader. Australian and New Zealand Co., 1974.
- REBHUN, M.T. Dogmatism and test anxiety. Journal of Psychology, 1966, 62, 39-40.
- RICHARDSON, L., & SOUCAR, E. Comparison of cognitive complexity with achievement and adjustments: a convergent-discriminant study. Psychological Reports, 1971, 29, 1087-1090.
- RIGBY, K., COSTELLO, B.C., & QUINN, K. Drug Use among Adelaide Secondary School Students: an interim report for the South Australian Foundation on Alcoholism and Drug Dependence, unpublished report, 1974.
- ROGERS, C.R. Client Centred Therapy. Boston: Houghton-Mifflin, 1951.
- ROKEACH, M. Attitudes as a determination of distortion of recall. Journal of Abnormal and Social Psychology, 1952, 47, 482-488.
- ROKEACH, M. The nature and meaning of dogmatism. Psychological Review, 1954, 61, 194-204.
- ROKEACH, M., & FRUCHTER, S. A factorial study of dogmatism and related concepts. Journal of Abnormal and Social Psychology, 1956, 53, 356-360.
- ROKEACH, M. The Open and Closed Mind. New York: Basic Books, 1960.
- ROSEN, C.V., & KENNY, C.T. Dogmatism and preference in the 1970 Tennessee Senate Campaign. Journal of Psychology, 1972, 82, 171-174.
- ROSENBERG, B.G., & ZIMET, C.N. Authoritarianism and aesthetic choice. Journal of Social Psychology, 1957, 46, 293-297.
- ROSENMAN, M.F. Dogmatism and the movie "Dr. Strangelove". Psychological Reports, 1967, 20, 942.
- RUDIN, S.A. The relationship between rational and irrational authoritarianism. Journal of Psychology, 1961, 52, 179-183.
- RUMP, E.E. An investigation deriving from Barron's personality research, and its implications. Paper to Australian Psychological Society Conference, Brisbane, 1968.
- RUMP, E.E., & COURT, J. The Eysenck Personality Inventory and Social Desirability response set with students and clinical groups. British Journal of Social and Clinical Psychology, 1971, 10 (1), 52-54.
- RUNDQUIST, E.A., & SLETTTO, R.F. Personality in the depression. Minneapolis: University of Minnesota Press, 1936.
- SALLERY, R.O.H., & LINDGREN, H.C. Arab attitudes towards authority: a cross-cultural study. Journal of Social Psychology, 1966, LXIX, 27-31.

- SARNOFF, I. Psychoanalytical Theory and social attitudes. Public Opinion Quarterly, 1960, 24, 251-279.
- SHERIF, M. Group influences upon the formation of norms and attitudes. In Readings in Social Psychology (T.M. Newcomb and E.L. Hartley, Eds.). First Edition, New York: Holt, 1947.
- SIEGEL, S. Certain determinants and correlates of authoritarianism. Genetic Psychol. Monograph, 1954, 49, 187-229.
- SIEGEL, S. Non-parametric Statistics for the Behavioural Sciences. New York: McGraw-Hill, 1956.
- SMITH, M.B., BRUNER, J.S., & WHITE, R.W. Opinions and Personality. New York: Wiley, 1960.
- SNOW, C.P. Either-Or. Progressive. February, 1961.
- STAGNAR, R. Attitude towards authority: An exploratory study. Journal of Social Psychology, 1954, 40, 197-210.
- STEINER, I.D. Ethnocentrism and tolerance of trait inconsistency. Journal of Abnormal and Social Psychology, 1954, 49, 349-354.
- STEININGER, M.P., DURSO, B.E., & PASQUARIELLO, C. Dogmatism and attitudes. Psychological Reports, 1972, 30 (1), 151-157.
- TAFT, R. Intolerance of ambiguity and ethnocentrism. Journal of Consulting Psychology, 1956, 20, 153-154.
- TAFT, R., & WALKER, K.F. Australia. In The Institutions of Advanced Societies (A.M. Rose, Ed.). Minneapolis, University of Minnesota Press, 1958.
- TAYLOR, I.A. Similarities in the structure of extreme social attitudes. Psychological Monographs, 1960, 74, No.2, 1-38.
- THOMAS, L.E. Political generation gap: A study of Liberal and Conservative activist and non-activist students and their parents. Journal of Social Psychology, 1971, 84, 313-314.
- TILLICH, P. The Eternal Now. S.C.M. Press, 1963.
- THURSTONE, L.L. A factorial study of perception. Chicago: University of Chicago Press, 1944.
- TOFFLER, A. Future Shock. Bodley Head Ltd., 1970.
- TRENT, J.W., & CRAISE, J.L. Commitment and conformity in the American College. Journal of Social Issues, 1967, 23, 3.
- TRIPODI, T., & BIERI, J. Cognitive complexity as a function of own and provided constructs. Psychological Reports, 1963, 13, 26, 133-134.
- VACCHIANDI, R.B., STRAUSS, P.S., & SCHIFFMAN, D. Personality correlates of dogmatism. Journal of Consulting and Clinical Psychology, 1968, 32, 83-85.

- VACCHIARO, R.C., STRAUSS, P.S., & HOCHMAN, L. The Open and Closed Mind: a review of dogmatism. Psychological Bulletin, 1969, 71, 4, 261-273.
- VANNOY, J.S. Generality of cognitive-complexity as a personality construct. Journal of Personality and Social Psychology, 1966, 2, 385-396.
- VETTER, G.B. The measurement of social and political attitudes and related personality factors. Journal of Abnormal and Social Psychology, 1930, 25, 149-189.
- VIDILUCH, R.L., & KAIMAN, I.P. The effects of information source, status and dogmatism upon conformity behaviour. Journal of Abnormal and Social Psychology, 1961, 63, 639-642.
- WATTS, W.A., & WHITTAKER, D. Free speech advocates at Berkeley. Journal of Applied Behavioural Science, 1966, 2, 1, 41-62.
- WEISMANN, H.N., & RITTER, K. Openness to experience, ego-strength and self-description as a function of repression and sensitization. Psychological Reports, 1970, 23, 859-864.
- WEITMAN, N. More than one kind of authoritarian. Journal Personality, 1962, 30, 193-208.
- WHEELER, D.K. Edwards Personal Preference Schedule and national characteristics. The Australian and New Zealand Journal of Sociology, 1969, 15, No.1, 40-47.
- WICKER, A.W. Attitudes versus actions: The relationship of verbal and overt behavioural responses to attitude objects. Journal of Social Issues, 1969, 25, 41-70.
- WILKINSON, R. The Broken Rebel, a study in culture, politics and authoritarian character. Croom Helm Ltd., London, 1972.
- WILLIAMSON, E.G., & HOYT, D. Measured personality characteristics of student leaders. Educational and Psychological Measurement, 1952, 12, 1, 65-79.
- WILSON, G.D., & PATTERSON, J.R. Manual for the Conservatism Scale. N.F.E.R. Publishing Co., Windsor, England, 1970.
- WILSON, W., & WADSWORTH, A.P. Attitudes of Liberal and Conservative students toward Ingroups and Outgroups. Psychological Reports, 1972, 31, 463-470.
- WILSON, G.D. (Ed.) The Psychology of Conservatism. Academic Press, 1973.
- WINBORN, B.B., & JANSEN, D.G. Personality characteristics of campus social-political action leaders. Journal of Counseling Psychology, 1967, 14, 6, 509-513.
- WINER, D.J. Statistical Principles in Experimental Design, 2nd Edition. New York: McGraw-Hill, 1971.
- YATES, F. Contingency tables involving small numbers and the χ^2 test. Supplement to J.R. Statist. Soc., 1934, 1, 217-235.