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Attitudes of high school students towards marijuana smoking.

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LA THÈSE A ÉTÉ
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ATTITUDES OF HIGH SCHOOL STUDENTS TOWARDS MARIJUANA SMOKING

A Thesis
Submitted to the Faculty of Graduate Studies
through the Faculty of Human Kinetics
in Partial Fulfillment of the
Requirements for the Degree of
Master of Human Kinetics

By

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DEDICATION

For My Parents

ABSTRACT

A multidimensional study examining attitude and stage of use of marijuana smoking was performed on 454 high school students both male and female. The research design allowed for the analyses of the relationship between stage of use and attitude, level of education and attitude and the interaction effect of these two independent variables on attitude. This analysis revealed that high school students express attitudes consistent with their overt behaviour, and while level of education is not a good indicator of students' attitudes, interaction effects between level of education and usage are minimal. A discussion of implications for health education included consideration of specific attitude subscales as well as the stage of use of the students with whom they are dealing. Future attitude research should place emphasis on long range interval testing in order to examine the onset of attitude change and behaviour change.

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CHAPTER I INTRODUCTION

The public has been exposed over the past 10 years, to a great deal of information and misinformation regarding the abuse of non-prescriptive drugs. Guide lines, for example, have been outlined for parents in order that they may detect early signs of drug use in their children. However, the focus of much of the existing research has been on the physiological effects of the drug rather than on the user as a functioning individual in society.

The use of marijuana, in particular, has in the 1970's become a complex social issue in our society. It has become essential in Canada that the sociological and psychological aspects of the use of this "mind altering" drug should be examined in detail, in order to develop a cumulative and systematic body of knowledge to guide public health legislation in this area. To date, little of this has been done for all too often studies appearing in journals and professional publications fail to make use of existing social psychological knowledge. In order to acquire, accumulate and make systematic information concerning marijuana use in our society, this process must take priority.

One correlate of marijuana use, namely "attitude" has been isolated as a dimension of marijuana use. It has been proposed that possessing certain attitudes may facilitate or enhance the probability of being a marijuana user. (Schlegel,

1972). In the light of such an assumption, the present research will analyze both attitudes and behaviour in relation to marijuana use in a population of high school students.

This study will consider the concept of "attitude" as including the cognitive, affective and conative domains. That is, the statements employed in the measuring instrument do not distinguish between a belief, feeling or behaviour intent, but rather include all of these components as a part of the construct -- attitude (Audi, 1972).

It was the concern of this study to determine the degree of acceptance of, rejection of, or non-commitment to statements that reflect particular attitudes towards marijuana smoking held by high school students at different levels of education (Grades 9 - 13, inclusive). An attempt was made to discern relationships between and among students at different levels of education with regard to these attitudes and the results of the Marijuana Use Questionnaire.

The Problem

Statement of the Problem

The purposes of this study were as follows:

1. To determine attitudes towards marijuana smoking held by high school students who attended school in the Kent County area of the Province of Ontario, Canada, during the 1973-74 session.

2. To compare attitudes towards marijuana smoking according to levels of education.
3. To determine stage of use of marijuana smoking of high school students who attended school in the Kent County area of the Province of Ontario, Canada, during the 1973-74 session.
4. To compare attitudes towards marijuana smoking according to stage of use.
5. To investigate the order of attitude versus behaviour change by comparing attitudes towards marijuana smoking according to both level of education and stage of use.

Hypotheses

1. Working Hypothesis: There will be no difference in the attitudes towards marijuana smoking held by high school students at five levels of education. i.e. H_o: $\bar{X}_{A9} = \bar{X}_{A10} = \bar{X}_{A11} = \bar{X}_{A12} = \bar{X}_{A13}$. Alternatively, students may differ according to level of education. i.e. H_1: $\bar{X}_{A9} \neq \bar{X}_{A10} \neq \bar{X}_{A11} \neq \bar{X}_{A12} \neq \bar{X}_{A13}$.
2. Working Hypothesis: There will be no difference in the attitudes towards marijuana smoking held by high school students at five stages of marijuana use. i.e. H : $\bar{X}_{A0} = \bar{X}_{A1} = \bar{X}_{A2} = \bar{X}_{A3} = \bar{X}_{A4}$. Alternatively, students may differ according to stages of marijuana use. i.e. H_1: $\bar{X}_{A0} \neq \bar{X}_{A1} \neq \bar{X}_{A2} \neq \bar{X}_{A3} \neq \bar{X}_{A4}$.

3. Working Hypothesis: There will be no difference in the attitudes towards marijuana smoking held by high school students at five levels of education according to stages of marijuana use. i.e. H_0: $\bar{X}_{A9U} = \bar{X}_{A10U} = \bar{X}_{A11U} = \bar{X}_{A12U} = \bar{X}_{A13U}$. Alternatively, students may differ according to stages of marijuana use at different levels of education. i.e. H_1: $\bar{X}_{A9U} \neq \bar{X}_{A10U} \neq \bar{X}_{A11U} \neq \bar{X}_{A12U} \neq \bar{X}_{A13U}$.
4. Working Hypothesis: There will be no difference in the attitudes towards marijuana smoking held by high school students at five stages of marijuana use according to levels of education. i.e. H_0: $\bar{X}_{AE0} = \bar{X}_{AE1} = \bar{X}_{AE2} = \bar{X}_{AE3} = \bar{X}_{AE4}$. Alternatively, students may differ according to level of education at different stages of marijuana use. i.e. H_1: $\bar{X}_{AE0} \neq \bar{X}_{AE1} \neq \bar{X}_{AE2} \neq \bar{X}_{AE3} \neq \bar{X}_{AE4}$.

Limitations

1. This study is limited by the number of students in the physical and health education classes in the three sample schools in Kent County, in the Province of Ontario, Canada, who were present and who participated in the testing period of May, 1974.
2. The amount of time the respondents were alloted to answer the questionnaire was restricted by 36 minute class time limit given the researcher by the presiding teachers.
3. The data collected in the study relates to high school students alone.

4. This study is limited to the smoking of marijuana or hashish.

Basic Assumptions

1. The concept of marijuana smoking is sufficiently familiar to the subjects to enable them to react adequately to the given statement and questions.
2. Anonymity gave the subjects the opportunity to answer in an open manner.
3. A high score on a particular attitude subscale infers a positive attitude toward marijuana smoking.
4. A low score on a particular attitude subscale infers a negative attitude toward marijuana smoking.
5. A relationship exists among attitude, level of education and stage of use of marijuana smoking.
6. There is the usual positive relationship between level of education and age.
7. High school students' attitudes towards marijuana smoking are a reflection of a particular youth sub-culture of ever-changing attitudes towards a seemingly conservative adult society.

Definition of Terms

1. The affective domain refers to the feeling component of attitude manifesting itself directly as a response of the

sympathetic nervous system and indirectly as a verbal expression of a feeling. (Katz and Stotland, 1962).

2. An attitude can be defined as the predisposition of the individual to evaluate some symbol or aspect of his world in a favourable or unfavourable manner. (Katz, 1960). In the present study, attitude is measured on a scale from 0 to 30. Zero represents an extremely unfavourable response and 30 represents an extremely favourable response to a particular group of statements.
3. An attitude continuum represents a measurement of a single underlying dimension which provides a reference axis for the evaluation of some set of beliefs, feelings and action tendencies.
4. An attitude subscale represents a measurement of a single attitude continuum, scored independently to yield a sub-test score.
5. Cannabis sativa is the dried flowering spikes of the pistilate plants of the hemp. (Webster, 1968).
6. The cognitive domain refers to the belief component of attitude which manifests itself directly as a perceptual response and indirectly as a verbal response of a belief. (Katz and Stotland, 1962).
7. The conative domain refers to the action component of attitude which manifests itself directly as an overt action and indirectly as a verbal expression of an action. (Katz and Stotland, 1962).
8. Hashish ("hash") is the relatively pure resin of the cannabis sativa plant that is usually prepared by pressing

or scraping the sticky amber resin from the plant, and may be more than five times as potent on a weight basis as high quality marijuana. (Canada, Interim Report, 1970).

9. Level of Education refers to a distinction made according to high school year. (Grades 9, 10, 11, 12 and 13).

10. Marijuana can be defined as crushed, dried cannabis leaves, flowers, and often twigs, and may vary considerably in potency from one sample to another. It is often called marihuana, "pot," "grass," "reefer," "weed," "tea," "boo," "Mary Jane," or "Acapulco Gold." (Canada, Interim Report, 1970).

11. Stage of Use is a classification of degree of marijuana use (overt behaviour) based on frequency of use and the availability of the drug. The classification used in this study is as follows:

0 = non-user
1 = initial user
2 = casual user
3 = occasional user
4 = regular user

(Sadava, 1972).

Need for the Study

The social aspects of attitude and behaviour have developed an increased concern in research because marijuana smoking is essentially a complex social concern rather than a simple

pharmacologic phenomenon. It is well-known that all deleterious effects of the use (or abuse) of this drug have not yet been examined. Until further research in this area has been performed, current practices amount to a discouragement of its use. However, persuasive techniques are unlikely to be effective unless a reliable body of knowledge regarding its effects on human behaviour and methods of influencing attitudes toward this drug has evolved. Knowing the specific factors that determine attitudes can make persuasion a more meaningful tool in the realm of education. More specifically, knowing which types of attitudes are associated with given levels of education and stage of use can pinpoint more accurately those areas which demand greater attention in the education of high school students today.

While the relationship of attitude to behaviour change remains ambiguous to researchers, it is precisely this point that demands attention in drug-related research. Studies that indicate the relationship between attitude and behaviour at different age levels are greatly needed at the present moment in North America and elsewhere.

Jessor, Jessor and Finney (1973) in a study entitled "A Social Psychology of Marijuana Use: Longitudinal Studies of High School And College Youth," dealt with marijuana use as problem behaviour in youth. It was suggested that studies of marijuana use considered as a transgression, should be able to contribute to the social psychology of problem behaviour; research on marijuana use from the point of view of its

role among youth should contribute to the social psychology of adolescent development; and investigation of marijuana use as a socially learned behaviour should reveal something useful about the more general problem of personality-environment interaction.

This present research is intended to view marijuana use as a form of a problem behaviour in youth, and thus, perhaps relate it to other problem behaviours that can be related to specific attitudes. In this way, studies of this nature do not entirely isolate the topic of marijuana use as being a unique phenomenon but rather part of the general behaviour pattern of adolescents during their developmental years.

It is evident, therefore, that a need exists for research involving the attitudes of youth towards controversial behaviour (or problem behaviour, to which it is often referred) such as marijuana use. Action programmes specifically concerned with drugs can benefit greatly, if they have at their disposal, information pertaining to the feelings and beliefs of people with whom they are dealing.

The examination of attitudes, stage of use and level of education may further provide information rgarding the onset of use and provide information about the underlying reasons for this emerging at a particular time. If this type of thinking is embodied in the view that marijuana use is part of a larger framework of responses to the traditional social order, then hopefully a better understanding of the high school students' attitudes and behaviour as a distinct sub-culture may ensue.

CHAPTER II REVIEW OF RELATED LITERATURE

In order to build towards a study on attitudes and marijuana smoking, it seems reasonable to approach this on a more general level in which attitude and attitude measurement are first examined. Thus, the initial part of this review will summarize a few articles on attitude measurement in social research. Following this, the drug aspect will be encorporated as a social behaviour, with marijuana smoking behaviour, specifically being examined withih the context of attitude and attitude measurement.

Studies on Attitude Measurement

In many social science studies, the term "attitude" has been presented depicting several different ideas. Numerous definitions have been offered in an attempt to clarify exactly what is being implied or measured. An early study by Allport (1935) defined attitude as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related." (Allport, p.8) This definition seems to be attributing an "affective" component to the term attitude. Osgood (1965) differentiated between "belief" and "attitude" by attaching a cognitive aspect to belief and an affective or motivational aspect to attitude.

He suggested that "attitudes"

a) are learned and implicit
b) may be evoked either by perceptual signs or linguistic signs
c) are predispositions to respond evaluatively to those signs
d) the evaluative predisposition may fall anywhere on a scale from "extremely favourable" through "neutral" to "extremely unfavourable."

(Osgood, page 101). These four points tend to be motivationally oriented and part (d) suggests a scaling procedure that could be employed in the measurement of attitude.

Back in 1929, L.L. Thurstone presented a scale with which to measure attitudes. He assumed that opinions reflect attitudes and therefore through the gathering of opinions in a "more" or "less" fashion, one can measure the attitude reflected. Thurstone also assumed that attitudes fall on a linear continum even though opinions are multidimensional. As a result, his scale was unidimensional, suggesting that peoples' opinions fall either to the right or the left of the neutral point, or on the neutral point itself, of the attitude continuum.

Rensis Likert (1932) followed up on Thurstone's scales, separating the attitude continuum into a scale of five. He stated that it is quite irrelevant what the extremes of the attitude continuum are called; the important fact being that people do differ quantitatively in their attitudes, some being more toward one extreme, some more toward the other. Likert then suggested that the calculation of reliability be the sum of the odd statements for each individual correl-

ated against the sum of the even statements. Internal consistency could then be checked by item analysis, that is, calculating the correlation coefficient of each statement with the battery. If a negative correlation coefficient were to be obtained, it would indicate that the numerical values were not properly assigned and that the ONE and FIVE ends should be reversed. If a zero or very low correlation coefficient were to be obtained, it would indicate that the statements failed to measure that which the rest of the statements measured. In conclusion, Likert suggested that because of the ease and simplicity with which scales can be checked using these methods, a check for split-half reliability and internal consistency should be done for each subject group upon which a scale is used.

These two scaling procedures have been used widely in social science research especially in the use of questionnaires. T.M. Ostrom (1969) used Thurstone and Likert scales along with Guttman's scalogram analysis and Guilford's self-rating scale in an attempt to isolate determinants of attitudes in the affective, behavioural and cognitive domains. He made the assumption that people strive to maintain evaluative homogeneity among the attitudinal responses they emit. He discussed three attitudinal responses, the first aimed at the attitude object, and the second and third at the respondent himself.

1) Endorsement of a cognitive statement means that the respondent believes it is probable that the attitude object possesses that att-

ribute

2) Endorsement of a behavioural statement means the respondent considers it probable he would engage in the overt action described

3) Endorsement of an affective statement means the respondent considers it probable he would experience the affective reaction described.

(Ostrom, p. 13) Ostrom concluded that unique, but unidentified determinants exist for responses in the affective, behavioural and cognitive components of attitude.

To further this investigation to include behaviour or behaviour intent, the work of Martin Fishbein (1967) should be examined. Rather than viewing beliefs and behavioural intentions as part of attitude, Fishbein prefered to define them independently and to view them as phenomena that are related to attitudes. In Thurstone Scaling and Likert Scaling, the subject is confronted with a series of belief statements. In both cases, the attitude score is indexed from a consideration of the respondent's beliefs, that is, it is abstracted from several of his statements about the attitude object. Thus, these investigators have attempted to resolve the attitude-behaviour problem by expanding the definition of attitude to include affective, cognitive and conative components. In contrast to this, Fishbein has attempted to show that beliefs (cognitions) and behavioural intentions (conations) can best be viewed as determinants or consequents of attitude. In a later study, Fishbein and Ajzen (1972) suggested that the concept "attitude" should

only be employed where there is strong evidence that the obtained measure places an individual along a dimension of affect. That is, judgements implying a probabilistic belief regarding an object and some concept or a probabilistic behaviour or intention in the future, should not be taken as measures of attitudes.

Robert Audi (1972) summarized much of the current attitude measurement literature. He suggested that there was considerable agreement among social sciences on the conceptual content of the term attitude, that is, that they are complexes of certain conative, affective and cognitive elements. It was suggested that, if the everyday notion of an attitude and certain common-sense explanatory principles are worth taking seriously as a starting point for psychological theorizing, adequate predictions of action can be drawn only from more complex measures of motivation than are obtained by the standard attitude measuring devices. However, Audi did not propose any new measuring procedure in his study; he only pointed out the absence of satisfactory scales with which to measure this multi-dimensional concept called attitude.

Besides attempting to improve the measuring instrument itself, some researchers have suggested other ways to increase the reliability and validity of the measurement of attitudes. Sample & Warland (1973) suggested the use of moderator variables as an approach to increasing relaibility and validity. A moderator is any variable which changes the

kind and degree of relationship between two other variables. Moderators are used to divide an aggregation of people into more homogeneous groups so that the initial correlations between predictor and criterion variables are improved. For example, the use of a moderator in a one-way analysis of variance would warrant the use of a two-way analysis of variance and correlations would be performed for each group of the moderator variable. Based on this idea, Sample & Warland concluded four points:

1) Measurement of attitude development is central to using attitude as a prediction of behaviour.
2) When attitude is developed additional variables do not contribute to behaviour explanation, thus limiting the value of a multiple variable approach.
3) When attitude is not developed or a sample is treated without regard to attitude development, a multiple variable approach aids in identifying the relative contribution of other variables.
4) In view of the degree to which certainty enhanced the validity of the measurement of developed attitudes, it appears that better measurement efforts are initially a more effective approach to the attitude-behaviour problem than is the use of a multiple variable approach.

(Sample & Warland, p. 302) This approach to attitude is in opposition to that of Fishbein who considers attitude a multidimensional concept and who separates its components.

In 1974, Allen E. Liska dealt with three issues in the attitude-behaviour controversy. The first issue he concerned himself with was the problems of measurement. He named memory

distortion, social desirability effects, and response biases as the major limitations in measuring attitudes. The second issue was that of the role of other competing attitudes. Liska proposed that socialobjects are composed of numerous properties. Therefore, attempting to predict behaviour toward the object using only one attitude makes little sense; rather it is necessary to measure and include various relevant attitudes in the predictive equation. The third issue was that of the role of social support. Liska suggested that the attitude-behaviour consistency is affected by the level of social support, although the extent of the effect varies from study to study. He also stated that this effect tends to be accentuated when behaviour is socially deviant and visible, although the effect is not always extensive. He used the interaction conceptualization as well as the additive conceptualization to determine the function of behaviour with respect to attitudes, social support and other sources of variation on behaviour. He used the following formulae to calculate behaviour expectations:

Additive Conceptualization

$$B=A(W) + SS(W) + E(W)$$

Interaction Conceptualization

$$B=A(W) - SS(W) + E(W)$$

where B=Behaviour SS=Social Support
A=Attitude E=All other sources of variation on B
W)=empirically determined weights

(Liska, p.268). It is interesting to note the use of interaction in the interpretation of attitude-behaviour data. This technique individualizes data into smaller compartmental groups for analysis where perhaps effects can be seen that would otherwise be camouflaged.

Studies on Attitude Measurement of Marijuana Smoking Behaviour

The most recent literature regarding attitudes is attempting to test the assumption that attitudes affect behaviour. Raymond Vincent (1970) attempted to measure "attitude" employing Thurstone's equal appearing interval technique to develop a scale with which to measure these attitudes. It can be administered in a classroom setting and an attitude "score" can be readily obtained. In addition, evidence of logical and empirical validity are available, and the scale has been tested and found to be reliable for 8th, 9th, and 12th grade students. It encompasses statements that reflect a point of view that can be rated on a 5 point continuum. Each statement has a scale value. The individual "score' or measure of attitude is the scale value of the middle or median value of those statements to which the student responds.

The major drawback of this scale is the fact that it

is unidimensional. The concept of "attitude," being a multidimensional construct, deserves a multidimensional scale for measurement, in order to be appropriate and precise.

Ronald Schlegel (1973) completed a dissertation at the University of Waterloo in which he formulated a multidimensional measurement and structure of attitude toward smoking marijuana. A pilot study undertaken at Ohio State University was used in order to choose the best, most appropriate attitude statements to comprise his scale. With the construction of this scale and the proof of its validity and reliability, marijuana attitude researchers have an important tool with which to study this construct. It was this particular set of scales that was used in this thesis. The subjects originally used when setting up the scale statements were college students. However, in 1974, Schlegel validated his scales using high school students as subjects. (The reliability coefficients for the high school sample were not able to be obtained by the completion of this study.) The development of these multidimensional scales by Schlegel was the catalyst that initiated the present study employing one of the five scales to analyze the relationship between attitudes and marijuana use of high school students.

Also in 1973, Stan L. Albrecht concerned himself with two bodies of theory concerning the attitude-behaviour contraversy in his article "Verbal Attitudes and Significant Others' Expectations as Predictors of Marijuana Use." First, he

looked at attitude as a determinant of action and second, the effect of reference groups and group pressures on behaviour. His three hypotheses were as follows:

1) Subjects will have a tendency to behave consistently with their attitudes toward an attitude object.

2) Subjects will have a tendency to behave consistently with perceived expectations of others toward an attitude object.

3) When individual attitudes and the expectations of significant others are consistent, prediction of behaviour should be stronger than when looking at either factor individually.

(Albrecht, P. 198). Albrecht found first of all, that individual attitude appeared to be a fairly good predictor of overt action. He also found a strong relationship between subject perceptions of the expectations of significant others and their own behaviour. Thirdly, Albrecht stated that the relationship between behaviour and interpersonal influence was somewhat stronger than that observed between attitude and action. Lastly he found that the best prediction was obtained when both attitudes and perceived norms were examined in combination.

In summary then, Albrecht suggested (as did Schlegel) that both the social situation and the personal-psychological situation need to be considered when studying the attitude-behaviour relationship.

To conclude this brief look at the literature involving attitude, behaviour and marijuana, a theoretical study was cited in order to tie in marijuana smoking behaviour with other social "problem" behaviours that plague youth today. Jessor et. al. (1973) employed problem behaviour theory to account for variation in marijuana use among junior high, senior high and college students, both male and female. The questionnaire they used consisted of psychometrically developed scales or indexes assessing personality, social and behavioural variables. Results were organized into 2 sections: a cross-sectional analysis based on marijuana behaviour reports (MBR) and a longitudinal or change analysis based on non-user to user groups (NU-U). The data provided strong support that marijuana use covaried with other instances of school classroom problems or problem prone behaviour and variation in marijuana use. Similarily, the personality, social and behaviour variables were from non-use to use over time among the high school students but not the college students. This study seems to support the view that marijuana use is an institutionalized component of youth culture and as such should be examined along with many other problem behaviours associated with youth. This theory was kept in mind as the underlying basis of this thesis.

CHAPTER III RESEARCH PROCEDURES

The Research Instrument

The response booklet (Appendix A) used in this study included the Attitude Toward Smoking Marijuana Questionnaire which was developed by Schlegel (1973), as well as a modified version of Sadava's (1972) Stages of Marijuana Use Questionnaire. The front page of the booklet included a set of instructions, format and scoring procedures in order to make the task as clear as possible to the subjects. The last page of the booklet included general information regarding each subject. Such categories as sex, age, and high school year were incorporated.

The Attitude Toward Smoking Marijuana Questionnaire involved 100 attitude statements taken from Schlegel's 130 statement questionnaire. The statements used were those that reflected attitude subscales included in Schlegel's Form A (a 20 subscale inventory) based on Likert-type logical validity (Likert, 1932).

The Subjects

The response booklet was administered to a sample of 454 high school students in three schools in the Kent County area of the Province of Ontario, Canada during the

Spring of 1974.

Selection of schools to be included as the sample was based on religion, area and population. That is, the smallest school from each of the following categories was taken--a Catholic city school (school A), a Public city school (school B) and a Public County school (school C). No Catholic County school existed in the Kent County area. (The only Catholic city school available was relatively small in numbers, necessitating the selection of small schools from the other two categories in order to obtain relatively equal representation.)

The response booklet was administered to all high school students who were present during the testing period and who took physical and health education at any of the three participating schools.

All students asked to participate in this study did so on a voluntary basis.

Procedures

Before testing of the subjects was initiated, permission was obtained from each school principal and the respective teachers involved.

The questionnaires were mimeographed and placed in a response booklet with the appropriate instructions on the front page. The research instrument was administered by each individual physical and health education teacher, in order to strengthen the objectivity of the test. Each

teacher was given identical written instructions by the researcher, which they read to their class prior to the testing (Appendix C). The teachers were instructed to emphasize the fact that the results of the test would remain completely anonymous and that their honest reply was necessary.

The attitude items presented to the respondents included the following 20 attitude subscales and their respective reliability coefficients for the Ohio State University sample (Schlegel, 1972), the University of Waterloo sample (Schlegel, 1973) and the Kent County High School sample (Lazarus, 1974):

TABLE 1

ATTITUDE SUBSCALES AND RELIABILITY COEFFICIENTS

Attitude Subscales	University		High School	
	Ohio State	Waterloo	Kent County	
			Alpha	Standardized Item Alpha
Q_1 Morality	.97	.94	.88	.88
Q_2 Hedonism	,96	.94	.90	.90

Q_3	Euphoric Sensory-Perceptual Effects	.93	.90	.82	.82
Q_4	Dysphoric Sensory-Perceptual Effects	.89	.85	.70	.70
Q_5	Instrumental to Philosophical Outcomes	.96	.92	.78	.78
Q_6	Instrumental to Self-Actualization	.97	.90	.76	.76
Q_7	Harm to Physical Health	.87	.82	.73	.73
Q_8	Benefits to Physical Health	.87	.84	.66	.65
Q_9	Harm to Personality and Mental Health	.92	.92	.62	.75
Q_{10}	Harm to Intellectual and Cognitive Functioning	.92	.87	.61	.61
Q_{11}	Enhances-Inhibits Motivation	.93	.90	.72	.72
Q_{12}	Benefits to Personality and Mental Health	.92	.89	.80	.80
Q_{13}	Social Order	.95	.88	.77	.77
Q_{14}	Public Safety	.93	.89	.76	.76
Q_{15}	Pro-Anti Legalization	.96	.92	.83	.83
Q_{16}	Marijuana Smokers	.93	.89	.82	.82
Q_{17}	Control of Actions	.92	.88	.82	.82
Q_{18}	Drug Abuse Potential	.93	.94	.88	.88
Q_{19}	Dependency-No Dependency	.93	.93	.85	.85
Q_{20}	Instrumental to Social Interaction	.95	.92	.84	.84

Each of these subscales included five statements that reflected that particular attitude enabling a subscale score to be computed for each attitude. That is, a raw score from 0 to 6 was attributed to each statement, the score 0 reflecting a very negative attitude and the score 6 reflecting a very positive attitude.

FIGURE 1

ASSIGNMENT OF RAW SCORE TO SUBJECT'RESPONSE

/-3 /	-2 /	-1 /	0 /	+1 /	+2 /	+3 /	Subject response
Strongly Disagree			Neutral or Don't know			Strongly Agree	
0	1	2	3	4	5	6	Computer Assigned Raw Score

With five statements reflecting each particular attitude, a completely positive attitude exhibited a subscale score of 30, while a completely negative attitude exhibited a subscale score of 0. Subscale scores between 13 and 17 demonstrated non-commitment to that particular attitude.

Statistical Analysis

The material from the questionnaire was coded and punched on computer cards and analyzed under Computer #S 360/65 at the Computer Centre at the University of Windsor, Windsor, Ontario, Canada. For each of the 20 attitude subscales, three treatments were employed.

The first hypothesis was tested by a one-way analysis of variance (ANOVA 1) in order to differentiate attitudes at five levels of education. Significant F values at the p.05 level were followed by the post hoc Scheffe method of determining wherein the specific differences lie.

The second hypothesis was also tested by a one-way analysis of variance in order to differentiate attitudes at five stages of marijuana use. Again significant F values at the p.05 level were followed by a post hoc Scheffe.

To test hypotheses #3 and #4, a two-way analysis of variance was used to indicate interaction between levels of education and stages of use for each attitude. Significant F values at the p.10 level of confidence were graphed to observe the slopes involved in any interaction effects.

CHAPTER IV RESULTS

Subject Distribution

TABLE 2

HIGH SCHOOL YEAR AND STAGE OF USE SAMPLES

School	A	B	C	Total
Area	City	City	County	
Religion	Catholic	Public	Public	
Sex - Male	48	98	7	153
- Female	126	105	70	301
High -9	77	87	22	186
School -10	28	6	20	54
Year -11	25	69	17	111
-12	20	41	17	78
-13	24	0	1	25

Stage	-0	107	144	55	306
of	-1	24	17	9	50
Use	-2	16	13	3	32
	-3	18	21	6	45
	-4	9	8	4	21
	-Users	67	59	22	148
Total		174	203	77	454

A sample of 174 students from School A, 203 from School B and 77 from School C yielded a total sample of 454 respondents for the study (see Table 2). This sample distributed into the following subsamples according to Sadava's modified Stage of Use Questionnaire: 306 (67.4%) non-users, 50 (11%) initial users, 32(7%) casual users, 45(9.9%) occasional users and 21 (4.6%) regular users. Respective percentages of the total sample are shown in parentheses. Thirty-three per cent of the total sample indicated that they had tried marijuana or hashish at least once. According to high school year, the sample breakdown was as follows: 186 (41%) in grade 9, 54 (11.9%) in grade 10, 111 (24.4%) in grade 11, 78 (17.2%) in grade 12 and 25 (5.5%) in grade 13. Again the respective percentages are shown in parentheses.

Usage and Education Differences

TABLE 3

SUBSCALE MEANS, USAGE AND EDUCATION DIFFERENCES

Attitude Subscale	Mean	Stage of Use Differences	High School Year Differences	Interaction (Use-Ed.)
Q_1	14.8	77.39	4.67	0.60
Q_2	11.4	97.86	5.69	0.65
Q_3	15.0	59.68	3.15	0.63
Q_4	12.4	56.25	6.75	1.03
Q_5	12.2	24.26	2.96	0.49
Q_6	11.1	34.38	3.95	0.81
Q_7	12.1	56.98	7.29	0.46
Q_8	14.3	6.58	0.65 N.S.	0.82
Q_9	11.8	47.38	4.03	0.47
Q_{10}	13.0	47.54	7.13	1.65*
Q_{11}	12.3	41.80	2.96	1.57*
Q_{12}	11.6	46.22	2.19 N.S.	1.39

Q_{13}	13.0	78.21	6.44	0.75
Q_{14}	11.3	59.77	4.59	1.17
Q_{15}	15.7	52.05	2.74	0.35
Q_{16}	16.3	47.23	4.21	0.29
Q_{17}	12.7	72.81	7.61	1.11
Q_{18}	11.5	63.88	6.70	0.66
Q_{19}	12.1	66.47	9.04	1.23
Q_{20}	13.4	41.61	1.30 N.S.	0.97

All differences significant at p.05 , unless stated.

* p .10

The total sample mean scores range from 11.07 for attitude subscale Q_6 (self-actualization) to 16.27 for attitude subscale Q_{16} (marijuana smokers). All 20 attitude subscales were found to be significantly different (p .05) when the sample was classified according to stage of use and analyzed using a one-way analysis of variance. Seventeen of the 20 attitude subscales were found to be significantly different (p .05) when the sample was classified according to high school year and analyzed using a one-way analysis of variance. A two-way analysis of variance (to test for interaction between usage and education) indicated that at the p.05 level, no attitude subscales were sig-

nificantly different. Two subscales (Q_{10}, Q_{11}) were found to differ significantly at the p .10 level of confidence.

A post hoc analysis (Scheffe) for all 20 significant F ratios from the stage of use ANOVA rendered the following results: (see Figure 2)

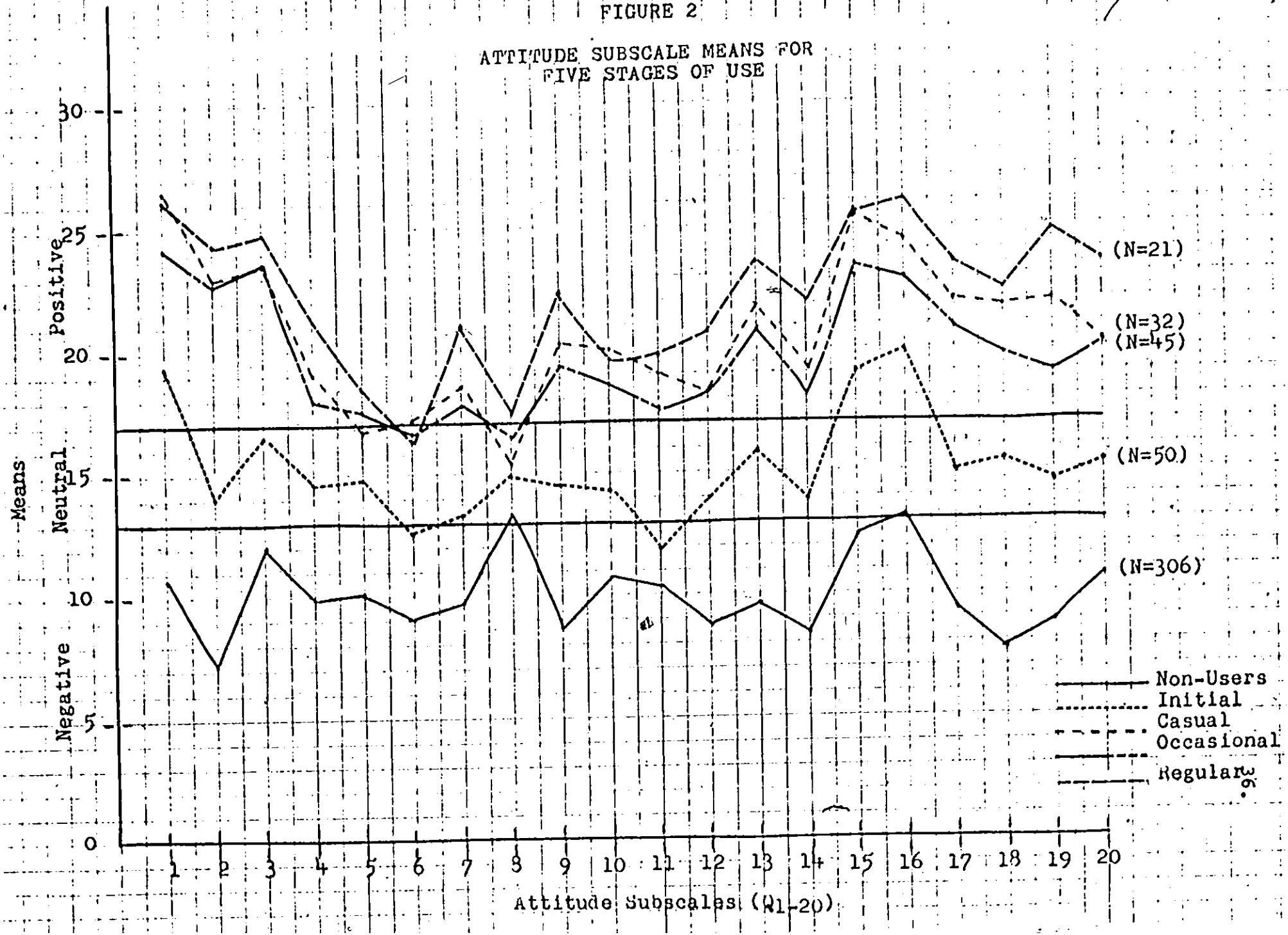
(A) Non-Users: The 306 non-users were revealed as a homogenous subset being significantly negative or neutral relative to other user samples on all but 2 attitude subscales (Q_8,Q_{11}). When non-users and initial users were grouped together they displayed a significantly negative homogeneous grouping with respect to attitude subscale Q_{11} (Enhances-Inhibits Motivation). When non-users were grouped with initial and casual users, they formed a significantly neutral homogeneous grouping for attitude subscale Q_8 (Benefits to Physical Health).

(B) Initial Users: The 50 initial users in this study stood out as a homogeneous subset who remained significantly neutral relative to other sample groups on 50% of the attitude subscales (Q_2, Q_3, Q_7, Q_9, Q_{10}, Q_{13}, Q_{14}, Q_{17}, Q_{19}, Q_{20}). On three other subscales, when initial users were grouped with either occasional users or occasional and casual users, they formed a significantly positive homogeneous subset with respect to attitude subscales Q_1 (Morality), Q_{15} (Pro-Anti Legalization), and Q_{16} (Marijuana Smokers).

(C) Casual, Occasional and Regular Users: Alone, none of these groupings formed a homogeneous subgroup significant for any of the 20 attitude subscales. However, when the

FIGURE 2

ATTITUDE SUBSCALE MEANS FOR
FIVE STAGES OF USE



three were grouped together, they formed a homogeneous subgroup significantly positive or neutral/positive for all but three attitude subscales (Q_5,Q_8,Q_{19}). On attitude subscales Q_5 (Philosophical Outcomes) and Q_8 (Benefits to Physical Health), a significantly neutral/positive homogeneous grouping was formed with initial, casual, occasional and regular users. Attitude subscale Q_{19} (Dependency-No Dependency) formed a significantly positive homogeneous subgroup when casual users were grouped with occasional users and when casual users were grouped with regular users.

A post hoc analysis (Scheffe) for the 17 significant F ratios from the high school year ANOVA rendered the following results: (see Figure 3)

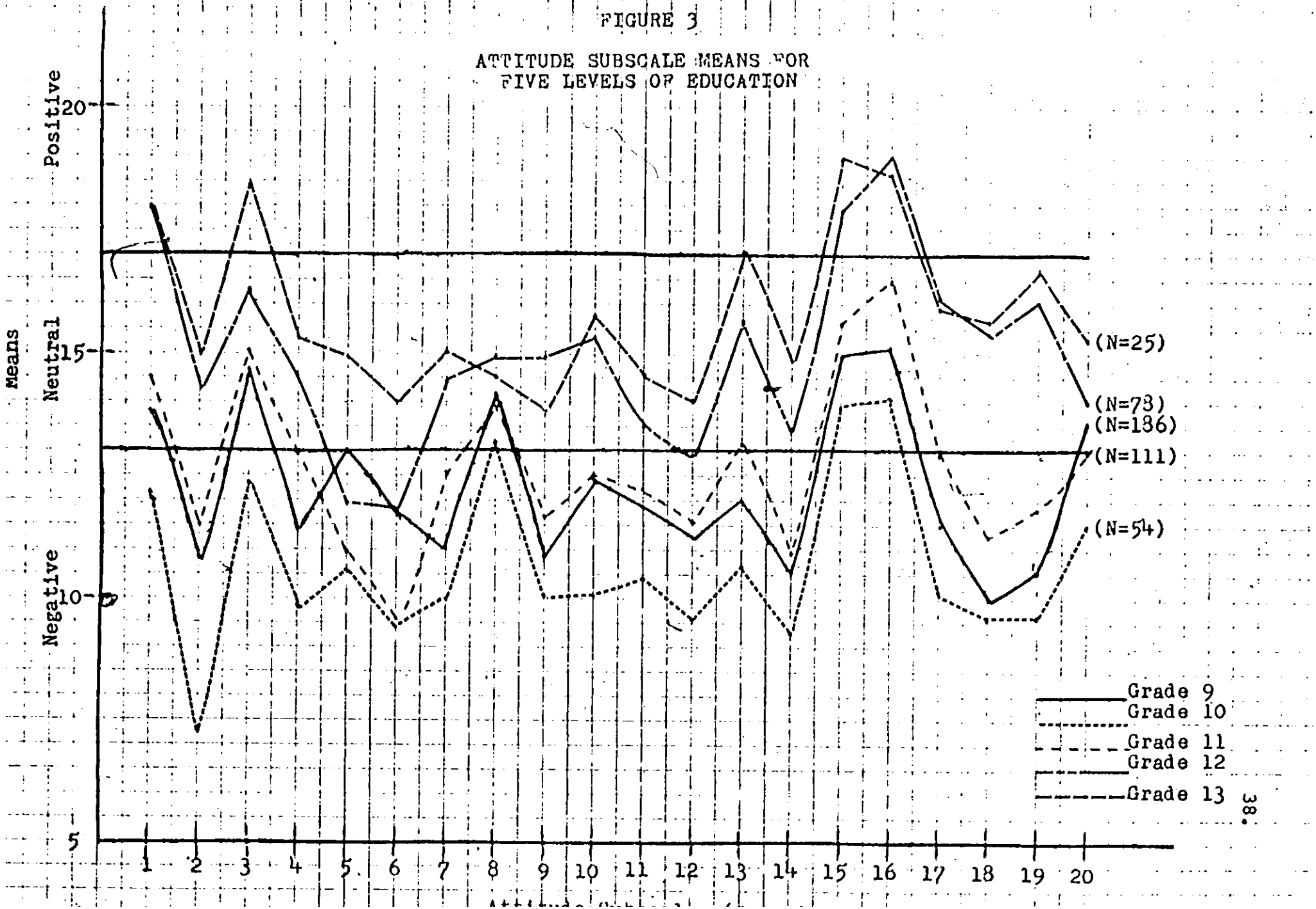
No one grade level stood out as a homogeneous subgroup, significantly different for any of the 17 attitude subscales. However, when specific grade levels were grouped, 10 attitude subscales ($Q_{2-4,7,9,10,13,16,17,19}$) exhibited significant homogeneous subsets.

Six attitude subscales ($Q_{2,4,7,10,13,19}$) formed a significantly negative/neutral homogeneous subgroup of grade 9,10 and 11 students. Six attitude subscales ($Q_{7,9,13,16,17,19}$) formed a significantly negative/neutral or neutral/positive homogeneous subgroup of grade 11, 12 and 13 students.

A grouping of grade 9, 11, 12 and 13 students formed a significantly negative/neutral or neutral/ positive

FIGURE 3

ATTITUDE SUBSCALE MEANS FOR
FIVE LEVELS OF EDUCATION



homogeneous subset for attitude subscales ($Q_{2,3,4,10}$).

A grouping of grade 9,10 11 and 13 students formed a significantly negative/neutral or neutral/positive homogeneous subset for attitude subscales ($Q_{9,16,17}$).

A grouping of grade 9,10,11 and 12 students formed a significantly negative/neutral homogeneous subset for attitude subscale Q_3.

Interaction Effects

TABLE 4

EFFECTS OF USAGE AND EDUCATION ON COGNITIVE FUNCTIONING (Q_{10})

Source of Variation	SS	df	MS	F*
Main Effects	6058.805	8	757.351	26.85
A (Usage)	4931.324	4	1232.831	43.70
B (Education)	444.821	4	111.205	3.94
2-Way Interactions	650.937	14	46.496	1.65
AB	650.940	14	46.496	1.65

Residual	12159.559	431	28.21	
Total	18869.301	453	41.65	

*All significant at p .10

This two-way analysis shows the main and interaction effects for the attitude subscale reflecting harm to intellectual and cognitive functioning (Q_{10}). Both independent variables, as well as the interaction of the two, were significant at the p.10 level of confidence. The interaction effects between usage and education on cognitive functioning are graphed in figures 4a and 4b.

FIGURE 4a

PROFILES OF INTERACTION EFFECTS ON COGNITIVE FUNCTIONING (Q_{10}) AT FIVE STAGES OF USE

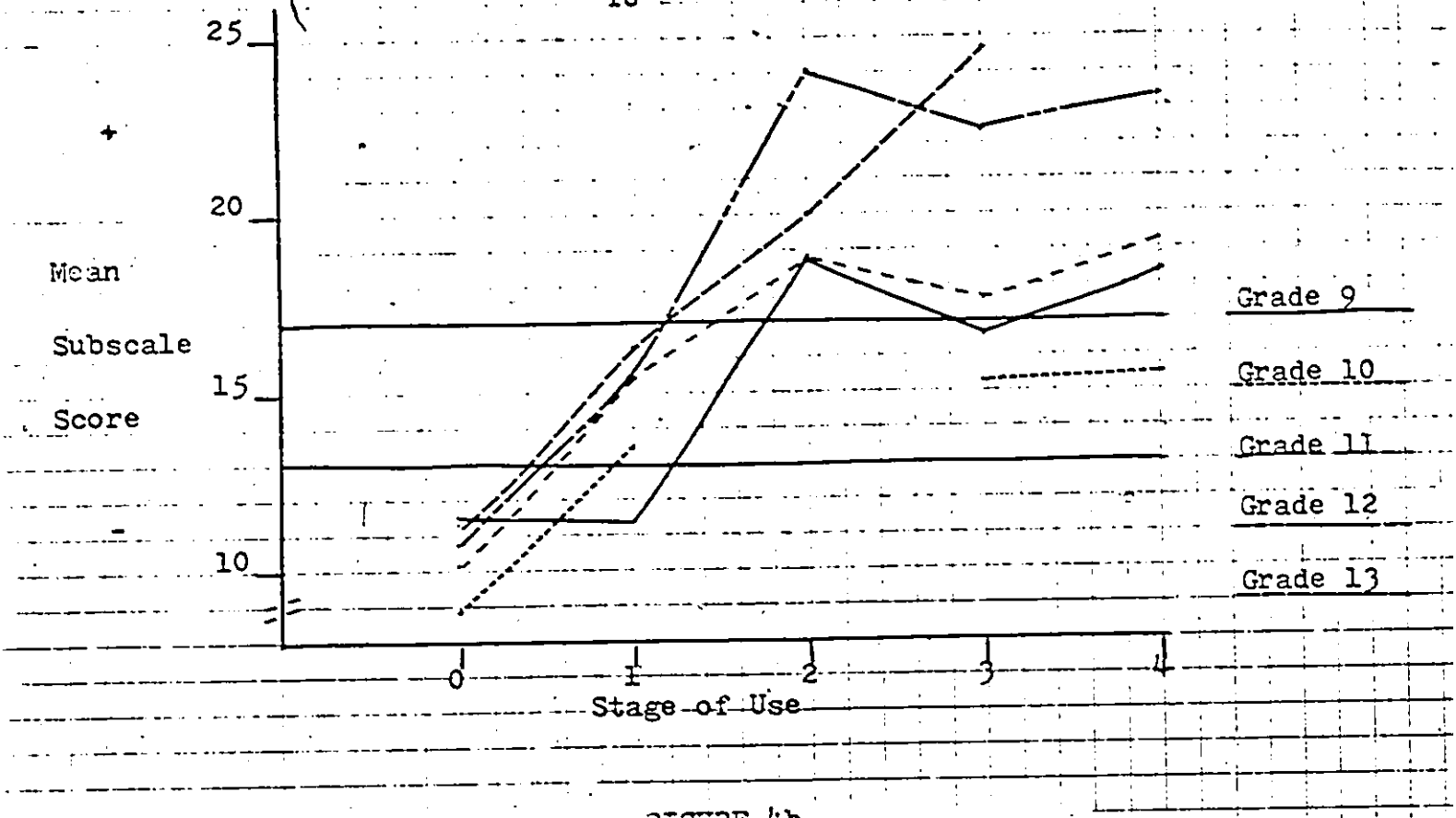


FIGURE 4b

PROFILES OF INTERACTION EFFECTS ON COGNITIVE FUNCTIONING (Q_{10}) AT FIVE LEVELS OF EDUCATION

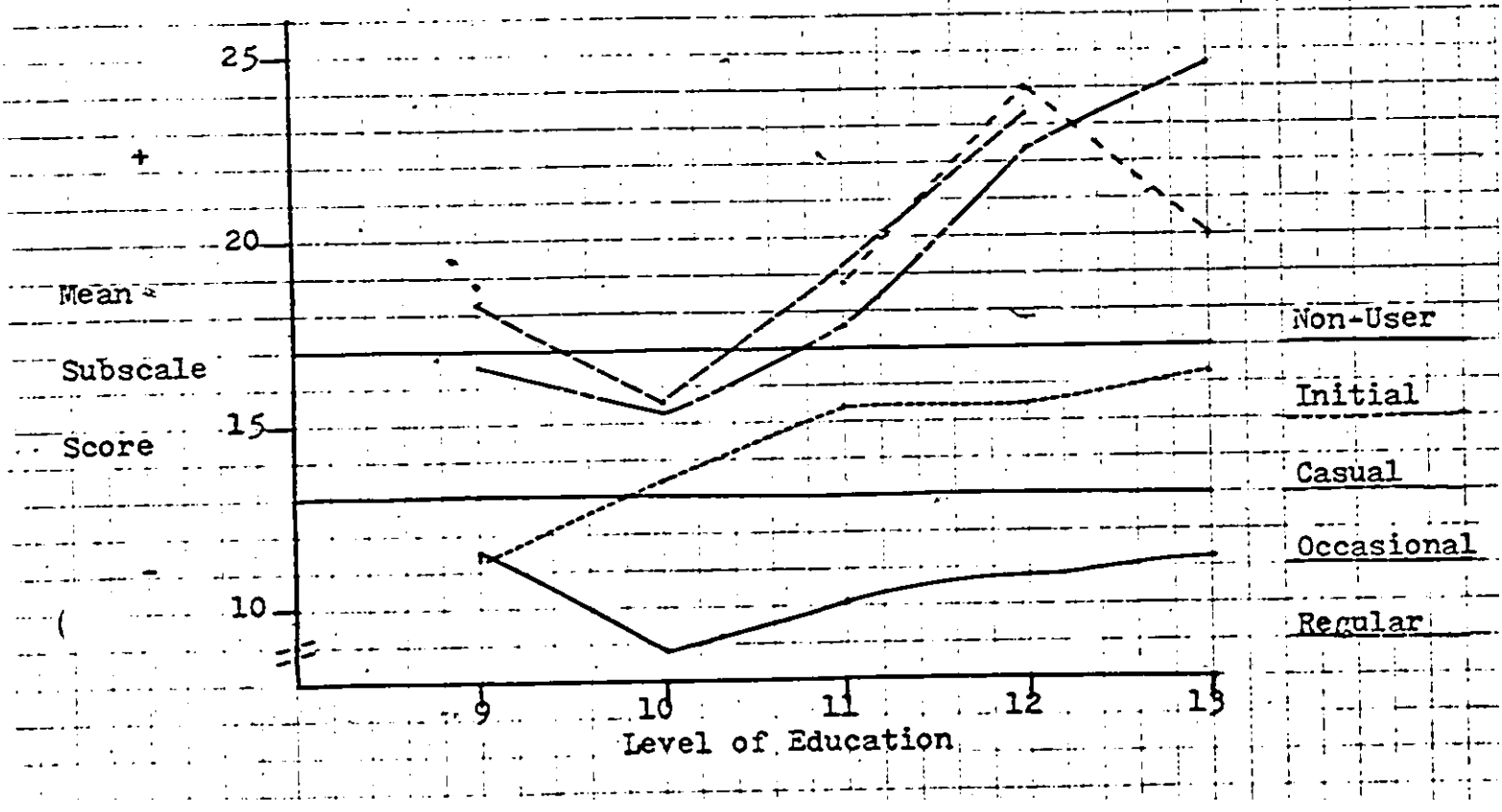


TABLE 5

EFFECTS OF USAGE AND EDUCATION ON MOTIVATION (Q_{11})

Source of Variation	SS	df	MS	F*
Main Effects	5194.484	8	649.311	21.68
A (Usage)	4712.992	4	1178.248	39.35
B (Education)	104.985	4	26.246	0.88 N.S.
2-Way Interactions	656.465	14	46.890	1.57
AB	656.466	14	46.890	1.57
Residual	12906.434	431	29.945	
Total	18757.383	453	41.407	

*All significant at p.10 unless stated.

This two-way analysis shows the main and interaction effects for the attitude subscale reflecting enhancement

or inhibition of motivation (Q_{11}). Independent variable A (Usage) and the interaction effects were significant at the p.10 level. Independent variable B (Education) did not reach the p.10 level of significance. The interaction effects between usage and education on motivation are graphed in figures 5a and 5b.

PROFILES OF INTERACTION EFFECTS ON MOTIVATION (Q_{11}) AT FIVE STAGES OF USE

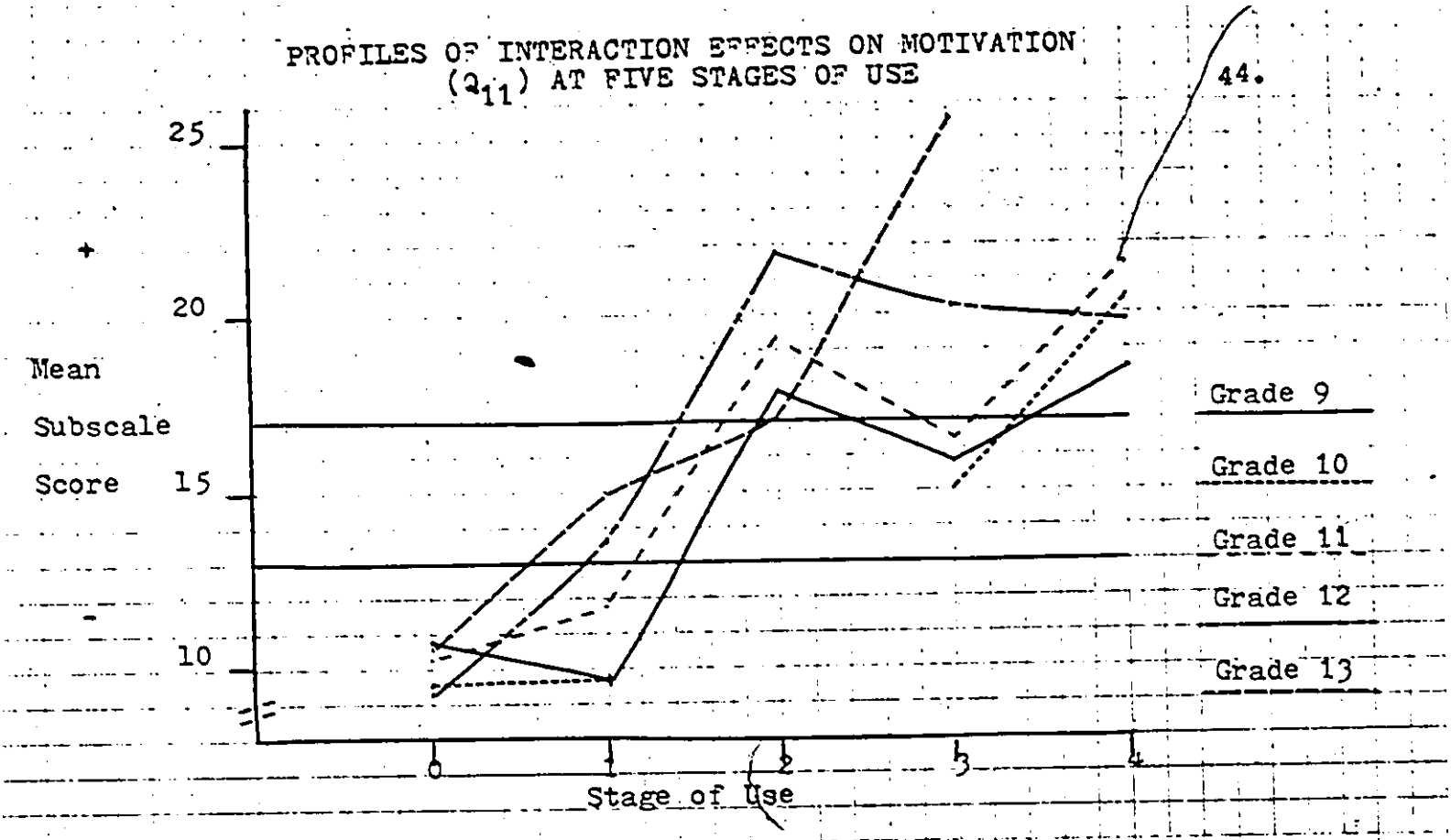
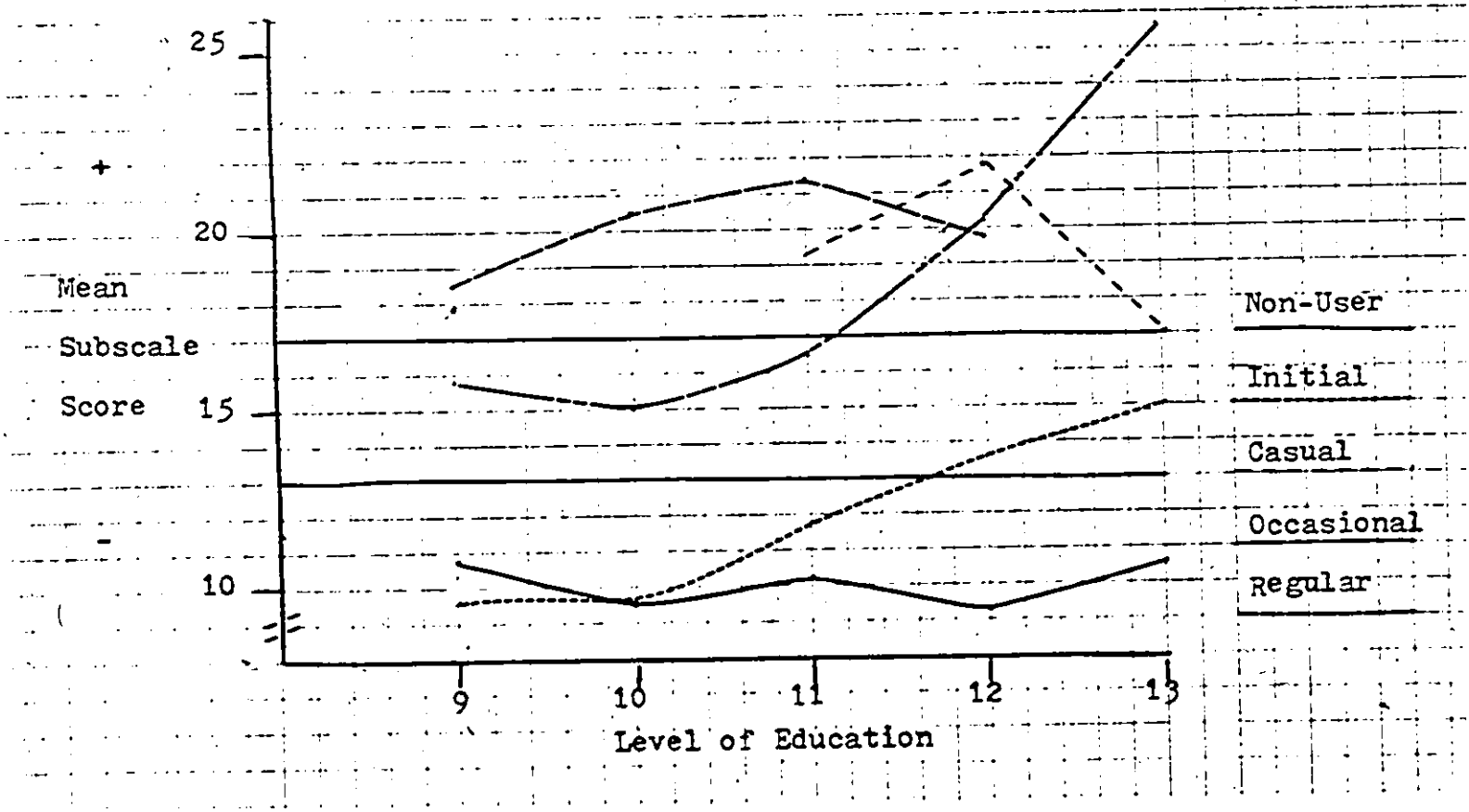


FIGURE 5b

PROFILES OF INTERACTION EFFECTS ON MOTIVATION (Q_{11}) AT FIVE LEVELS OF EDUCATION



CHAPTER V DISCUSSION

A significant difference in attitudes was found among subjects according to their stage of marijuana experience (which appeared by far the most important factor) as well as among subjects grouped according to levels of education (to a lesser degree). However, null hypotheses, predicting no interaction effects between usage and education, were supported in the main.

Outcomes in the Total Sample

Throughout, mean scores indicated a negative attitudinal stance for the total sample. However, it must be recognized that as two-thirds of this particular sample were declared non-users and consistently such non-users maintained negative attitudes, this in itself is sufficient to account for the negative loadings on the scale for the total sample.

Stage of Use Differences

It is evident from the analysis of variance that a highly significant relationship exists between the stage of use by an individual and his/her present attitude toward marijuana smoking as a concept. It can be seen from this study that non-users strongly reflect negative attitudes,

initial users consistently reflect neutral attitudes and casual, occasional and regular users reflect positive attitudes. This knowledge may in itself alter the focus and timing of drug education by schools and guidance by parents.

The definition of attitude used throughout comprises three aspects: the cognitive, conative and affective domains or belief, motive and feeling components (Audi, 1972). This logically was compatible with many of the statements in the research instrument which relfect beliefs and behavioural intentions as well as the subjects' feelings about marijuana smoking. The 20 attitudes subscales demand closer scouting due to content and subsequent response differences. Examining Figure 2, it appears that the subjects expressed attitudes reflecting three levels of information: those subscale scores that remain consistently in the neutral zone, those that do not increase or decrease following initial use, and those that vary directly with usage.

First of all, the attitude subscale Q_8 (Benefits to Physical Health) showed few or no responses outside the neutral area. This reflects the validity of the subscale dealing with information regarding health benefits of marijuana smoking, since there are, according to expert opinion, none. The Official Report of the National Commission on Marijuana and Drug Abuse in the United States (1973) could find no conclusive evidence of any physical damage or physical benefits attributable solely to mari-

juana smoking. Students clearly do not know of any benefits to their physical health that they could ascribe to marijuana smoking and they are very honest in reporting this lack of information. As a result subjects' responses all cluster around the neutral response level for they are not able to make positive or negative statements owing to a lack of knowledge.

The motivational subscale (Q_{11}) shows very little commitment by any user group to a positive or negative consensus. Non-users and initial users seem to feel that perhaps marijuana smoking can inhibit motivation but obviously they were not sufficiently familiar with outcomes of smoking to be sure. However, the other three user groups are clearly suggesting that perhaps motivation is enhanced through marijuana smoking but their commitment to this belief was in general, weak. This probably can be attributed to a lack of clearly formulated evidence about increased motivation in other aspects of life. Evidence for this is to be found in the cluster of consistently neutral responses but not in as narrow a range as the subscale dealing with Benefits to Physical Health.

Attitude subscales Q_1, Q_{15}, and Q_{16} dealing with morality, legalization and marijuana smokers respectively, reach a high positive level immediately upon usage. Subjects who were non-users displayed a mildly negative attitude regarding the moral attributes of marijuana smoking, while all stages of users were extremely positive regarding

its moral attributes. This wide dispertion is probably indicative of the propagandistic nature of morality research. Those who have never smoked marijuana are likely to be accepting of information that is mildly negative; those who have smoked marijuana no longer accept this negative propaganda. There is a wide range of attitudes because there is no evidence to indicate moral attributes of marijuana smoking. In the area of moral values, vaguely authoritative statements are frequently heard, whereas most individuals shy away from making definitive statements, about the benefits or lack of benefits of marijuana smoking to physical health, without evidence. Subscales Q_{15} and Q_{16} were also indicative of general opinions. When dealing with "other-oriented" statements as in legalization and people who smoke marijuana, all dimensions were either neutral or strongly positive. This could be tied in with the "live and let live" attitude prevalent in our society. Forced choice experiments (Milgram, 1965) and post-decisional dissonance (Festinger, 1959) explain that there is a social set about freedom, people's responses to stimulus objects, and their desire to mind their own business. The extremely positive responses on these two dimensions seem to display this attitude. (mean range for Q_{15} = 12.37 to 25.52, mean range for Q_{16} = 13.15 to 26.05)

Specifics and generalities underlie the subscales previously discussed. Specific research (or the lack of supportive research) indicates no benefits to physical health

and no motivational information. General propaganda statements allow for a much wider distribution of opinions on such dimensions as morality, legalization and marijuana smokers.

TABLE 6

MEAN RANGE/DIFFERENCE FOR 5 ATTITUDE SUBSCALES

Attitude Subscale	Mean Range	Mean Difference
Q_8	13.5 to 17.3	3.9
Q_{11}.....	10.3 to 19.8	9.4
Q_1	10.6 to 26.5	15.9
Q_{15}.....	12.4 to 25.5	13.1
Q_{16}.....	13.1 to 26.1	12.9

Subscales Q_5 (Instrumental to Philosophical Outcomes) and Q_6 (Instrumental to Self-Actualization) were ranked negative by non-users and neutral by all user groups.

Expressed here is a personal revelation to users of the inability of marijuana smoking behaviour to aid them in self-actualizing. Since marijuana smoking is not an intrinsic part or an acceptable aspect of our society, it will not promote self-actualization to the degree that one identifies with the norms and values of society. Marijuana smoking is extra-societal because it is both illegal and against the mores of society as a whole. Therefore responses fell in the neutral or negative zone for both of these subscales. (mean range for Q_5 = 10.1 to 18.5 mean range for Q_6 = 9.0 to 17.1)

These subscales (Q_5, Q_6), expressing extra-societal outcomes, remained for the most part in the neutral zone following intiial usage. This differed from the personal-ogical and societal issues (Q_1, Q_{15}, Q_{16}) which remained for the most part in the positive zone following initial usage.

All other subscales not specifically discussed varied directly with usage and this accounted for the consistent relationship between attitudes and stage of use. For example, Q_2 (Hedonism) varies directly with usage, supporting Schlegel's (1973) finding that "hedonism" plus "perceived rating of willingness by best friends" demonstrated multiple validity and significantly predicted stage of marijuana use.

Level of Education Differences

On examination of Figure 2, it is immediately evident

that grade 10 students are consistently more negative than all other grade levels on all 20 attitude subscales. This could be related to the school learning process. In grade 9, students express neutral to mildly negative attitudes toward marijuana smoking. In grade 10 they express strongly negative feelings. Grade 11 students are neutral to mildly negative but slightly less negative on most scales than grade 9 students. Grade 12 and 13 students express neutral to mildly positive attitudes. It appears that people have learned to like some aspects of marijuana smoking. This reflects the process of one's behaviour changing through learning. Research indicates that you have to learn how to get "high" on cannabis (Canada Interim Report, 1973). One might also have to learn the social benefits of marijuana smoking in terms of status and peer relationships.

This kind of learning shows "dips," that is, rapid responses followed by gaps where there is seemingly no learning. These intermittent response patterns occur until the behaviour is learned. (Skinner, 1953) The process from grade 9 to 13 can be looked at in terms of this learning space. To learn about an attitude object (i.e. marijuana smoking) is to acquire sensory referents to this as a concept. It appears that students entering high school are very non-committal with regard to controversial topics such as marijuana smoking. In the process of learning about the concept, they assimilate societal values that they don't necessarily agree with and which are incompatable with

their experience. However, they express the desired, negative attitudes, perhaps to please significant authority figures whose influence on them is stronger than their own ascribed values. As they learn more about the concept (progress through the grade levels) they tend to deal with it using their own beliefs and values rather than society's as a whole.

The term "sophomore" is a negative term indicating stupidity and gullibility and is used to lable students in their second year of high school and college in the U.S.A. It would be interesting to compare this with the negative attitudes expressed by grade 10 students (who are in their second year) who appear to have been gulled into a form of submissiveness to the values presented to them by significant others. Perhaps what is graphed here in figure 2 is a "sophomoric effect," as information concerning a contraversial concept is presented to the unsophisticated. No other data could be found in educational journals to support this interpretation but it is nevertheless noteworthy of attention.

Hedonism (Q_2) was deemed definitely negative by grade 9, 10 and 11 students and neutral by grade 12 and 13 students. The subjects' responses seem to be connected with the idea that there ar many other ways to have fun than smoking marijuana.

Again (Q_8) Benefits to Physical Health clustered in the neutral area due to lack of supportive research, and Q_{15} and Q_{16} fell in the neutral to positive zone for grade levels in support of the "live and let live" attitude previously dis-

cussed. The extra-societal subscales Q_5 and Q_6 were deemed negative by more grade levels than stages of use. Students at four grade levels (9-12) perceived marijuana smoking as an exclusive past-time detremental to philosophical outcomes and self-actualization in present day society.

Grade 9, 10 and 11 students differed from grade 12 and 13 students on attitude subscale Q_{18} (Drug Abuse Potential). The younger grade levels tended to agree that marijuana smoking could lead to the use (or abuse) of "harder" drugs. The older grade levels stated that they didn't know if this was a fact or not. The misconception regarding the "stepping-stone" hypothesis by the students in the lower grades is probably a result of a hesitation by educators to attribute any "good news" about marijuana smoking to their students. In the early 70's marijuana smoking was (and maybe still is) undesirable behaviour and fear of encouragement was associated with any positive findings, such as the fact that marijuana smoking does not necessarily lead one to the use of harder drugs (Canada, Interim Report, 1973). Without supportive information, young students were fed ambiguities resulting in the false assumption that marijuana smoking leads to the use of harder drugs. Hence the negative attitude expressed on Q_{18} (mean range for young students on Q_{18} = 9.6 to 11.2). Older students with more experience regarding the marijuana smoking concept began to doubt this (perhaps through personal experience or knowledge of others with personal experience who did not go on to harder drugs) and expressed an "I'm not

sure" attitude on this particular subscale (mean range for older students on Q_{18} = 11.2 to 15.6).

Interaction Effects

A significant interaction effect exists for attitude subscales Q_{10} (Harm to Intellectual and Cognitive Functioning) and Q_{11} (Enhances-Inhibits Motivation). That is, a significant difference in these 2 attitudes exists among levels of education at different stages of marijuana use and conversely among stages of use at different levles of education.

On examination of figures 4a and 4b, two main interaction effects are evident. First of all, in grade 9, non-users and initial users expressed relatively the same mildly negative attitude ("I believe that marijuana smoking could harm my intellectual functioning"). However following one year of high school, non-users become extremely negative in their belief about the harmfulness of marijuana smoking to their intellectual functioning, whereas initial users become neutral toward this belief. The similarity in attitude at the grade 9 level indicates again a hesitancy on the part of first year students to commit themselves to any strong positive or negative beliefs regarding a controversial topic. Even upon initial usage they do not become any less negative regarding the harmfulness of marijuana smoking to cognitive functioning. Grade 9 initial users exhibit a dual motive for remaining negative. They are not only insecure in their

school environment and thus less vocal in avowing beliefs and values but as initiates in marijuana smoking have not yet become familiar with their own cognitive functioning while under its influence. Grade 10 non-users become even more negative than grade 9 non-users as an exhibition once again of their expression of the values of significant others in society. (Albrecht, 1973)

The other interaction effect of importance is the attitude change (in the positive direction) of occasional users and the attitude change (in the less positive direction) of casual users at the grade 13 level. It seems that over time, occasional users (who have a reliable source of marijuana) become more confident in their functional proficiency on a cognitive level than do casual users (who do not have a particular constant source of marijuana). Following the learning of this behaviour, their belief about smoking not being harmful to cognitive functioning is strengthened. Casual users experience a different effect because intermittent reinforcement is less influential than consistent reinforcement. (Skinner, 1953).

On examination of figures 5a and 5b, two main interaction effects are evident. In grade 9, initial users are more negative than non-users in their belief about the effect of marijuana smoking on motivation. In grade 10, initial users remain with the same negative attitude while non-users increase in negativism to the level of the initial users. Young people initially trying marijuana are usually doing

so out of peer conformity or curiosity (Keeler, 1968). Their desire to behave in such a way is often associated with many other problem behaviours in youth (Jessor, Jessor and Finney, 1973). With this overview, students initially trying marijuana perceive their own motivation towards socially acceptable behaviour (e.g. interest in school) as low. Whether or not they are expressing this as a function of marijuana smoking is not known, however, this appears to be why they are reporting a belief that marijuana smoking inhibits motivation (mean score = 9.7). Again, non-users following one year of high school seem to be accepting of the negative attitude presented to them by significant others and so express a more negative attitude on this motivational subscale.

Throughout, grades 11,12 and 13 occasional users increasingly believe that marijuana smoking enhances their motivation to accomplish things. Casual and regular users at grades 12 and 11 respectively, believe that marijuana smoking mildly enhances their motivation but one year later (grades 13 and 12 respectively) are less convinced of this belief. Perhaps the classification system of usage explains this result; occasional users are casual users who have marijuana consistently available to them but who have not become regular users in spite of the source availability. This type of person obviously must have other interests outside the realm of marijuana smoking. His choice to smoke "when he feels like it" and the lack of problem in attaining it places him in a spectrum of choices with other things to do. The occas-

ional user, by definition, describes a person with other ambitions in life and therefore an expression of a highly positive attitude on the motivational subscale. Casual and regular users are not sure of the effects of marijuana smoking on motivation and can't seem to decide if it enhances their ambition in other aspects of life or not. This ambiguity relfects the lack of data on the effect of marijuana smoking on motivation.

CHAPTER VI SUMMARY AND IMPLICATIONS

Summary

The purpose of this study was to determine attitudes and stage of use of marijuana smoking at five levels of high school education in order to compare these variables in the investigation of the attitude-behaviour relationship. It was hypothesized that students would not differ significantly in attitude among level of education or stage of use. To test these hypotheses, 454 high school students were selected to fill out an Attitude Towards Smoking Marijuana Questionnaire as well as a Stage of Marijuana Use Questionnaire.

The results indicated that:

1. Stage of use is an excellent indicator of attitude.
2. High school year is not a very good indicator of attitude.
3. Very little more information can be gained by combining usage and education levels to indicate attitude, than can be seen from either of these two variables alone.
4. Non-users consistently expressed negative attitudes on 17 of the 20 attitude subscales.
5. Initial users consistently expressed neutral attitudes on 10 of the 20 attitude subscales.
6. Casual, occasional and regular users consistently expressed positive attitudes on 16 of the 20 attitude subscales.
7. Grade 10 students consistently expressed a more negative

attitude than all other grade levels on all 20 attitude subscales.

8. Attitudes regarding cognitive functioning and motivation were dependent upon both usage and education interacting.
9. Attitudes reflecting lack of supportive information were expressed as neutral.
10. Attitudes reflecting general propaganda statements were expressed as a wide distribution of opinions.
11. Personalogical and societal issues were deemed extremely positive by user groups.
12. Attitudes reflecting extra-societal outcomes were deemed neutral by user groups.

General Conclusions

In view of the above results, it appears that students tend to express attitudes consistent with their overt behaviour. Although some relationship exists between specific attitudes expressed and high school year, in general level of education is not a good indicator of students' attitudes. Also, the relationship between usage and attitude is so strong that the effects of employing both education level and usage to indicate attitude are minimal and not necessary.

In addition, results indicate that non-users as a group show little diversity in their responses regardless of the type of attitude being expressed, whereas users as a group vary a great deal in their responses dependent on the type

of attitude, belief or behaviour intention being expressed. The use of the attitude object itself gives the respondent much more information with which to make his choice of opinion. These findings support those presented by Schlegel (1973) where he suggested that

> " a single dimension approach, while being somewhat adequate for non-users, would have missed "tapping" a large portion of the attitude space for groups having had direct experience with the drug."

(Schlegel, p. 185).

Finally, it appears that it is important to students to express those attitudes that best reflect their actual behaviour, in order to reduce conceivable attitude-behaviour inconsistencies. With this knowledge, it seems reasonable to assume from this study that people modify their attitudes to suit their behaviour (i.e. behaviour has some effect on attitude change).

Implications for Health Education

The foregoing research offers several implications for drug-related health programs:

1. A consideration should be made of the stage of use of students when preparing a drug education course. A single dimension approach which may be applicable to non-users would probably prove futile with user groups whose attitude spectrum is very diverse.
2. If grade levels are convenient, emphasis should be

placed on the earlier elementary school years where commitment to attitudes is weak and where the effect of significant others is greatest.

3. When dealing with user groups, efficient programs should be aimed at those attitudes which reflect personalogical and societal issues in order to identify for the user the inconsistencies between their behaviour and society as a whole.
4. When presenting factual information regarding marijuana smoking, care should be taken not to leave out possible benefits, so that students can conjure up a total picture of the attitude object and with this formulate their own internal opinion which will prove stronger in the long run.
5. Diversion programs should be aimed at thsse attitude subscales which were found to be significantly different smong stages of use, for subscales which were not indicative of stage of use, would likely have little use in such a program.

Implications for Future Research

It is apparent that the attitude-behaviour controversy still remains a questionable topic. From this study it appears that the actual behaviour of the subject determines the attitude he will declare. Whether or not this is the attitude the subject actually holds is not known. Future

attitude research should place emphasis on long range interval testing with attitude expression and actual overt behaviour measurement performed at semi-annual or quarterly sessions. Perhaps then attitude change and behaviour change can be placed on a time continuum in order to look at the onset of change in these two variables.

An attempt should be made in some way to equalize the cell frequencies (i.e. same number of subjects in each stage of use group). This would prevent loadings on any one group and thus prevent implications which are, in actuality, non-existent.

Scales which separate opinions, beliefs and behaviour intentions (on a multidimensional level) would be useful in determining whether any of these three variables are indicative of behaviour on their own.

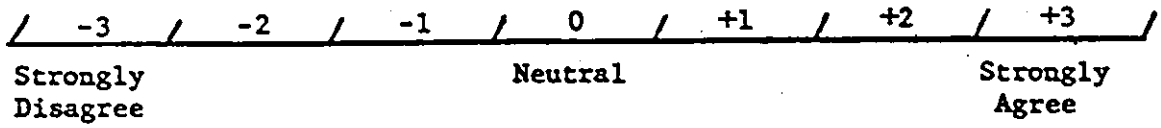
The role of significant others in the formation or expression of attitudes should be controlled or measured in some way so as to utilize that variable to its maximum predictive potential.

APPENDIX A

INTRODUCTION

This booklet contains a set of statements meant to explore some of your opinions and feelings toward smoking marijuana (cannabis, hashish, THC, "pot", "grass"). It is not a test of what you know about marijuana. There are no "right" or "wrong" answers in the sense that people differ a great deal in their opinions on this issue. Please do not sign your name so that your responses will remain completely anonymous.

Read each statement carefully and rate it in terms of the extent to which you agree or disagree with it.



Take the following statement as an example:

-3 -2 -1 0 +1 +2 +3 1. People would be better off if they drank less coffee.

If you "strongly disagree" with this statement, circle -3. If you "strongly agree" with the statement, circle +3. If your opinion lies somewhere in between, circle the appropriate number which reflects as closely as possible the extent of your disagreement or agreement.

If you have never tried marijuana (cannabis, hashish, THC, "pot", "grass") and feel you have an insufficient basis upon which to agree or disagree for certain items, respond in terms of what you would expect to be true if in fact you had experienced the effects of marijuana.

REMEMBER - This is not an examination. People differ in their opinions on this issue; please indicate your own attitude.

This is part of a scientific research program designed to investigate what the role of smoking marijuana should be in today's society. The way you really feel and your honest responses to each item in this opinionnaire are an important contribution to this overall goal.

-3	-2	-1	0	+1	+2	+3
Strongly Disagree			Neutral			Strongly Agree

-3 -2 -1 0 +1 +2 +3	1. Smoking marijuana should be used to enhance self-insight.
-3 -2 -1 0 +1 +2 +3	2. Smoking marijuana is merely one of many leisure activities that are worth trying.
-3 -2 -1 0 +1 +2 +3	3. Marijuana may increase risk-taking in a way that leads to more accidents.
-3 -2 -1 0 +1 +2 +3	4. I expect the marijuana high to be a good experience.
-3 -2 -1 0 +1 +2 +3	5. Criminal penalties should be removed from possession of marijuana for personal use.
-3 -2 -1 0 +1 +2 +3	6. Marijuana has no place in a complex society.
-3 -2 -1 0 +1 +2 +3	7. Smoking marijuana helps me feel psychologically well balanced.
-3 -2 -1 0 +1 +2 +3	8. The immediate increase in heart rate while smoking marijuana may be laying the basis for a heart attack in the future.
-3 -2 -1 0 +1 +2 +3	9. By using marijuana, one is "breaking the barrier" to other illegal drug use.
-3 -2 -1 0 +1 +2 +3	10. At times marijuana helps to explain the paradoxical and contradictory things in life.
-3 -2 -1 0 +1 +2 +3	11. I expect the marijuana high to be almost always a pleasant feeling of well-being.
-3 -2 -1 0 +1 +2 +3	12. Not knowing what the dose is could make me especially vulnerable to anxiety during the marijuana high.
-3 -2 -1 0 +1 +2 +3	13. Regular use of marijuana leads to an indifferent attitude toward life.
-3 -2 -1 0 +1 +2 +3	14. Marijuana use sufficiently threatens the social structure of our society to warrent it being illegal.
-3 -2 -1 0 +1 +2 +3	15. Associating with marijuana smokers may jeopardize my moral values.
-3 -2 -1 0 +1 +2 +3	16. The use of marijuana morally deteriorates a person.

/ -3 / -2 / -1 / 0 / +1 / +2 / +3 /

Strongly Disagree — Neutral — Strongly Agree

-3 -2 -1 0 +1 +2 +3 17. One should smoke marijuana occasionally in order to relieve psychological tensions.

-3 -2 -1 0 +1 +2 +3 18. Try it (marijuana), you'll like it!

-3 -2 -1 0 +1 +2 +3 19. Some very intense and nightmarish reactions can occur in the initial use of marijuana.

-3 -2 -1 0 +1 +2 +3 20. Marijuana may be used medically to help alleviate suffering caused by the flu.

-3 -2 -1 0 +1 +2 +3 21. Marijuana leads to the use of more dangerous drugs.

-3 -2 -1 0 +1 +2 +3 22. Marijuana may increase religious insight.

-3 -2 -1 0 +1 +2 +3 23. Even occasional use of marijuana would reduce my ability to think clearly and intelligently.

-3 -2 -1 0 +1 +2 +3 24. It is possible science will discover that marijuana has the ability to reduce fever.

-3 -2 -1 0 +1 +2 +3 25. Since marijuana affects the mind, there is always some element of danger to others present.

-3 -2 -1 0 +1 +2 +3 26. Smoking marijuana is a good way to have fun, so why not use it?

-3 -2 -1 0 +1 +2 +3 27. Persons high on marijuana can be dangerous to others.

-3 -2 -1 0 +1 +2 +3 28. It is undesirable to associate with marijuana smokers.

-3 -2 -1 0 +1 +2 +3 omit 29. The marijuana high gives me a pleasant mood-lifting effect.

-3 -2 -1 0 +1 +2 +3 30. There is little connection between the use of marijuana and crime.

-3 -2 -1 0 +1 +2 +3 31. Marijuana users often become powerless to control their own behavior.

-3 -2 -1 0 +1 +2 +3 32. It is quite possible science will discover that marijuana causes birth defects in the offspring of users.

-3 -2 -1 0 +1 +2 +3 33. The widespread use of marijuana is a serious social problem.

/ -3 / -2 / -1 / 0 / +1 / +2 / +3 /

Strongly Disagree — Neutral — Strongly Agree

-3 -2 -1 0 +1 +2 +3 34. Smoking marijuana can often help people with nerve trouble.

-3 -2 -1 0 +1 +2 +3 35. The use of marijuana helps to truly share the feelings of others.

-3 -2 -1 0 +1 +2 +3 36. Long term marijuana use will contribute to a deterioration of my intellectual functioning.

-3 -2 -1 0 +1 +2 +3 37. Marijuana smokers are not our most desirable citizens.

-3 -2 -1 0 +1 +2 +3 38. The sudden legalization of marijuana would have a detrimental impact on currently stable social values.

-3 -2 -1 0 +1 +2 +3 39. Regular marijuana use leads to reduced drive to accomplish things.

-3 -2 -1 0 +1 +2 +3 40. It is possible science will discover that marijuana has the ability to reduce pain.

-3 -2 -1 0 +1 +2 +3 41. Marijuana use is likely to lead one to try LSD.

-3 -2 -1 0 +1 +2 +3 42. I don't think a marijuana user should be sentenced to jail.

-3 -2 -1 0 +1 +2 +3 43. I don't trust people who smoke marijuana.

-3 -2 -1 0 +1 +2 +3 44. Smoking marijuana can help me to attain my potential.

-3 -2 -1 0 +1 +2 +3 45. It may be found that marijuana has the beneficial effect of reducing high blood pressure.

-3 -2 -1 0 +1 +2 +3 46. Regular marijuana use could impair my reading comprehension abilities.

-3 -2 -1 0 +1 +2 +3 47. The use of marijuana is reducing the chances of our society surviving.

-3 -2 -1 0 +1 +2 +3 48. The law should not prohibit the use of marijuana if a person wishes to smoke it.

-3 -2 -1 0 +1 +2 +3 49. Regular users experience anxiety symptoms when marijuana is withdrawn from them.

-3 -2 -1 0 +1 +2 +3 50. Persistent marijuana use can trigger a variety of psychological disorders.

-3	-2	-1	0	+1	+2	+3
Strongly Disagree			Neutral			Strongly Agree

-3 -2 -1 0 +1 +2 +3 51. Smoking marijuana promotes a lack of ambition.

-3 -2 -1 0 +1 +2 +3 52. I may lose emotional control of myself while high on marijuana.

-3 -2 -1 0 +1 +2 +3 53. Regular marijuana smoking can cause sexual sterility.

-3 -2 -1 0 +1 +2 +3 54. A typical marijuana high makes me feel happy.

-3 -2 -1 0 +1 +2 +3 55. Marijuana may increase aggressiveness in a way that endangers others.

-3 -2 -1 0 +1 +2 +3 56. Smoking marijuana is wrong.

-3 -2 -1 0 +1 +2 +3 57. We need laws to help combat the spreading use of marijuana.

-3 -2 -1 0 +1 +2 +3 58. Regular use of marijuana may produce mental adjustment problems.

-3 -2 -1 0 +1 +2 +3 59. Marijuana helps one to probe more deeply into life.

-3 -2 -1 0 +1 +2 +3 60. Personality confusion may result with regular marijuana use.

-3 -2 -1 0 +1 +2 +3 61. The marijuana habit is often difficult to discontinue.

-3 -2 -1 0 +1 +2 +3 62. Smoking marijuana will broaden one's outlook on life.

-3 -2 -1 0 +1 +2 +3 63. Marijuana users often show marked apathy.

-3 -2 -1 0 +1 +2 +3 64. Smoking marijuana heightens one's willingness to share.

-3 -2 -1 0 +1 +2 +3 65. Smoking marijuana helps one to build closer, more genuine relationships with others.

-3 -2 -1 0 +1 +2 +3 66. Smoking marijuana helps you to communicate with yourself.

-3 -2 -1 0 +1 +2 +3 67. Smoking marijuana can improve self-confidence.

-3 -2 -1 0 +1 +2 +3 68. I expect to feel more humorous when high on marijuana.

-3 -2 -1 0 +1 +2 +3 69. I should smoke marijuana if it makes me feel good.

-3	-2	-1	0	+1	+2	+3
Strongly Disagree			Neutral			Strongly Agree

-3 -2 -1 0 +1 +2 +3	70. Marijuana smoking should be socially condemmed.
-3 -2 -1 0 +1 +2 +3	71. One can become a slave to the marijuana habit.
-3 -2 -1 0 +1 +2 +3	72. Marijuana helps me to be more self-aware.
-3 -2 -1 0 +1 +2 +3	73. Nothing justifies the instrusion by the law into the private lives of individuals who use marijuana.
-3 -2 -1 0 +1 +2 +3	74. "Coming down" from one's first marijuana high can be especially upsetting.
-3 -2 -1 0 +1 +2 +3	75. Marijuana may lead to trying heroin.
-3 -2 -1 0 +1 +2 +3	76. Beauty can be captured more fully while high on marijuana.
-3 -2 -1 0 +1 +2 +3	77. While high on marijuana one cannot think logically.
-3 -2 -1 0 +1 +2 +3	78. Marijuana smoking is a sign of moral weakness.
-3 -2 -1 0 +1 +2 +3	79. The freer availabiltiy of marijuana may easily promote widespread irresponsibility.
-3 -2 -1 0 +1 +2 +3	80. While high on marijuana, a person can easily control his behaviour in order to avoid trouble.
-3 -2 -1 0 +1 +2 +3	81. Smoking marijuana can cause long-lasting mental depression.
-3 -2 -1 0 +1 +2 +3	82. The deep inhalation necessary to obtain the effects of marijuana may cause lung cancer after long term use.
-3 -2 -1 0 +1 +2 +3	83. The desire to excel is diminished by regular marijuana use.
-3 -2 -1 0 +1 +2 +3	84. I would use marijuana simply because it adds enjoyment to life.
-3 -2 -1 0 +1 +2 +3	85. Regular marijuana use impairs problem solving abilities.
-3 -2 -1 0 +1 +2 +3	86. Often people can't stop smoking marijuana once they start.
-3 -2 -1 0 +1 +2 +3	87. Once a person starts to smoke marijuana, there is a psychological need that requires continuous use of it.

-3	-2	-1	0	+1	+2	+3
Strongly Disagree			Neutral			Strongly Agree

-3 -2 -1 0 +1 +2 +3	88. Smoking marijuana may lead to insights about the truth of human nature.
-3 -2 -1 0 +1 +2 +3	89. People who smoke marijuana seem to lack a concept of right and wrong.
-3 -2 -1 0 +1 +2 +3	90. If a person uses marijuana, he is likely to also use other illegal drugs.
-3 -2 -1 0 +1 +2 +3	91. Marijuana is a good way to tap the rich stores of my unconscious.
-3 -2 -1 0 +1 +2 +3	92. Smoking marijuana is bad.
-3 -2 -1 0 +1 +2 +3	93. Regular use of marijuana may well affect functioning of the vital organs in the body.
-3 -2 -1 0 +1 +2 +3	94. Marijuana may have some therapeutic potential by reducing high body temperature to normal levels.
-3 -2 -1 0 +1 +2 +3	95. Smoking marijuana often helps one to understand others better.
-3 -2 -1 0 +1 +2 +3	96. The use of marijuana may lead to losing control of my life.
-3 -2 -1 0 +1 +2 +3	97. Doctors should consider prescribing marijuana as a tranquilizer.
-3 -2 -1 0 +1 +2 +3	98. Getting high on marijuana helps me to get into music better and become a part of it.
-3 -2 -1 0 +1 +2 +3	99. While high on marijuana, wild mood swings could leave me feeling very insecure.
-3 -2 -1 0 +1 +2 +3	100. It is important to avoid marijuana since it may lower my inhibitions.
-3 -2 -1 0 +1 +2 +3	101. Marijuana helps a person to communicate more freely with others.
-3 -2 -1 0 +1 +2 +3	102. Even moderate marijuana use could derange my mind to some extent.

MARIJUANA-USE QUESTIONNAIRE

This brief section deals with your actual experience with marijuana. Remember - your responses are completely anonymous.

1. Have you ever tried marijuana or hashish?

   YES _____ NO _____

2. Have you ever been very high or "stoned" on marijuana or hashish, to the point that you were pretty sure that you had experienced the drug effects?

   MORE THAN ONCE _____ ONCE _____ NEVER _____

3. Do you still smoke marijuana?

   YES _____ NO _____

   If yes, also answer questions four and five.

4. Do you or someone very close to you usually keep a supply of marijuana or hashish, so that it is available to you when you wish to use it?

   YES _____ NO _____

5. Do you use marijuana or another psychedelic drug pretty well every day when available (ie., at least 3 times a week)?

   YES _____ NO _____

GENERAL INFORMATION

Please check the appropriate category:

SEX: Male _____ Female _____ AGE: _____

HIGH SCHOOL YEAR: 9 _____ 10 _____ 11 _____ 12 _____ 13 _____

APPENDIX B

SOURCE OF QUESTIONNAIRES

The Attitudes Towards Marijuana Smoking Questionnaire found in Appendix A was derived from an Unpublished PhD Dissertation by Ronald P. Schlegel, Assistant Professor of Health at the University of Waterloo, Waterloo, Ontario, Canada.

The Marijuana Use Questionnaire also found in Appendix A was derived from the same Unpublished PhD Dissertation by Ronald P. Schlegel, however, he adapted this from S.W. Sadava's original Marijuana Use Questionnaire. S.W.Sadava is a Professor of Health at Brock University, St. Catherines, Ontario, Canada.

Written permission has been obtained from Dr. R.P. Schlegel to use the scale (Form A) that he developed. A copy of his letter granting permission is included in Appendix D.

APPENDIX C

SET OF INSTRUCTIONS GIVEN TO TEACHERS

1. Hand each student a questionnaire face down on his/her desk.
2. Explain to the students that this is not a test of their knowledge, but rather, a questionnaire on how they feel about the topic (marijuana smoking).
3. Have them turn the questionnaires over. Slowly and clearly read aloud to them the instructions on the first page, having them follow along.
4. Emphasize the fact that no names are to be signed on the papers and thus encourage them to answer honestly with no fear of recognition.
5. Encourage them to work quickly so as to complete all 7 pages by the time the class bell rings. (36 minute periods at all 3 schools)
6. When students have completed the questionnaire have them turn it over and remain at their desks until the end of class.
7. Collect all papers when the period is over. Mark the grade and school on a separate sheet of paper to be placed on top of the questionnaires.

APPENDIX D

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