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ALCOHOL, EXPECTANCY AND MORAL JUDGEMENT: COGNITIVE VERSUS PHYSIOLOGICAL EXPLANATIONS

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I hereby declare that this dissertation is my own work, and that it has not been submitted for a Master of Arts degree at any other University.

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Abstract

This experiment investigated the effects of alcohol, expectancies and sex on moral functioning. In a 2 x 2 x 2 factorial design, twenty-four male and twenty-four female social drinkers were given either an alcoholic or a non-alcoholic beverage, and instructed that they were receiving either an alcoholic or a non-alcoholic beverage. A significant main effect for sex emerged on the dimension of moral values, but neither alcohol nor expectancy had any effect on this scale. Alcohol per se had no significant depressant influence on moral reasoning. Of more importance, however, a significant alcohol x expectancy x sex interaction emerged on the principled morality score of the DIT. In addition, a significant two-way interaction (alcohol x expectancy) occurred on the anti-establishment orientation of the DIT. Results of this study point to the importance of cognitive factors and sex differences in interpreting behaviour following alcohol ingestion. A broad social learning model was used to explain the results obtained, and their implications for moral reasoning theory in particular, and behaviour following alcohol consumption in general.

"I know something interesting is sure to happen," she said to herself, "whenever I eat or drink anything: so I'll just see what this bottle does."

Alice, from Alice in Wonderland

It is common knowledge that alcoholism is a major medico-social problem, affecting all Western countries. Its social reverberations affect accident and crime rates, absenteeism and unemployment, while it is related to numerous medically relevant physiological conditions (Kessel & Walton, 1965). Alcohol is a potent drug, yet unlike addiction to most dangerous drugs, it is accepted by society, and drinking remains socially condoned to a large extent (Schneider, 1978).

For most of the last century explanations of alcohol's effects have emphasized the causal role of the drug's direct pharmacological action in producing post-consumptional changes (Vuchinick & Tucker, in press; Wilson, 1978). While it must be conceded that bio-medical anaylses are essential for a fuller understanding of alcohols effects, it is asserted that

> "the inappropriate overextension of the biomedical model to psychological phenomena that cannot be reduced to the physical effects of alcohol has retarded the development of effective means for the assessment and treatment of alcohol abuse" (Wilson, 1978, p.1).

Implicit in the traditional literature on alcohol, is the disease concept of alcoholism. This model suggests that the addictive process of alcoholism manifests itself through the craving for alcohol, and the subsequent ability to control intake (Jellinek, 1960; Mendelson, 1971). Since addiction constitutes a disablement in the medical sense (Keller, 1976), and since this conception stresses the involuntary characteristics associated with alcohol, it is concluded that alcoholism is most properly defined as a disease (Jellinek, 1960). Various hypotheses relating to the underlying processes assumed to account for loss of control drinking have been proposed. These range from altered cellular metabolism to the activation of specific neuronal circuits that elicit the craving for

alcohol (Mendelson, 1971). All these theories have in common the assumption that it is the physical effects of alcohol that are responsible for the elicitation of uncontrolled drinking. Schneider (1978) proposes that the disease concept of alcoholism is primarily a social rather than a scientific or medical accomplishment, a position which to some extent confirms the research of Marlatt, Demming and Reid (1973).

The theory that people drink alcohol in order to relieve or escape from aversive states of anxiety, frustration or te: ion remains a revered explanation of alcohol use (Conger, 1956; Horton, 1943). The tension reduction hypothesis postulates that the ingestion of alcohol brings about a reduction of tension which then acts as a reinforcement (via an escape-avoidance paradigm), for subsequent drinking (Brown, Goldman, Inn & Anderson, 1980). A growing body of literature questions the utility of the global tension-reduction model as an explanatory mechanism for the development and maintenance of alcohol abuse (Abrams & Wilson, 1979; Cappell & Herman, 1972; Steffen, Nathan & Taylor, 1974; Wilson & Abrams, 1977; Wilson, 1978; Wilson, in press). However, clinical-lore has linked alcoholism consistently with the negative reinforcement functions of drinking (Wilson & Abrams, 1977), and psychology has devoted much effort in exploring the role of tension reduction in alcohol misuse (Cappell & Herman, 1972). It has been suggested that the tension-reduction model should be modified to place more emphasis on the necessity of drinkers learning about alcohol's reinforcing aspects, while ignoring or tolerating the initial discomfort induced by the drug (Polivy, Scheuneman & Carlson, 1976). In essence, this proposal suggests that drinking occurs initially for social reinforcement rather than physiological tension reduction.

Deriving from the same reasoning as the tension reduction model is the disinhibition theory of alcohol addiction. This model hinges on

the assertion that alcohol dissolves inhibitions (by depressing higher brain functions), thereby releasing or causing anti-social actions (Block, 1965). A variety of mechanisms and mediators have been proposed to account for alcohol's assumed power of disinhibition, amongst these, the dissolution of the superego (Amir, 1971), the activation of a chemical trigger (Rada, 1975), and anaesthesia of cortical control centres (Block, 1965). The results of several studies (Lang, Goeckner, Adesso & Marlatt, 1975; Wilson & Lawson, 1976a; Wilson & Lawson, 1978), dispute the notions of pharmacologically mediated disinhibition. However, whether interpreted in quasi-neurological terms, or within the psychoanalytic sense, the disinhibiting effect of alcohol is still assumed to be self evident (Wilson, 1977).

Excessive reliance upon models of addiction that are based primarily upon physiological mechanisms, tend to reinforce the notion that persons who use drugs are helpless victims of biological and chemical forces beyond their control (Marlatt & Rohsenow, in press; Sobel & Sobel, 1973). As a corollary of the aforementioned models of alcohol addiction, are various culturally transmitted expectancies about the effects of alcohol on human behaviour.

People learn about alcohol what their society "knows" about alcohol (McClelland, Davis & Kalin, 1972; Wilson, 1978). Firstly, as a result of "disinhibited actions" performed by influential models when intoxicated, we know that people will do things under the influence of alcohol that they would not otherwise do. Secondly, alcohol visibly impairs sensori-motor functions thereby facilitating the inference by both the affected individual and observers, that social behaviour is similarly affected (McAndrew & Edgerton, 1969; Wilson, 1977). Finally, alcohol related cognitions may for some individuals alter their own evaluations; as a result, the thought of having consumed alcohol may be experienced as

having genuinely lost control (Briddell et al., 1978). Such beliefs or stereotypes, by channelling interaction in ways that support the perceiver's beliefs, serve to create their own social reality.

It has been suggested (Briddell et al., 1978) that it is not the chemistry of alcohol, but the person's social learning history with respect to alcohol, that is the effective determinant of post ingestion behaviour. Evidence exists that supports the notion that the arousal produced by ordinary levels of alcohol consumption is diffuse and non-specific, and may therefore be labelled as a qualitatively different experience depending on the situational or social cues present at the time of drinking (Kalin, 1972; Pliner & Cappell, 1974; Marlatt & Rohsenow, in press). In this respect, there may be "secondary gain" in attributing states of arousal and associated behaviours to the consumption of alcohol.

Bandura (1974) has outlined several self-generated cognitive processes that render normally unacceptable behaviour personally and even socially acceptable. One such self-exonerating practice whereby an individual can negate self discipline and avoid public censure, is the attribution of responsibility for actions to something other than the self. Alcohol is often the focus of mis-attribution of culpability for behavioural transgressions, a fact that has been empirically investigated. In their study on aggression Lang et al., (1975) suggested that individuals might have attributed their antisocial actions to their state of intoxication rather than to themselves. Wilson (1977) maintains that violations of the normal code of sexual conduct may be viewed also in this framework. Finally, Sobel and Sobel (1973) suggest that one of the major reinforcing consequences of heavy drinking is the socially acceptable excuse it provides for engaging in behaviours that would otherwise meet with disapproval. Some of the more obvious examples

of misattribution will now be illustrated.

An association between alcohol and serious criminal offences is often assumed (Fink, 1938; McGeorge, 1963). In particular, recent investigations suggest a direct relation between alcohol ingestion and the more aberrant sex crimes such as those involving children and the use of force (Amir, 1971; Gebhard, Cagnon, Pomeray & Christenson, 1965; Rada, 1965). Alcohol is used to justify both deviant sexual behaviour (McCaghy, 1965), and to exploit the legal possibility of temporary nonculpability (Banay, 1943). Moreover, reference to drinking in connection with sexual offences plays an important psychological role in deviance disavowal: McCaghy (1968) found that child molesters who incorporated the use of alcohol as an explanation of their crime, disavowed their deviance as effectively as those who denied their offence entirely.

As a consequence of the tenets of the medical models of alcoholism, and of its long history of use by the general public, alcohol has become associated with a set of beliefs and expectancies concerning its effects. Alcohol, it appears, is consumed partly in the belief that it will act as a disinhibitor of social restraints, and partly because it serves as an explanation or excuse for acts committed "under its influence" (Marlatt & Rohsenow, in press). Since such (erroneous) assumptions are both transmitted and reinforced within our cultural framework, it is important to take cognizance of their influence.

It is for this reason perhaps that the most important feature of the behavioural approach lies in the alternate conceptual model it provides for understanding and modifying patterns of alcohol use and misuse (Wilson, 1978). In its rejection of the quasi-disease models of psychopathology, the social learning approach moves beyond a limited

bio-medical orientation. Just as the behavioural approach in general has become increasingly complex in its added emphasis of self-regulatory and cognitive mediating processes (Bandura, 1969; Mahoney, 1974), so the behavioural approach to alcohol use is embracing a broader cognitive orientation (Wilson, 1978).

Recent findings indicate that social and psychological rather than pharmacological factors are the critical determinants of the effects of moderate alcohol doses on socially significant human behaviour (Marlatt & Rohsenow, in press; Vichinick & Tucker, in press; Wilson, 1978). Such social and psychological factors change the actual physiological effects of alcohol "because they can affect the physiological system in just as real a way as chemicals" (Washburne, 1956, p.22). As with other cognitive influences on behaviour (Mischel,1968) cognitions concerning alcohol may differ not only across individuals depending on their respective experiences with alcohol, but also across settings, and at different times in the same individual (Wilson, 1977). Weil (1971) alludes to the importance of set and setting in determining subjective responses to drug ingestion. "Set is a person's expectations of what a drug will do to him, considered in the context of his whole personality. Setting is the environment both physical and social in which a drug is taken" (Weil, 1971, p.69).

Available evidence indicates that affective and behavioural responses to alcohol consumption vary as a function of the situational characteristics (setting), surrounding alcohol use (Vuchinick & Tucker, in press). Pliner and Cappell's (1974) finding of variations in alcohol's mood effects across different drinking situations recently has been validated indirectly. Positive emotional changes have been observed in subjects who have consumed alcohol in a pleasant drinking context (Vuchinick, Tucker & Sobell, 1979), while negative mood changes have emerged where

subjects have been exposed to aversive conditions (Dengerink & Fagan, 1978).

Two psychological variables, the expectations of individuals, and cognitive labelling (set) have emerged from the recent literature on alcohol as possible mediators of emotional and behavioural changes following moderate alcohol consumption (Vuchinick et al., 1979). Expectancy is a variable known to affect a wide range of behaviours occurring in numerous settings and situations (Frank, 1961). (Bandura, (1977) and Mahoney (1974), have noted that expectancies influence selective attention, active response capabilities, and mediate anticipated reinforcements.)

Since expectations may be independent of the actual pharmacological effects of alcohol, and may be evoked merely by the belief that alcohol is being consumed, it has become important to control for subjects' expectancies in alcohol research (Levenson, Sher, Grossman, Newman & Nevlin, 1980). The role of the individual's expectations of alcohol induced emotional and behavioural changes following moderate consumption, has been investigated in experiments using the balanced placebo design. This four cell design, introduced by Marlatt et al., (1973), separates the effects of consuming alcohol from the effects of believing that alcohol has been consumed. More specifically, this design involves factorially combining manipulations of alcohol administration (given alcohol or given non-alcohol), with instructions regarding beverage content (told alcohol, or told non-alcohol).

The influential role of expectations in determining alcohol's effects is illustrated in the following examples. This review is not exhaustive, and studies that are included represent key papers in the field.

The influence of cognitive set on sexual behaviour is well established. Masters and Johnson (1970) assert that concerns about sexual performance and fear of failure (negative expectancy), can dramatically diminish sexual responsiveness. As such, the influence of alcohol on sexual arousal may be potentiated or moderated to the extent that associated cognitive mediators are operative. Briddell and Wilson (1976) and Briddell, Rimm, Caddy, Krawitz, Sholis and Wunderlin (1978), have shown that an individual's expectancy set regarding the anticipated effects of alcohol may influence levels of sexual arousal under low blood alcohol conditions. Using the balanced placebo design, Wilson and Lawson (1976a) found that expectancy rather than alcohol, significantly increased levels of sexual arousal to erotic films in male college students. Using the same design, but with female subjects, no effect for expectancy on objectively measured sexual arousal was evident. Moreover, alcohol consumption per se, resulted in significantly decreased sexual arousal (as shown on the vaginal photoplethysmograph), in women (Wilson & Lawson, 1978). The weight of the available evidence serves to suggest that cognitive rather than pharmacological factors may be important mediators of alcohol's effects on sexual behaviour.

Marlatt et al., (1973) have demonstrated that an individual's expectancy about the alcoholic content of his drink, regardless of its pharmacological impact, can be an important determinant of behaviour. In both alcoholics and social drinkers, expectancy emerged as the only significant determinant of both beverage consumption, and subsequent estimates of the alcoholic content of beverages. Lang et al., (1975) have shown that subjects who believed that they had consumed alcohol were significantly more aggressive than subjects who believed that they had consumed a non-alcoholic beverage, irrespective of actual beverage content.

In a study investigating social anxiety and physiological arousal in heterosexual interaction, Wilson and Abrams (1977) found that subjects who believed that they had consumed alcohol, showed lower levels of heart rate than those who expected non-alcoholic beverages. In a replication of this experiment with female subjects, the expectancy effect elevated physiological arousal and anxiety (Abrams & Wilson, 1979). More recently, Wilson, Perold and Abrams (in press) have extended analyses of the influence of expectations of alcohol's effects on social behaviour beyond the conventional focus of expectations relating to the self. Results of this study indicate the potential role of expectations about others' use of alcohol, on anxiety in an interpersonal situation. Subjects who believed that the female with whom they were interacting had recently been drinking, showed significantly less anxiety than their counterparts who did not hold this belief.

The results of the studies reviewed testify to the decisive influence of cognitive as opposed to pharmacological processes in alcohol's effects on behaviour: any adequate conceptualization of alcohol's behavioural effects must therefore address both the contextual characteristics of the drinking situation, and the drinker's expectations. The notion of cognitive labelling of physiological changes induced by alcohol is derived from Schachter's (1964) theory of emotions, and from his speculations regarding the possible application of the theory's cognitive-attributional components to explain the effects of recreational drugs such as marijuaha (Schachter & Singer, 1962; Schachter, 1964). According to Schachter's (1964) theory of emotion, if an individual lacks an immediate explanation for a state of physiological arousal, (s)he will search the environment for plausible stimuli to which to attribute or cognitively label that arousal. If the stimuli chosen as the source of arousal are relevant to emotional experience, an emotional state appropriate

for those stimuli is hypothesized to occur. As related to the emotional and behavioural effects of recreational drugs, Schachter and Singer (1962) and Schachter (1964) conjectured that instead of such drugs producing specific affective and behavioural changes through direct pharmacological action, changes might rather be due to the individual cognitively labelling (or in essence, misattributing) the relatively non-specific sensations induced by the drug, to the circumstances of drug usage.

Valins (1966) both refined and extended Schachter's (1964) theory, by demonstrating that cognitive labelling can significantly influence emotional responding even in the absence of a pharmacologically induced state of plasticity. Valin's (1966) theory has served as the foundation of many subsequent studies (Dengerink & Fagan, 1978; Pliner & Cappell, 1974; Wilson, 1977, 1978; Wilson & Lawson, 1976a) which have confirmed that actual physiological arousal may be unnecessary for affective or behavioural responses to oe influenced, provided the individual believes that (s)he is aroused.

Apart from research with alcohol, there are several studies with other psycho-active drugs that attest to the validity of Schachter's two-factor theory and Valin's extension thereof. The moderation of drug effects by cognitive factors has been demonstrated in the case of marijuana (Carlin, Bakker, Halpern & Dee Post, 1972), amphetamines and chloral hydrate (Lyerly, Ross, Krugman & Clyde, 1964), chlorpromazine (Claridge, 1970), and even aspirin (Dinnerstein, 1970).

Another sphere of alcohol research which deserves increased attention is that of sex differences in post-consumption behaviour. Despite a substantial body of anecdotal literature which suggests that female alcoholics differ from their male counterparts along several

important dimensions, the female drinker has to date been largely neglected in empirical studies. Those who have addressed the issue of sex differences amongst alcoholics have detailed several sex related distinctions (Beckman, 1975; Curlee, 1970; Wilson & Abrams, 1977, Wilson & Lawson, 1976b).

Women alcoholics are generally solitary drinkers who consume less alcohol than their male counterparts, yet drink more often to the point of insensibility (Tracey & Nathan, 1976). Female drinkers demonstrate a higher incidence of serious psychopathology than males, and the course of their alcoholism is more rapid (Curlee, 1970). Furthermore, it appears that alcoholism is more directly related to specific life situations in females than in males (Beckman, 1975; Tracey & Nathan, 1976). Curlee (1970) tested such differences as have been described between male and female alcoholics: comparison of the two groups tended to support the conclusion that the pathology of alcoholism is (sex) different, and that such differences are important enough to require consideration in treatment planning.

Recently, sex differences have been researched within the more sophisticated balanced placebo design. Wilson and Lawson (1976b) found that male social drinkers who believed they had consumed alcohol showed greater sexual arousal in response to erotic stimuli than males who believed that they had consumed a non-alcoholic drink. In a subsequent study using the same experimental design, but with female subjects, Wilson and Lawson (1978) failed to replicate the expectancy effect. Moreover, in contrast to male subjects, alcohol consumption per se resulted in a significant decrease in sexual arousal at low blood alcohol levels for female subjects.

Wilson and Abrams (1977) demonstrated that the belief of having consumed alcohol produced a lowering of social anxiety and physiological

arousal in male social drinkers. In a later study with female subjects, Abrams and Wilson (1979) replicated these findings on the effects of expectancies: however, the direction of the expectancy effect was reversed. Whereas beliefs about having consumed alcohol reduced social anxiety in males (Wilson & Abrams, 1977), the effect of similar beliefs among females was to increase social anxiety.

A study by Bolon and Barling (1978) provides further evidence for the hypothesis that females under identical conditions largely display a reverse of the attributions exhibited by males. In an investigation of the effects of alcohol, expectancies, sex and social setting on multi-dimensional locus of control attributions, females who expected and received alcohol became more internally orientated than those who expected yet did not receive alcohol. This is the opposite of the reaction of males under identical conditions (Barling & Bolon, 1979).

Most recently, Brown et al., (1980) have shown that men and women differ along an alcohol-expectancy dimension. Females in the subject population reviewed were found to expect generally positive social experiences when drinking, whereas males were more apt to expect arousal and potentially aggressive behaviour.

In reviewing the pertinent studies, tentative patterns of results emerge for the two sexes. Males show increases in beverage consumption (Marlatt et al., 1973), aggressive responding (Lang et al., 1975), and sexual arousal (Wilson & Lawson, 1976a), and decreased levels of anxiety (Wilson & Abrams, 1977) when they are led to believe that the beverage they have consumed contains alcohol. Women subjects by contrast show increased anxiety responses (Abrams & Wilson, 1979), whereas objective sexual arousal is decreased only by the actual administration of alcohol, regardless of the expectancy set (Wilson & Lawson, 1976b).

Clearly, additional research is needed to elucidate the potentially unique processes involved with women drinkers, while appropriate caution must be used in generalizing about the effects of alcohol on the basis of studies in which the subjects are almost invariably male. Indeed, as Beckman (1975, p.797) cautions, "probably differences between male and female drinkers make it essential that women are not ignored or lumped together with men in both research and treatment efforts".

This study takes cognizance of this fact, and therefore undertakes to compare the responses of male and female drinkers under separate yet identical conditions.

Since an increasing number of studies suggest that the psychological effects of a drug can only be understood by examining the interaction between its pharmacological and cognitive effects, it is essential to consider the precise role of expectations. Vuchinick et al., (1979) have raised some highly pertinent considerations with regard to this issue. It is possible, they argue, that expectations are restricted to specific behaviours and affective states with their operation being independent of the drinking context characteristics. Or, it might be that expectancies are more general in the sense that one's beliefs of having consumed alcohol potentiates responses to whatever stimuli are present in the drinking context. Finally, they suggest it might be that a combination of these two alternatives is most accurate: perhaps response-specific expectations are activated by the relevant environmental stimuli.

The influence of set and setting can only be accounted for by systematically varying the procedures and situations of alcohol research. An often neglected approach to the explanation of the drinking-deviance relation calls attention to the possibility that it is mediated by a psychological expectancy set regarding the behavioural effects of alcohol

consumption. The possibility of an ability or tendency on the part of drinkers to attribute their antisocial acts to their intoxicated state rather than to themselves, cannot be discounted either. Considering that alcohol is generally assumed to increase the likelihood of deviant behaviour (Fincham & Barling, 1979; Fink, 1943; Rada, 1965), it is important to determine whether or not morality will be influenced when alcohol, or the expectancy of alcohol is introduced as an experimental variable. As such, the present study was designed to permit analysis of both the independent and interactive effects of the cognitive and pharmacological factors associated with alcohol consumption and morality.

It is possible that specific personality traits or internalized behavioural restraints (namely morality), might interact with, or be temporarily disinhibited by alcohol or the expectancy of alcohol. It is interesting to note that temperance advocates and early alcohol theorists explained intoxicated deviance by assuming an alcohol induced impairment in moral reasoning (Rush, 1943). Although this assumption has not been prevalant in contemporary research, an alcohol induced change in moral values remains a popular explanation amongst the general public (Graham, Turnbull & La Roque, 1979).

It is only comparatively recently that empirical studies of moral behaviour have been undertaken (Wright, 1971). Among the factors which may account for the dearth of information, is the status of morality as a research topic within the discipline of psychology. Following their Character Education Inquiry involving eleven thousand subjects, Hartshorne and his colleagues (1930) concluded that the concept of morality was not a useful psychological construct. Further, as Wright (1971) has stated it has generally been assumed that moral behaviour can be adequately explained by applying to it fundamental laws of human behaviour that are discovered through the study of learning and perception. Finally, the

controlled experimental study of moral behaviour faces obvious practical and ethical limitations (Wright, 1971).

Recent advances in research on moral development have made possible however a test of the hypothesis that alcohol consumption impairs moral judgement. Poizner (1976) investigated the impairment of moral judgement hypothesis. This study found a non-significant decrement in moral reasoning with alcohol consumption. However, results were somewhat equivocal since the comparison condition used a marijuana placebo rather than an alcohol or no-drug placebo. Graham et al., (1979) also failed to show that moderate alcohol consumption impaired moral judgement ability. Volunteer subjects were assigned to one of three conditions and were required to consume either 0,0; 0,35, or 0.70 grams of alcohol per kilogram of body weight. Differences on moral maturity scores on the Defining Issues Test (Rest, 1974), were not significant. Fincham and Barling (1979) investigated the effect of alcohol consumption on both moral reasoning and moral values in a one-way pretest-posttest design incorporating two experimental and three control groups. Alcohol did not affect moral reasoning on the Defining Issues Test (Rest, 1974), but a dose related endorsement of meaningless items emerged for this questionnaire. No group differences were evident on moral value scores.

The non-significance of the studies reviewedshould not be taken as definitive. Despite the fact that the two most recent studies cited (Fincham & Barling, 1979; Graham et al., 1979) used the Defining Issues Test, the most valid psychometric apparatus for assessing moral judgement, it is likely that problems of design are responsible for the nature of these findings. Since neither of these studies used the balanced placebo design, the adequacy of the placebo and expectancy manipulations cannot be assumed. This is an important omission as the validity of the independent variables is frequently neglected in pyschological research

(Mahoney, 1976).

Evidence from other alcohol-related research lends further credence to the rationale of this study. During the past years, a number of investigators have studied alcoholics during experimentally induced intoxication, and have reported findings that have led them to question the benign picture of the effects of inebriation which are so commonly presented. Mendelson, La Dou and Solomon (1964) reported that experimental observation of ten drinking alcoholics over a period of two weeks, revealed a deterioration of previously intact behaviour with emergence of psychopathic patterns in the areas of sexuality and aggression. Similar studies have noted the emergence of other emotions not previously displayed, particularly hostility, guilt and resentment (McName, Mello & Mendelson, 1968). The most prominent feature of these emotional changes was their social liability.

Teger, Katin and Pruitt (1969) compared the risk taking behaviour of sober subjects on the choice-dilemma questionnaire with that of subjects drunk on various kinds of alcohol. Results indicated that drunk subjects will accept greater subjective risk than sober subjects. It is suggested, on the basis of these findings, that alcohol might also be concluded to affect a change in attitude towards ethical risk. Further validation for this speculation is provided by the research of Krauss, Mozdziez and Macchitelli (1971). These investigators found that alcoholics differed from psychiatric-outpatients and normal controls in terms of ethical risk taking. (This led them to conclude that the process by which one is transformed from a social drinker to an alcoholic might be conceptualized as a chain of decisions involving ethical risk.) However, since this study is an à posteriori investigation, any evidence that it provides must at best be seen as indirect. Finally, Parker, Alkana, Birnbaum, Hartley and Noble (1974), studied the effects of alcohol

administration on memory processes. Alcohol consumption significantly impaired registration, recall and organization. Since moral judgement is a cognitive construct, it is reasonable to assume that alcohol would have a similarly disruptive effect upon its operations.

It is the contention of Wright (1971, p.11) that "no discriminable class of actions can be labelled moral as such. Whether or not an action is morally evaluated depends on the context in which it occurs". By contrast, it is Lickona's assertion (1976, p.11) that "the starting point of any consideration of morality remains 'what is the good or the moral'?" In attempting to illustrate the nature of moral behaviour, different theories have begun with different questions which causes the approaches to arrive at alternate emphases. Social learning theory and situation centred social psychology have tended to ask what causes discrimination or variability in morality. Developmental theories have asked, on the other hand, how we can account for the wholeness of human functioning. A brief review of the tenets of these two major approaches will now be undertaken.

The social learning approach assumes that moral development is behavioural and affective confirmity to moral rules rather than cognitive structural change (Mischel & Mischel, 1976). The basic motivation for morality as viewed by this theory is rooted in the pursuit of social rewards, and the avoidance of social punishment. Thus, the environmental influences on normal moral behaviour are defined by quantitative variations in the strength of reward, punishment and prohibition, and the modelling of conforming behaviour by socializing agents (Bandura & McDonald, 1963).

The most obvious characteristics of the cognitive developmental theories by contrast, is their use of some type of stage linked concept.

According to this model, moral development has a basic cognitive structural or moral judgement component (Kohlberg, 1976). The basic motivation for morality is a generalized motivation for acceptance, competence or self regulation, rather than for the meeting of biological needs or the reduction of social anxiety (Kohlberg, 1969). Moral norms and principles are seen as structures arising through experiences of social interaction, rather than the internalization of rules that exist as external structures. Environmental influences in moral development are defined by the general quality and extent of cognitive and social stimulation throughout the child's development (Kohlberg, 1976).

Only cognitive developmental theories have attempted to describe the course of moral judgement development, and have attempted to account theoretically for the predicted changes over time in terms of increasing cognitive complexity (Rest, 1973).

In agreement with cognitive developmental theory, this thesis assumes that moral cognitions play an important role in moral functioning, providing unity to the many processes that compose it. Cognitive processes are assigned the role of regulating and facilitating the relations between situations and moral tendencies, as well as the relations between moral tendencies and behaviour (Blasi, 1980). It is the cognitive theories that emphasize the advantages, and the adaptive nature of a variety of cognitive processes, amongst these, observation and discrimination, and labelling (Blasi, 1980).

Laurence Kohlberg (1968; 1971; 1976) has recently discussed a cognitive developmental approach to the study of morality and of how moral judgement relates to other psychological constructs. Kohlberg (1969) characterized the development of moral judgement in terms of a

typology of six stages. The stages are said to be hierarchically related: a new stage does not simply replace a previous stage nor is it added to it, but rather, the new stage is a transformation of elements of the old along with new elements into an emergent structure. (One of the main implications of stage hierarchy theory is that a higher stage is more complex than a lower stage, and that a higher stage logically presupposes the simpler low stage.)

Recent discussions of developmental stages (Kohlberg, 1971) depict the stages as successive transformations in the way people view co-operative social arrangements. "A moral judgement stage is a conceptual framework for interpreting social interrelationships and mutual responsibilities"(Kohlberg, 1971, p.492). Each moral judgement stage therefore has distinctive ways of defining a given social-moral dilemma, and of evaluating the critical issues of a problem. Kohlberg is the only contemporary psychologist to embrace philosophy as essential to defining "what is moral" as the first required step in an analysis of morality (Lickona, 1972). His line of analysis leads him to the conclusion that "the most essential structure of morality is the principle of justice, and that the core of justice is the distribution of rights and duties regulated by concepts of equality and reciprocity" (Kohlberg, 1971, p.474). At less mature levels of moral reasoning where justice is not fully abstracted from particular social beliefs, the individual can stay within the boundaries of his/her low principles, and escape with being hurtful or unjust to particular groups or persons. Different levels of moral principles permit different kinds of actions.

Despite the scope of Kohlberg's work, certain problems flaw his test of moral development. Kohlberg's (1958) Moral Judgement Scale has methodological problems (Rest, Cooper, Coder, Masang & Anderson, 1974). Kohlberg's method produces material that is not strictly com-

parable from subject to subject, assessments are vulnerable to interviewer and scorer bias, while scoring involves inferential leaps from the data (Kurtines & Grief, 1974). In addition, there are certain severe doubts about the reliability of Kohlberg's test (Kurtines & Grief, 1974).

In response to the problems with Kohlberg's test, Rest and his associates (1974) developed a new measure of moral reasoning, the Defining Issues Test (henceforth, the DIT). The DIT is an objective test of Kohlberg's stage theory of moral development with Rest's modifications of stage characteristics. More specifically, Rest (1979) omits Kohlberg's step by step sequence of stages. His research has led him to discard the simple stage model, focusing rather on consistency in the form of reasoning across content.

"Moral judgement is the fundamental structure by which people perceive and make decisions about their rights and responsibilities" (Rest, 1979, p.76). Moral judgement has to do with the logic of co-operative arrangements, and with establishing a balance of interests among the participants in social interactions. Rest's approach considers moral functioning as essentially rational namely, as a response that is derived from understanding and reasoning about both the fundamental goals of human beings and the means to pursue them. Morality within this model does not consist of the material achievement of certain goals, but of the special meaning these goals have for individuals, and of the processes by which such goals are achieved. An action beneficial to the welfare of society as a whole, or to a fellow human being would not be considered moral if it were performed under duress, but only if it were performed in response to values that are both understood and accepted by the agent concerned. Herein lies the reason for the emphasis on judgement that is characteristic of Piaget, Kohlberg and cognitive developmentalism in general: without judgement, actions no matter how

beneficial, would not be moral. Moral action must necessarily be mediated by moral judgement.

Rest's central thesis is thus that differences amongst people in ways that they construe and evaluate moral problems are determined largely by their concepts of fairness. It is his contention that it is both possible to identify and describe these basic concepts, and that more adequate and complex concepts of fairness develop from less adequate and simple ones. Rest (1974) argues that moral judgement involves a number of sub-processes (that are not reducible to one another), which must be described if one is to achieve a full picture of the psychology of moral judgement. Two sub-processes of particular interest are the ability to define and judge the crucial issues in a moral dilemma, and the ability to justify one's moral beliefs and choices. According to Rest (1979), the DIT measures the former.

It is Rest's assertion that the results of research indicate the adequacy of the fundamental claims of his cognitive developmental approach. That is, that moral judgement is developmental, that it is primarily governed by cognitive processes (rather than affective), and that it has a role in the realm of real-life decision making. The methodological advantages of the DIT present decisive evidence in favour of this test.

Like Piaget's (1932) postulation of invariant logical stages, Kohlberg's assertion of universal moral stages rests on a critical theoretical construct, that is, the distinction between structure held to be universal and to follow the laws of development, and content held to follow laws of learning and vary with specific patterns of experience. (Kohlberg, 1969). Content tells us what a person believes (which is dependent upon culturally variable experiences), whereas structure tells

us how a person thinks about the content of his beliefs (the reasoning of which is universal). Morality is content as well as structure. Usually, the structure of thought is conceived as the filter that determines the meaning and impact of content. Kohlberg (1971) holds that the individual's susceptibility to content influences varies with his/her developmental stage, susceptibility being greatest at the conventional level where the person's principles lead him to look to the group for moral definitions of the situation.

"The independent effect of content on moral functioning is that marked shifts in moral attitudes or behaviour can occur without any corresponding structural change" (Lickona, 1976, p.15). It is hardly surprising from this perspective that situations have enormous impact on morality, a fact that has been repeatedly demonstrated in the research literature (Aronfreed, 1976; Burton, 1976; Bandura, 1969; Mischel & Mischel, 1976). Moral judgements are more variable both within and between individuals, and more modifiable than conventional structural theory would lead one to expect (Bandura & McDonald, 1973). Since most people function at a conventional level of moral reasoning (only twenty-five percent of American adults achieve the post-conventional moral level) (Kohlberg, 1971), by definition content must be situationally influenced.

In view of the fact that variations in situations cause variations in moral behaviour, any comprehensive assessment of the construct of morality must examine both the structure and the content of moral functioning. Rest's (1974) structural theory does not deal with the totality of morality; it is essential therefore to examine the effects of alcohol on the content of morality as well, that is on moral values.

Blasi (1980) has stated that moral values are a personal belief, an affective inclination, or a tendency to behave in a certain moral

manner. Wright (1971) regards the concept of values as being closely related to motivation, since to value something means for him, to prefer it, to invest energy in it, and to work for it.

In view of the paucity of research, this study sought to investigate the relationship between alcohol and moral functioning. Specifically, the effect of alcohol on measures of both moral reasoning (structure) and moral values (content) was assessed in social drinkers. In view of the limited pertinent research, it was difficult to formulate à priori hypotheses concerning the exact effects of alcohol on these two dimensions of morality. However, it was hypothesized that if the physiological effects of alcohol are primarily involved in the "decline" of moral functioning, then subjects who actually received alcohol (regardless of their expectations) would exhibit a change in morality. If on the other hand, cognitive factors are the main determinants, the greater difference would be between those who believed they had consumed alcohol and those who believed that they had consumed a non-alcoholic beverage, regardless of actual beverage content.

On the basis of previous research (Abrams & Wilson, 1979; Wilson & Lawson, 1976a; Wilson & Abrams, 1977) it is hypothesized that a sex difference will emerge on subject's responses to experimental manipulation.

METHOD

Subjects

Forty-eight university students between the ages of seventeen and twenty-two years (M = 19,4, SD = 1,22), comprising twenty-four male undergraduates aged seventeen to twenty-two years (M = 19,83, SD = 1,52) and twenty-four female undergraduate students aged eighteen to twenty

years, (M = 18,96, SD = 0,55), volunteered to participate in this study. Subjects were recruited from second year psychology lecture classes after a brief synopsis of experimental method had been offered. In order to qualify for participation, each student had to satisfy certain criteria namely, that (s)he was a moderate social drinker who did not experience any medical, psychiatric or behavioural problems related to the consumption of alcohol. Moreover, the subjects were required to consent that if necessary, (s)he would be willing to consume alcohol during the course of the experiment.

The use of moderate social drinkers was considered justified. Recent evidence suggests that an individual's alcohol consumption may be conceptualized as existing on a continuum ranging from non-pathological to extremely pathological (Sobel & Sobel, 1973), and that the alcohol consumption of individuals with drinking problems is to some extent, determined by the same factors that govern the consumption of normal drinkers (Marlatt et al., 1973).

Given the validity of this general framework, an understanding of the processes underlying the emotional and behavioural effects of alcohol may be a fundamental step towards developing adequate conceptualizations of both normal and abnormal drinking behaviour (McClelland, 1972).

Token renumeration of R2 (±$2.50) was offered for participation. In addition, each subject received a de-briefing circular in which the experimental method and manipulations were revealed and clarified (See Appendix A).

Experimental Design

A randomized 2 x 2 x 2 (alcohol x expectancy x sex) design with six subjects per cell was used. The independent variables manipulated in

this experiment were:

(i) expectancy (instructional set) - subjects were told that they would be receiving either an alcoholic or a non-alcoholic beverage and,

(ii) alcohol content - subjects received either an alcoholic beverage or a placebo. The advantage of this design is that it controls for both the expectations of the effects of alcohol, and for the expectations associated with drinking a non-alcoholic beverage (Marlatt et al., 1973).

(iii) Sex - males (n = 24) and females (n = 24) were separated and subjected to the identical experimental manipulation.

The overall design and experimental procedures are similar to those employed by Wilson and Lawson (1976b).

Apparatus

Apparatus for assessing the dependent variables

Rest's (1974) Defining Issues Test was used to assess moral reasoning. This test attempts to assess what people see as crucial moral issues in a situation by presenting subjects with a moral dilemma, and a list of the major issues involved. The testee reads the dilemma and is presented with the twelve issues bearing upon that situation, (s)he must rate each issue on a Likert-type scale of importance ("most", "much", "some", "little", "no"), in deciding what ought to be done. Subjects must then rank their first four choices of the most important issues. Since each issue statement represents a moral judgement stage, a subject's choice of the most important issues over a number of moral dilemmas is taken as a measure of his grasp of different stages of moral reasoning (Rest, 1976).

The use of prototypic statements has certain advantages over

Kohlberg's test: the researcher exemplifies the distinctive reasoning of a stage by using examples of clearly scored statements. Thus, stimulus conditions are highly standardized and the points that are discussed are not left to the subject's predilictions, or to the interviewer's sense of what is important. Moreover, the use of prototypic statements enables the researcher to study the subject's reactions to higher as well as lower stage concepts (Rest, 1979).

The DIT has extensive validity data (Rest, 1974). According to Rest (1980), the two scores most commonly used by DIT users have reliabilities in the upper 0.70's and 0.80's, while test-retest data indicate that the DIT P score has a Pearson correlation of 0.81.[1] Interlocking and replicated studies confirm the fundamental features of the moral judgement construct, namely its developmental and cognitive nature (Rest, 1979). Rest et al., (1974) cite evidence that differences on the DIT are developmental (DIT scores are significantly higher for groups presumed to be at more advanced developmental levels), while the DIT also shows high correlations with other measures assumed to correlate with development (Rest, 1980). These correlations suggest that as subjects develop cognitively, they come to define moral dilemmas more complexly, and place greater importance on principled moral thinking than do less cognitively developed subjects. In addition, substantial correlations of the DIT with current real life social-moral-political controversies have been found (Rest et al., 1974).

Rest's (1973) finding of a cummulative order of difficulty supports the claim that each succeeding stage is more cognitively differentiated and integrated than the previous one. The increasing difficulty of the stages set upper limits on what kinds of moral judgement are conceptually possible for a subject, while preference for greater structural adequacy sets limits on what kinds of moral judgement would satisfy the subject.

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1. Rest (1980) does not indicate which two scores, nor the time lapse in the rest-retest studies.

Thus two factors, comprehension and preference largely account for the developmental stage at which a subject is actually producing moral judgement, and for the stage of judgement presented to him/her which (s)he will assimilate (Rest, 1973).

Three scores from the DIT were used for the purposes of this study, the "P", "A" and "M" scores. The "P" score (sum of weighted ranks given to stage 5 and 6 items) is the most useful and reliable index from the DIT (Rest, 1974). This score indicates the relative importance a subject gives to principled moral considerations in making a decision about moral dilemmas. The "A" items are intended to typify an antiestablishment orientation, a point of view which condemns tradition and the existing social order for its arbitrariness or its corruption by the rich for the exploitation of the poor. In addition, the DIT yields a consistency check, and an index "M" representing the subject's tendency to endorse statements for their pretentiousness rather than their meaning (Rest, 1974).

Although the DIT consists of six moral dilemmas, only the Heinz, Prisoner and Newspaper stories were used (see Appendix B). However, since the principled score based on this shorter version correlates 0.93 with that based on the six stories (Rest, 1974), and as using the three story DIT has little adverse effect in studies where group means are the focus (Rest, 1979), its use was considered justified.

A questionnaire used extensively to measure changes in moral values Rettig and Pasamanick's (1959) "Changes in Moral Values Scale" was deemed appropriate for this study. This measure consists of fifty items describing ethically disputable behaviour (e.g. falsifying an income tax return; holding up and robbing a person; having sex relations while unmarried). Respondents are required to rate these statements from one to ten ("least wrong", or "not wrong at all", to "wrong" or

"wrongest possible"). Although there is no published validity data on this instrument, it is the contention of Fincham and Barling (1979) that its production of a meaningful pattern of results over a period of thirty years serves as a possible measure of its validity.

In most recent studies using the balanced placebo design, multiple measures of the dependent variables (such as, physiological indices, behavioural ratings and self reports) are obtained. It is important to note that the nature of morality precludes the use of such a range of assessment tools. However, it is the contention of Rest (1980) that moral judgement is a comprehensive construct.

Apparatus for assessing the independent variables

Adesso and Lauerman's (1975) Sensation Scale was employed to measure the subjective experience of physiological changes following alcohol consumption. This measure consists of thirty-one items (e.g. warm, dizzy, nauseous) which the subject is required to rate on a 0 - 10 scale according to the degree to which they experience the sensations represented by each variable. The Sensation Scale yields seven categories related to the physiological consequences of alcohol ingestion. Evidence from two recent studies - Connors and Maisto (in press), and McCollam, Burish, Maisto and Sobel (1979), present convincing evidence as to the validity of the Sensation Scale in discriminating between subjects who have consumed an alcoholic or a non-alcoholic beverage. The seven categories of the Sensation Scale provide a reliable and valid instrument (Maisto, Connors, Tucker, McCollam & Adesso, 1980) to study changes induced by moderate alcohol intoxication. This scale was used as an additional check on the success of the experimental manipulations.

Procedure

Current ethical considerations call for an informed consent procedure in which participants in drug evaluation studies complete a form stating that:

(i) (s)he participated voluntarily

(ii) (s)he had previously consumed alcohol

(iii) (s)he was a moderate social drinker

(iv) (s)he did not experience any medical, psychiatric or behavioural problems related to the consumption of alcohol, and

(v) (s)he realized that it might be necessary to imbibe alcohol during the course of the experiment (see Appendix C).

All subjects completed this form prior to the testing session. Subjects were asked to fast for five hours before, and to refrain from ingesting drugs or alcohol for twenty-four hours prior to their testing session. They were informed that this procedure was necessary to standardize test conditions. Males and females were separated throughout the duration of the experiment. On arrival, participants were told that the experiment was designed to investigate the effects of alcohol on personality, learning and various other behaviours. Subjects were then weighed by a research assistant, escorted to an individual cubicle, and administered a measured dose (100 mg) of antiseptic anaesthetic mouth and throat spray. Administration was given under the guise that this procedure was important in obtaining consistent estimates from the breathalizer (Wilson & Lawson, 1976b). The real purpose though was to reduce the subject's ability to discriminate the presence of absence of alcohol content in their drink.

Each subject in the two separate sex conditions was assigned to one

of four groups:

Group 1: (n = 6) Expected and received alcohol

Group 2: (n = 6) Expected, and did not receive alcohol

Group 3: (n = 6) Did not expect, but received alcohol

Group 4: (n = 6) Did not expect, and did not receive alcohol

Subjects were left in their individual cubicles while their beverages were being mixed. When preparations were complete, the aide who was wearing a white coat, returned to each cubicle carrying a tray containing the ingredients for the subject's drink, and two styrofoam cups in which it was to be served. In the conditions in which the subject was instructed that (s)he was to receive an alcoholic beverage, the tray contained a vodka bottle and a bottle of tonic water. The research assistant announced that the subject was in the "experimental group", explaining that this meant that his/her drink consisted of vodka and tonic. She then proceeded to "mix" the drink according to a previously constructed dosage table in full view of the subject. Subjects were given ten minutes in which to consume the drink.

In the expected alcohol-given alcohol condition, both the vodka bottle and the tonic bottle contained an identical, previously mixed solution of ethanol and decarbonated water. However, in the expected alcohol-given no alcohol condition, both the vodka bottle and the tonic bottle contained decarbonated tonic water only (Schweppes). In this condition the subject's cup had been smeared with brandy, while three drops of brandy per cup had been added to enhance the placebo effect. This procedure was followed since previous research has shown that despite the ingestion of small amounts of alcohol (0,08 g/kg more than the present quantity), the blood alcohol level of social drinkers remains at 0,0% (Wallgren & Barry, 1970).

In the conditions in which the subject was told that (s)he was to

drink a non-alcoholic beverage, the tray contained a tonic water bottle only. The research assistant announced that the subject was in the "control group" and explained that this meant that his/her drink consisted of tonic water only. The rationale given for the tonic water was as follows.

> As I am sure you can understand, all experiments require a control condition. This means that you will be given a non-alcoholic drink (points to the bottle of tonic). This is the only way we can evaluate the true alcohol effect - by comparing it with the results of subjects who consume the non-alcoholic beverage. (Briddell et al., 1978, p.421)

In the did not expect alcohol-given alcohol condition, the tonic bottle contained the same solution of ethanol and tonic water as was given to subjects in the expected alcohol-given alcohol condition. In the did not expect-nor receive condition (the control group), the tonic bottle contained only decarbonated tonic water. Across all four conditions the aide who administered the beverages was unaware of the actual contents of the bottles, thus ensuring a double-blind procedure.

For those who received an alcoholic mixture, the alcohol content of the beverage was 0,05 g 96% ethanol per kilogram of body weight. This dosage level was chosen because it is consistent with past research (Abrams & Wilson, 1979; Wilson & Lawson, 1976a; Wilson & Abrams, 1977), and since it parallels most social drinking situations (Wallgren & Barry, 1970). This was mixed with tonic water in a 1:5 ratio. The 1:5 ratio was chosen on the basis of Marlatt et al.'s (1973) finding that at this level, subjects could not detect the presence or absence of alcohol at a better-than-chance rate. In addition, three squirts of lime juice were added to all drinks in all conditions to reduce tast acuity. The alcohol level used, ratio of ethanol to tonic, and the drink administration procedures were chosen on the basis of previous demonstrations of the success of such experimental manipulations (e.g. Wilson & Lawson,

1976a; 1976b).

All beverage consumption was followed by a breathalyzer test. The "breathalyzer" in this instance was an apparatus with two large dials, one of which could be moved and set at any desired level ("adjusted according to your weight") by a potentiometer below it. The other dial was controlled by a hidden switch operated by the experimental assistant. The subject was required to take a deep breath and exhale into a mask which was attached to the machine, (in reality merely projecting into an empty box). The "breathalyzer" was set to reflect the level appropr[illegible] to the instructional set requirements for the subject's experimental condition. If the subject had been told that his beve[illegible]e was alcoholic, regardless of its actual content, the assistant manipulated the switch so that the needle on the "measuring dial" rose to the predetermined level of 0, 04%. For those subjects who were told that they were to receive a non-alcoholic beverage, the assistant caused the needle to flicker momentarily, and then return to 0,00%. In each case, the researcher read aloud the results of the test and carefully recorded them. The blood alcohol level feedback procedure, similar to that employed by Wilson & Lawson (1976b) and Briddell et al. (1978), served to complete the deception with regard to the alcohol content and instructional set manipulation.

After having undergone the breathalyzer test, subjects returned to their cubicles and were given a forty minute rest period for alcohol absorbtion to take place. All subjects were given a copy of the same magazine (Family Radio and TV, October, 1980) to read during the absorbtion period (Briddell et al., 1978). This absorbtion period was motivated by the observation that previous research had been deficient by studying the effects of low doses of alcohol too soon after beverage administration (Wallgren & Barry, 1970). Subjects were then required

to complete The Rettig and Pasamanick(1959) "Changes in Moral Values" questionnaire, the three stories of the Rest (1974) "Defining Issues Test", and the "Sensation Scale" (Adesso & Lauerman, 1975). Subjects also completed a post-experimental questionnaire in which they were asked to estimate the amount of alcohol they had consumed (see Appendix D).

When subjects had completed the battery of tests, they were thanked for their participation and paid. Subjects were debriefed by circular (Appendix C) at the completion of all the testing.

Statistical Analysis

The efficacy of the expectancy manipulation was assessed in two ways. Firstly, subject's post-experimental estimates of the percentage of alcohol contained in their beverage were evaluated. A t-test for instructional set indicated a significant difference in estimates of alcohol consumption between the two expectancy conditions (t (46) = 3.35 $p < .002$). Subjects in the two "expect alcohol conditions" estimated that they had consumed a mean of 24.58% of alcohol, whereas subjects in the two "do not expect alcohol" conditions estimated that they had consumed only an average of 9.21% of alcohol. Secondly, a Pearson's Product moment correlation was conducted between the two expectancy conditions and the categories of the Sensation Scale. This check yielded positive correlations on six of the seven dimensions of this scale.

sensation (r (47) = 0,51, p = 0,000);

gastro-intestinal (r (47) = 0,32, p = 0,014);

anaesthetic (r (47) = 0,51, p = 0,000);

central stimulant (r (47) = 0,57, p = 0,000);

impaired function ($\underline{r}$ (47) = 0,42, $\underline{p}$ = 0,002);

warmth ($\underline{r}$ (47) = 0,42, $\underline{p}$ = 0,001);

dynamic peripheral ($\underline{r}$ (47) = 0,42, $\underline{p}$ = 0,002).

Thus subjects who believed that they had consumed alcohol (irrespective of actual beverage content) rated their physiological responses to their beverage as being more pronounced than subjects who did not expect to receive alcohol.

These results show that the manipulation was successful in creating the desired expectancies.

All further data analyses were 2 x 2 x 2 (alcohol x expectancy x sex) analyses of variance with six subjects per cell. Due to the design of this study, orthogonal anovas were used (Kerlinger, 1973). Where interaction occurred, main effects were not analyzed. In addition, in instances of three way interactions, two-way interactions were overlooked (Kerlinger, 1973).

T-tests for independent samples were used to test for significance in instances of interaction.

RESULTS

On the dimension of moral values a significant main effect for sex emerged. Female subjects scored a mean total of 303,83 on this questionnaire, while male subjects scored an average of 263,58 F (1,40 = 8,58 $p < 0,01$). This sex difference was considered unimportant. Alcohol had no significant influence on moral values (see Table I).

TABLE I

Analysis of variance results : moral values by alcohol, expectancy and sex

	SS	df	Ms	F	P
Alcohol (A)	645,33	1	645,33	0,29	0,60
Expectancy (B)	5481,75	1	5481,75	2, 9	0,13
Sex (C)	19440,75	1	19440,75	8,56	0,06
A x B	33,33	1	33,33	0,02	0,90
A x C	533,33	1	533,33	0,24	0,63
B x C	1064,08	1	1064,08	0,47	0,50
A x B x C	280,33	1	280,33	0,12	0,73

A significant 2 x 2 interaction (alcohol x expectancy) emerged on the principled morality score of the DIT. However, since a significant three way interaction (alcohol x expectancy x sex) also emerged, $F(1,40 = 4,32, p < 0,045)$, the two way interaction was not analyzed (Kerlinger, 1963) (see Table 2).

TABLE 2

Analysis of variance results : P score by alcohol, expectancy and sex

	SS	df	Ms	F	P
Alcohol (A)	6,75	1	6,75	0,42	0,52
Expectancy (B)	16,33	1	16,33	1,05	0,32
Sex (C)	27,00	1	27,00	1,66	0,20
A x B	161,33		161,33	9,10	0,00
A x C	1,33	1	1,33	0,82	0,78
B x C	14,08	1	14,08	0,87	0,36
A x B x C	70,08	1	70,08	4,32	0,00

The nature of this interaction is illustrated in Figure I.

A t-test for independent samples on the male subject population revealed a significant difference between those males who expected and received alcohol, and those who did not expect yet received alcohol

($\underline{t}$ (10) = 2,74, $\underline{p} < 0,03$). Furthermore, significant differences were found between males who expected but did not receive alcohol, and between males who did not expect and did not receive an alcoholic beverage.

Similar tests conducted on the female sample did not reach significance. There was no significant difference between female subjects who expected and received alcohol, and between those females who did not expect but received alcohol ($\underline{t}$ (10) = 0,55, $\underline{p} > 0,05$). Similarly differences between females who expected but did not receive alcohol, and between females who did not expect and did not receive alcohol were non-significant ($\underline{t}$ (10) = 1,29, $\underline{p} > 0,05$).

A significant two way interaction (alcohol x expectancy) was found on the anti-establishment orientation of the DIT F (1,40) = 4,92, $\underline{p} < 0,035$). Figure 2 illustrates the nature of this disordinal interaction. T-tests revealed a significant difference between those subjects who did not expect and did not receive alcohol, and those who did expect, but did not receive alcohol ($\underline{t}$ (22) = 1,83, $\underline{p} < .05$). There were no significant differences between those who expected and received, and those who did not expect but received an alcoholic drink ($\underline{t}$ (22) = 1,28, $\underline{p} > .05$). (see Table 3).

TABLE 3

Analysis of variance results : A score by alcohol, expectancy and sex

	SS	df	Ms	F	P
Alcohol (A)	0.33	1	0.33	0.14	0.71
Expectancy (B)	0,75	1	0,75	0,31	0,58
Sex (C)	4,08	1	4,08	1,67	0,20
A x B	12,00	1	12.00	4,92	0,03
A x C	3,00	1	3,00	1,23	0,27
B x C	0,75	1	0,75	0,31	0,58
A x B x C	1,33	1	1,33	0,55	0,46

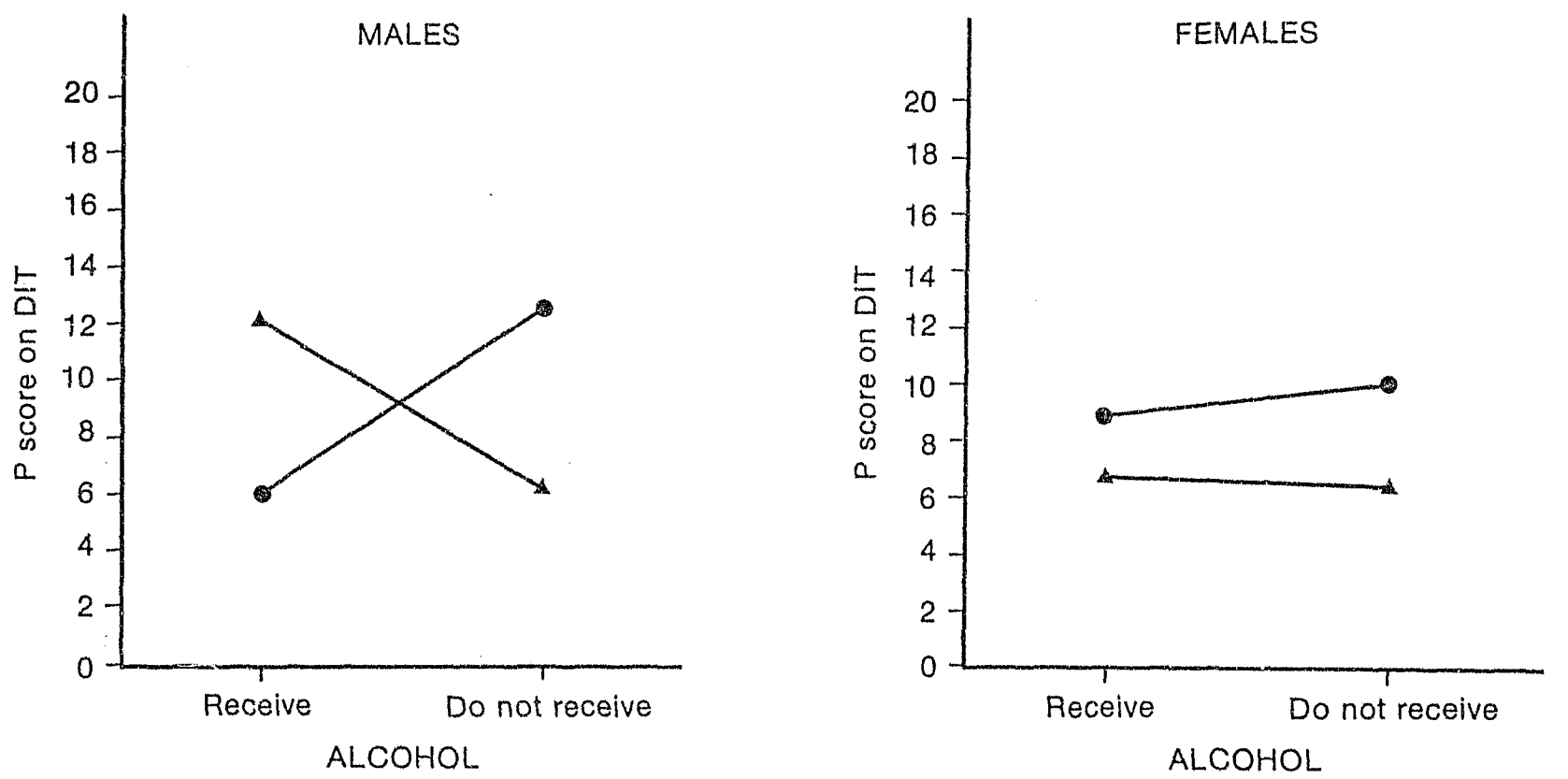

FIGURE I: Graph of the means for the interaction of alcohol, expectancy and sex on the principled morality score

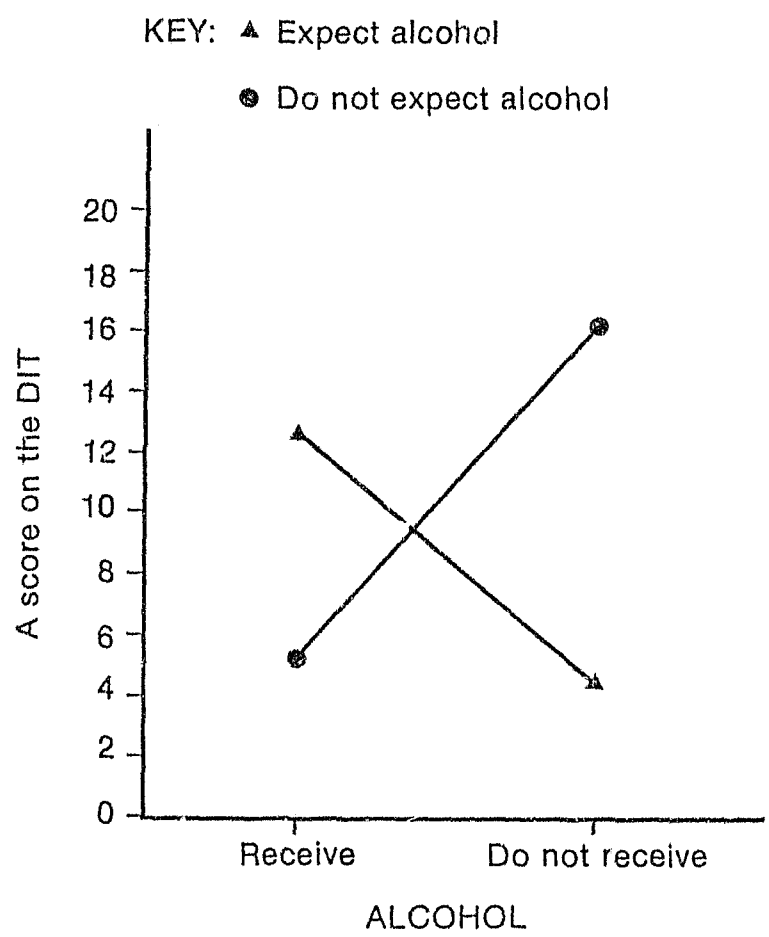

FIGURE II: Graph of the means for the interaction of alcohol, expectancy and the A Score

On the M score, that dimension which reveals the subject's endorsement of meaningless items, neither main effects nor interactions emerged. Table 4 presents the full anova table.

TABLE 4

Analysis of variance results : M score by alcohol, expectancy and sex

	SS	df	Ms	F	P
Alcohol (A)	13.02	1	13,02	1.10	0.17
Expectancy (B)	3,52	1	3,52	0,54	0,47
Sex (C)	0,21	1	0,21	0,00	0,96
A x B	13,02	1	13,02	1,10	0,17
A x C	22,69	1	22,69	3,47	0,07
B x C	0,52	1	0,52	0,08	0,78
A x B x C	0,02	1	0,02	0,03	0,90

DISCUSSION

The results of this study, in confirmation of the findings of Fincham and Barling (1979), indicate that alcohol per se has no significant influence on moral values. Moral values represent the content of morality, namely that aspect that is open to situational influence: it was anticipated therefore that this dimension would most acutely reflect the effects of alcohol on moral functioning. The non-significance of this result can be understood in various ways.

Firstly, it might be argued that the questionnaire used in this study (Rettig & Pasamanick, 1959) did not acurately assess the construct under consideration. Despite its long use, there are no reliability and validity data on this scale. Secondly, the sterile laboratory

environment of this study might have overriden the influence of drinking related associations. Since the influence of situation on moral behaviour is well documented (Bandura & McDonald, 1963; Mischel & Mischel, 1976), it seems likely that the experimental setting served as an inhibitory factor.

An aspect of considerable importance is the fact that the insignificant results of this study on the content questionnaire corroborate the problems of this approach mentioned by cognitive developmental theorists. Cognitive developmental theory maintains that the content of the individual's belief cannot predict the underlying reasons for his/her behaviour (Kohlberg, 1969). In judging the "rightness" or "wrongness" of an issue, subjects may judge the issue correctly, but for different reasons. A problem inherent to the content approach to morality is that it is not possible to ascertain the reference point of an individual judging a situation. Thus, Kohlberg (1971) asserts that only by studying the reasons for an individual's actions, is it possible to make inferences about the nature (namely structure) of his morality. It seems that the consideration of moral values might prove redundant when assessing the influence of alcohol on moral functioning.

The significant results for the male sample that emerged in this study on the principled morality score, contrasts with previous research (Fincham & Barling, 1979; Graham et al, 1979; Poizner, 1976), that failed to reveal any alcohol-related changes in moral values on this dimension of the DIT. Several reasons can be given for this discrepancy in findings, the most important being the inadequacy of the expectation and placebo manipulations of these previous studies.

As with aggression and sexual responsiveness, morality is commonly assumed to be under inhibitory control, with alcohol posed in the role of potential disinhibitor. Contrary to this supposition, no significant

main effect emerged for alcohol, and there was no evidence that alcohol had a depressant action upon levels of moral reasoning in the male sample. The mean P score for those subjects who received alcohol was 9,00, while the mean for those who drank a non-alcoholic beverage was 9,41.

A significant alcohol x expectancy x sex interaction emerged. When males expected and received alcohol, they scored significantly more than males who expected and did not receive alcohol. When males did not expect and did not receive alcohol, they scored significantly more than males who did not expect but received alcohol. It is obvious that the subject's ability to reason about moral dilemmas was best when expectancy and the actual administration of beverage were congruent. It seems that these results may best be explained within the cognitive consistency paradigm.

Festinger's (1957) original statement of dissonance theory indicated that dissonance has drive-like properties and is experienced as psychological tension or discomfort. Theoretically, dissonance is defined as a negative state of tension, aroused when an individual holds cognitions that are mutually inconsistent. (In this instance, expecting alcohol yet experiencing no physiological arousal, and not expecting alcohol, yet experiencing physiological arousal.) Several experiments have indicated that how one labels one's arousal has implications for subsequent behaviour and attitudinal responses (Kiesler & Pallak, 1976). The existence of dissonance gives rise to pressures to both reduce dissonance, and to avoid further increases in dissonance. Manifestations of the operations of these pressures include behavioural changes and changes in cognition (Triandis, 1971). It is suggested that the labelling or interpretation of the physiological arousal or lack of it in the two aforementioned conditions was an important determinant of subject's

decline in moral reasoning ability (i.e. a reduction of dissonance through altered cognitive activity).

With regard to the condition in which subjects expected and received alcohol, it is speculated that the knowledge that one is about to consume alcohol may trigger a compensatory reaction in which subjects accommodate in some way for the anticipated deleterious effects of alcohol upon performance. (Thus, as in this instance, subjects who received alcohol without their prior knowledge did more poorly than those who expected alcohol, and could therefore compensate for its effects.)

Consistent with past research, (Abrams & Wilson, 1979; Barling & Bolon, 1978; Wilson & Lawson, 1976a, 1976b) the pattern of results with female subjects differed entirely from that of the male group. As with males, there was no main effect for alcohol in the female group, but in contrast to the findings with male subjects, no interaction for expectancy emerged. This replicates a similar finding by Wilson and Lawson (1978). Irrespective of alcohol's effects, an expectancy effect remained possible. There is no evidence however that the group administered tonic and told that it was alcohol exhibited any significant differences in moral reasoning from those who were correctly informed that they were drinking tonic water only. Similarly, there were no significant differences between those who expected and received alcohol, and those who expected but did not receive alcohol.

Since there were no procedural differences, and since subjects were recruited from the same population, such differences warrant some discussion. The discrepant results between sexes in terms of the alcohol x expectancy interaction on moral reasoning may reflect the influence of differential drinking histories. Anecdotal evidence suggests that men drink more than women, while it has been stated that expectancies vary

with drinking patterns (Brown et al., 1980). It might be assumed therefore that since males are more familiar with alcohol's physical consequences, they have more acutely developed expectancies regarding alcohol's influence.

The findings of recent research by Brown et al., (1980) provides an interesting potential explanation for differences between male and female expectancies as they might pertain to morality. This exploratory factor analytic study sought to determine the domain of human expectancies with regard to the reinforcing effects of moderate alcohol consumption. The alcohol-expectancy dimension along which men and women differed most substantially was the "social pleasure-interaction detriment continuum" (Brown et al., 1980, p.424). Females in the subject population were more likely to expect generally positive social experiences when drinking, whereas males were more likely to anticipate arousal and potentially aggressive behaviour. Such expectancy findings regarded in conjunction with physiologically demonstrated increases in aggression (Lang et al., 1975) and arousal (Wilson & Lawson, 1976a) and decreased social anxiety in male social drinkers (Wilson & Abrams, 1977), might logically be linked with well defined expectancies regarding the excesses of such behaviours (as might be mediated by changes in moral functioning).

In order for the expectancy variable to influence emotional and behavioural changes following drug ingestion, individual's must believe that they have consumed a drug that produces specific emotional and behavioural effects (Lang et al., 1975). Females, it appears, exhibit greater caution and inhibition in their use of alcohol (Barling & Bolon, 1978). This feature, combined with their more positive expectancies regarding the consequences of moderate alcohol consumption alluded to earlier, might explain why no expectancy interaction emerged for females in this study. In addition, it has been suggested that cultural/

social influences may account for the marked differences between males and females subsequent to the ingestion of alcohol and the manipulation of the expectancy of alcohol consumption (Barling & Bolon, 1978; Marlatt & Rohsenow, in press). For male subjects, the findings reported are in line with contemporary cultural stereotypes about the effects of alcohol. The variable findings obtained with females may reflect the ambivalent attitudes that society has adopted about women who drink, and the effects of alcohol on their behaviour (Marlatt & Rohsenow, in press). Although society seems to accept the fact that drinking is an acceptable stimulus for masculine behaviours, it is far more critical about acceptable reasons for women to drink.

The finding of an important sex difference in alcohol's effects on moral functioning reveals another factor that must be considered in relation to its broad relevance to the study of alcohol use in general. The sex differences that emerged from the present data appear to be part of a wider perspective of male-female differences with respect to alcohol use. Sex differences must be considered in the development of treatment programmes that can most profitably and effectively be undertaken with each group.

"A" items of the DIT typify an anti-establishment orientation. A significant alcohol x expectancy disordinal interaction emerged on the A score. As with the male group, scores were elevated in the two conditions in which subjects expectancies were consistent with their levels of physiological arousal.

Although subjects who expected and received alcohol scored a greater mean anti-establishment score than those subjects who did not expect but received alcohol, this difference did not achieve significance. There was however a significant difference between those subjects who did not expect and did not receive alcohol, and those who did expect, but did

not receive an alcoholic beverage. It may be hypothesized that the cognitive dissonance experienced in the do not expect, but receive, and expect, but do not receive conditions led to a decrement in the subject's sense of social responsibility and justice.

Reasons for this pattern of results must remain at best speculative. Nevertheless, the findings are of importance since the expectancy effect confirms successful manipulations in many other studies across multiple dimensions (Abrams & Wilson, 1979; Lang et al., 1975; Marlatt et al., 1973; Wilson & Lawson, 1976a).

In contrast to the results of previous research, analysis of the M (endorsement of meaningless items) score revealed neither main effects nor interactions. Fincham and Barling (1979) found that subjects in lower alcohol groups tended to ascribe the least importance to M statements, while the higher alcohol group attributed more importance to M statements than any other group. They suggested that this indicated a dose related movement towards inconsistency. In addition, Carpenter, Moore, Snyder & Lisansky (1961) reported decreased use of irrelevant material in the problem solving behaviour of their low alcohol group. It is possible that inconsistency in reasoning emerges only at higher alcohol doses. This notion is supported by research showing a linear dose dependent decrement in cognitive processes (Parker et al., 1974).

Present findings with male subjects on the principled morality score, and with both subject groups on the anti-establishment orientation, represent a conceptual replication of previous studies showing the decisive influence of cognitive as opposed to chemical processes on alcohol consumption by alcoholics (Marlatt et al., 1973), on aggression (Lang et al., 1975), and on sexual arousal (Wilson & Lawson, 1976a), and

anxiety (Abrams & Wilson, 1979).

To date, most studies have investigated the capacity of a single alcohol expectancy to produce a single behavioural effect. For both theoretical and practical reasons, it would now be useful to specify the full range of alcohol expectancies. Six principle factors emerged from the study of Brown et al., (1980). These findings provide further validation of the existence of specific socially transmitted alcohol expectancies, as well as confirmation of the results of the balanced placebo studies reviewed earlier. In addition to commonly acknowledged beliefs concerning sexual enhancement, increased power, aggression and social assertiveness, and decreased tension, two new global expectancies were found. Alcohol it seems, is viewed as a positive transforming agent, and as a pleasure enhancer. The large portion of variance accounted for by these two factors led the authors to comment on the extent to which liquor is viewed as a "magical drug" (Brown et al., 1980, p.425).

Indentification of the full range of expectancies may assist in the clarification of mediational mechanisms namely, those mechanisms that intervene between the beliefs held about alcohol, and its ultimate behavioural effects (Marlatt & Rohsenow, in press). Also, the investigation of expectancies may clarify sex differences in response to alcohol. Finally, it is likely that not all subjects maintain similar alcohol expectancies: it is probable, therefore, that expectancies relate to different behavioural effects of alcohol.

Given that expectancy can modify performance on two dimensions of the DIT, it is now important to consider how this effect is mediated. In the balanced placebo studies reviewed, the expectancy effect was found to override the pharmacological effects of alcohol most strongly with specific behaviours such as aggression, anxiety and sexual arousal. In

this study on the relationship between drinking and moral reasoning however, the expectancy effect did not promote any consistent response patterns (e.g. a depressant function on moral reasoning). Perhaps preconceptions of how morality is affected by intoxication are developed only with regard to specific social/moral behaviours, rather than in relation to the global concept of moral fairness. Subjects are not likely to have had much drinking experience in situations in which moral functioning is the relevant behaviour. Nor is it likely that folklore deals as vividly with drinking and morality as it does with such issues as sexuality and aggression.

Results obtained from this project cannot be incorporated into either Schachter's (1964), or Valins (1966) version of cognitive labelling. These theories maintain that given a state of cognitive (Valins, 1966) or physiological arousal (Schachter, 1964) in an instance where the source of that arousal is ambigious, an individual will attribute the arousal or cognition of arousal to environmental stimuli. However, as Vuchinick and Tucker (in press) indicate, instructional sets in alcohol research preclude such mis-attribution of arousal to contextual stimuli. Since in this experimental design, subjects cognitions of arousal would be attributed directly to alcohol, it is assumed that changes due to attributions reflect subjects expectations of alcohol's emotional and behavioural effects. This explanation is in contrast to past alcohol research (e.g. Marlatt et al., 1973; Rohsenow in press; Wilson, 1977, 1978; Wilson & Lawson, 1976), that invoked the theories of Schachter (1964) and Valins (1966) to explain alcohol-induced cognitive/physiological arousal through the misattribution of that arousal to contextual cues.

There are obvious implications for predicting which classes of behaviour would be most strongly affected by expectancy beliefs.

Behaviours that are expressed interpersonally would be most available to differential reinforcement by others (Wilson, 1978). Furthermore, social behaviours that usually provide immediate gratification followed by delayed social censure would most strongly be affected by the temporary immunity from responsibility afforded by intoxication.

Expectancy effects are strongest with those behaviours for which alcohol is believed to have strong reinforcing effects such as tension reduction, increased personal power, and sexual prowess. With cognitive behaviours for instance, the disruptive effects of alcohol would not generally be considered desirable or beneficial (Marlatt & Rohesnow, in press). From this perspective, it would appear that if for a given target behaviour the effects of alcohol are believed to be desirable for any given drinker, the expectancy effect may override the influence of alcohol itself. It is plausible to view male moral functioning in the paradigm of drug versus self attribution of responsibility for actions.

With those behaviours for which drinking would have negative or undesirable outcomes, the expectancy manipulation seems to have a minimal impact. Perhaps this explains why the female group showed no expectancy effect.

Research with the balanced placebo design has provoked more questions than it has answered (Marlatt & Rohsenow, in press). It is clear that much future research is needed to clarify the underlying mechanisms involved.

No evidence that gross impairment of moral reasoning occurred with alcohol consumption per se emerged from this study. Alcohol did not lead to the use of cognitively more simple modes of moral judgement, nor a decreasing ability to reason about moral issues in a meaningful manner. It seems that the direction and extent of the alcohol influence may be

a function of the amount of alcohol consumed.

Perhaps loosening of morals and cognitive moral stages are different aspects of moral functioning. Intoxicated loosening may be volitional rather than judgemental (Graham et al., 1979). This distinction between expecting and desiring an outcome requires further elucidation. Of importance to the study of morality is that for the male group, significant differences did emerge for moral reasoning.

Although present research originally assumed a cognitive developmental approach to morality, this change in moral functioning is best explained within a social learning theory paradigm. Data on the operations of self control and moral behaviour provide little support for the belief in a unitary moral structure. Rather than acquiring an homogenous "conscience" which determines uniformly all aspects of self control, people develop subtle discriminations which depend on many moderating variables, involve complex interactions, and encompass diverse components (Mischel & Mischel, 1976). Self evaluative functions do not operate automatically, and there are several cognitive and external influences that selectively influence whether or not they are activated (Wilson, 1977). Since the same behaviours are not uniformly self rewarded or self punished, irrespective of circumstance, situational specicivity occurs. With specific reference to alcohol and morality, the drinking environment appears to define a set of social role conditions that legitimize actions otherwise regarded amiss.

Starting with different questions, the two major approaches to moral functioning, the social learning and cognitive developmental, arrive at different emphases. It appears however that the one approach requires the other. However valid a concept of stages or generality, it must be sensitive to the great many factors other than an individual's moral philosophy, which cause variations in moral behaviour.

Although this study utilized the balanced placebo design, certain shortcomings render acceptance of its conclusions conditional. There were only six subjects per cell. Since responses to alochol and the placebo are highly idiosyncratic, future research might profitably increase the number of subjects in each condition.[2] The unique characteristics of the population studied in this experiment is an important consideration when attempting to generalize from these results. Subjects were all university students, and extrapolation from this fairly homogenous group to the general population should therefore be tentative (Miller, 1972).

Furthermore, only social drinkers were assessed. It has been suggested (Wilson, 1977) that this drinker uses alcohol to allow him/her to behave more positively in social situations. The typical social drinker is not remarkable for his/her absence of moral functioning, and anti-social acts are generally infrequent. By contrast, it seems that the heavy drinker uses alcohol as an excuse for engaging in socially offensive or defensive behaviour, and because of exaggerated needs for personalized power (McClelland, 1972). In view of such considerations, it seems that these two groups may display disparate expectations about the precise relationship between alcohol and moral behaviour.

A further limitation of the present study is that only a low dose of alcohol (0,05 g/kg) was administered. It is conceivable that with low alcohol doses drinkers experience alcohol's effects largely due to expectancies, while heavier doses serve to stimulate pharmacological effects (Brown et al., 1980). The most important characteristic of the studies that consistently report expectancy effects, is that most use 0,05 grams of ethanol per kilogram of body weight. The relationship

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2. This is a contentious issue since the advocation of more subjects per cell increases the variability within each condition.

between dosage and expectancy remains equivocal. Levenson et al., (1980) used a high (0,1 g/kg) dosage level, a factor which they considered contributary to their failure to find reliable expectancy effects. Lang et al., (1975) however, using the same dosage level, reported an expectancy effect.

The development of expectancies appears to be related to the pharmacology of the drug in an as yet undetermined manner. Alcohol dose levels should be varied in order to obtain dose-response curves that can be compared within various expectancy manipulations. Moral functioning may be differentially affected according to dosage levels, an hypothesis that is to some extent supported by the pattern of results reported by Fincham and Barling (1979). It remains for future research to elucidate the respective contributions of direct pharmacological influences and psychological expectancies on behaviour patterns.

Environmental factors have been found to affect the subjective drug experience significantly, and the results of many studies support the conclusion that the setting in which drinking takes place can modify the effect of alcohol (Dengerink & Fagan, 1978; Pliner & Cappell, 1974; Vuchinick et al., 1979).

In this instance morality was assessed in a controlled laboratory setting. In contrast to specific evaluations of this nature, moral functioning in the natural environment is a far more complex phenomena. It is unlikely that alcohol per se (or the thought of ingesting alcohol) facilitates deviant behaviour. More probably, it interacts with the drinking setting, creating personal and social expectations more favourable to deviant expression. The inhibitory setting of this study must be considered when regarding the results. (This issue is to some

extent unavoidable: the nature of the independent variable under review places certain restrictions on obtaining quantitative data in natural drinking settings. Such problems are endemic to cognitive-developmental theory at its present stage of articulation.)

Specific expectations of alcohol's effects were not directly manipulated in this experiments, and subjects were given no indication of the anticipated effects of alcohol consumption of moral functioning. Although this most closely reproduces the social drinking situation, the resultant ambiguity might have inhibited the "activation" of subjects' expectancies regarding the effects of alcohol on moral functioning. Future research might assess the consequences of expectancy conditions in which subjects were led to anticipate the deleterious effects of alcohol upon moral functioning. In the light of the aforementioned limitations this study offers only a conservative contribution to explaining the alcohol/morality dilemma.

Although this study did not indicate that alcohol impairs moral reasoning, this issue shoul' be further researched. The results of many allied studies suggest that alcohol should have a depressant effect upon moral stage reasoning. Alcohol tends to lower performance on several subtests in assessing intelligence (Wallgren & Barry, 1970), a test which correlates in the 0,50's with the DIT (Rest, 1964). Moreover, the results of two studies suggest a possible increase in ethical risk taking as a result of alcohol consumption (Krauss et al., 1971 ; Teger et al, 1969).

The direction and extent of the alcohol influence may be a function of the amount of alcohol consumed (Brown et al., 1980), while the occurrance of any alcohol effect may be related to the moral content/structure distinction. It remains for future research to clarify these issues.

The present findings are restricted to showing the influence of expectancies on the effects of alcohol consumption on the behaviour of normal subjects in the laboratory situation. However, the implications are that expectancies about the consumption of alcohol be part of the analysis and treatment of problem drinkers (Wilson, 1979).

> Perhaps the most important implication of the research reviewed ....., is that the primary reinforcement for drug use, the subjective experience of intoxication or the "high" state, may be rooted more in the user's cognitions than in the pharmacological properties of the drug itself.
>
> (Marlatt & Rohsenow, in press, p.60)

One of the most important treatment implications of research investigating the cognitive determinants of drug use is that alcoholics and other addicts who are committed to abstinence might be taught corrective attitudes and new coping skills that will enable them to maintain control even if some drug use does occur (Marlatt & Rohsenow, in press; Sobel & Sobel, 1973; Wilson, 1978). Indeed, in many instances, insistence upon abstinence as the only possible treatment goals for alcoholics may be unrealistic and harmful (Sobel & Sobel, 1973). Traditional beliefs about alcoholism leave individuals little to gain from curtailing their drinking, and in fact may provide the incentive for them to attempt repeatedly to prove that they are not alcoholics.

Beliefs about the effects of alcohol (often erroneous), (Brown et al., 1980) about the ability to cope with alcohol, (Marlatt & Rohsenow, in press) and about alternative treatment goals such as abstinence versus controlled drinking (Sobel & Sobel, 1973) almost certainly influence treatment outcome. The identification and modification of these cognitive influences promises to be a rewarding line of enquiry.

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APPENDIX A

DEBRIEFING CIRCULAR

Dear

The alcohol study in which you participated was concerned with assessing the relative effects of alcohol intake, expectancy, and sex on values. Morality in this project related specifically to the ability to reason about certain moral dilemmas.

This study can be described as a 2 (expectancy; yes/no) x 2 (alcohol; yes/no) x 2 (sex; yes/no) factorial design. Subjects were led to believe that they were/were not drinking alcohol, and of these, some received alcohol, and others tonic. This provided four experimental conditions:

A Expect and receive alcohol.

B Do not expect alcohol but receive.

C Do not expect alcohol and do not receive

D Expect alcohol but do not receive.

You were in Group ___.

To explain this further, the Vodka bottle may have contained tonic water only, while the tonic bottle may have contained a solution of alcohol and tonic. The breathelyser was not authentic: readings were manipulated to enhance the expectancy manipulation.

Final results for this study are not yet available. However, it is hypothesized that expectancy factors will be important in inducing behaviour change, irrespective of alcohol consumption in some instances. Also, it is anticipated that males and females will differ in their reactions.

Finally, I would like to stress that your responses will be treated in strictest confidence, and that results will concern GROUP trends only. Thank you very much for your participation and co-operation which made this study possible.

Yours faithfully,

Nick Emler

APPENDIX B

DEFINING ISSUES TEST

HEINZ AND THE DRUG

In Europe a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a pharmacist in the same town had recently discovered. The drug was expensive to make, but the pharmacist was charging ten times what the drug cost to make. He paid $200 for the radium and charged $2000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money, but he could only get together about $1000, which is half of what it cost. He told the pharmacist that his wife was dying, and asked him to sell it cheaper or let him pay later. But the pharmacist said, "No, I discovered the drug and I'm going to make money from it." So Heinz got desperate and began to think about breaking into the man's store to steal the drug for his wife.

Should Heinz steal the drug? (Check one)

____ Should steal it ____ Can't decide ____ Should not steal it

IMPORTANCE:

Great	Much	Some	Little	None	
					1. Whether a community's laws are going to be upheld
					2. Isn't it only natural for a loving husband to care so much for his wife that he'd steal?
					3. Is Heinz willing to risk getting shot as a burglar or going to jail for the chance that stealing the drug might help?
					4. Whether Heinz is a professional wrestler, or has considerable influence with professional wrestlers
					5. Whether Heinz is stealing for himself or doing this solely to help someone else
					6. Whether the pharmacists rights to his intervention have to be respected
					7. Whether the essense of living is more encompassing than the termination of dying, socially and individually
					8. What values are going to be the basis for governing how people act towards each other
					9. Whether the pharmacist is going to be allowed to hide behind a worthless law which only protects the rich anyhow
					10. Whether the law in this case is getting in the way of the most basic claim for any

					11. Whether the pharmacist deserves to be robbed for being so greedy and cruel
					12. Would stealing in such a case bring about more total good for the whole society or not

From the list of questions above, select the four most important:

Most important	Second most important	Third most important	Fourth most
___	___	___	___

NEWSPAPER

Fred, a senior in high school, wanted to publish a mineographed newspaper for students so that he could express many of his opinions He wanted to speak out against the war in Viet Nam and to speak out against some of the school's rules, like the rule forbidding boys to wear long hair.

When Fred started his newspaper, he asked his principal for permission. The principal said it would be all right if before every publication Fred would turn in all his articles for the principal's approval. Fred agreed and turned in several articles for approval. The principal approved all of them and Fred published two issues of the paper in the next two weeks.

But the principal had not expected that Fred's newspaper would receive so much attention. Students were so excited by the paper that they began to organize protests against the hair regulation and other school rules. Angry parents objected to Fred's opinions. They phoned the principal telling him that the newspaper was unpatriotic and should not be published. As a result of the rising excitement, the principal ordered Fred to stop publishing. He gave as a reason that Fred's activities were disruptive to the operation of the school.

Should the principal stop the newspaper? (Check one)

_____ Should stop it _____ Can't decide _____ Should not stop it

IMPORTANCE:

Great	Much	Some	Little	None	
					1. Is the principal more responsible to students or to the parents?
					2. Did the principal give his word that the newspaper could be published for a long time, or did he just promise to approve the newspaper one at a time?
					3. Would the students start protesting even more if the principal stopped the newspaper?
					4. When the welfare of the school is threatened, does the principal have the right to give orders to students?
					5. Does the principal have the freedom of speech to say "no" in this case?
					6. If the principal stopped the newspaper would he be preventing full discussion of important problems?
					7. Whether the principal's order would really make Fred lose faith in the principal?
					8. Whether Fred was really loyal to his school and patriotic to his country?
					9. What effect would stopping the paper have on the student's education in critical thinking and judgments?
					10. Whether Fred was in any way violating the rights of others in publishing his own opinions.
					11. Whether the principal should be influenced byssome angry parents when it is the principal that knows best what is going on in the school
					12. Whether Fred was using the newspaper to stir up hatred and discontent

From the list of questions above, select the four most important:

Most important _____ Second most important _____ Third most important _____ Fourth most _____

ESCAPED PRISONER

A man had been sentenced to prison for 10 years. After one year, however, he escaped from prison, moved to a new area of the country, and took on the name of Thompson. For eight years he worked hard, and gradually he saved enough money to buy his own business. He was fair to his customers, gave his employees top wages, and gave most of his own profits to charity. Then one day, Mrs. Jones, an old neighbour, recognized him as the man who had escaped from prison eight years before, and whom the police had been looking for.

Should Mrs. Jones report Mr. Thompson to the police and have him sent back to prison? (Check one)

_____ Should report him _____ Can't decide _____ Should not report him

IMPORTANCE:

Great	Much	Some	Little	None	
					1. Hasn't Mr. Thompson been good enough for such a long time to prove he isn't a bad person?
					2. Everytime someone escapes punishment for a crime, doesn't that just encourage more crime ?
					3. Wouldn't we be better off without prisons and the oppression of our legal system?
					4. Has Mr. Thompson really paid his debt to society?
					5. Would society be failing what Mr. Thompson should fairly expect?
					6. What benefits would prisons be apart from society, especially for a charitable man?
					7. How could anyone be so cruel and heartless as to send Mr. Thompson to prison?
					8. Would it be fair to all the prisoners who had to serve out their full sentences if Mr. Thompson was let off?
					9. Was Mrs. Jones a good friend of Mr. Thompson?
					10. Wouldn't it be a citizen's duty to report an escaped criminal, regardless of the circumstances?
					11. How would the will of the people and the public good best be served?
					12. Would going to prison do any good for Mr. Thompson or protect anybody?

From the list of questions above, select the four most important:

Most Important _____ Second Most Important _____ Third Most Important _____ Fourth Most _____

Author Eales N
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