The practice of meditation and its cognitive contexts

Todd, Christopher J.

THE PRACTICE OF MEDITATION AND ITS COGNITIVE CONTEXTS

by

Christopher J. Todd

A thesis submitted for the degree of Master of Arts in the University of Durham

Department of Psychology,
Durham.

February, 1981

ACKNOWLEDGEMENTS

I would like to express my thanks to the following people: Arthur Still for his supervision of this thesis and hours of discussion he has spent with me; Professor M.J. Morgan for providing the facilities of the Psycholgical Laboratories; Cathy Thompson and John Steel for their help with the computing; Jim Good for relevant literature; Ala Hola for her hours of data analysis. Annie, Andy, Sue, Ros, Alix, Rosemary, David, Charles, Rhona, Steve, Stella and Gwen for hours of ranting in the Department; Debbie, Andy Gill, Chere, Rhona, Ala as well as many others for the hours outside; Gaelle for the books, Michael for the Eighty; Gwen and Lindy for typing an (at times) almost illegible manuscript; Malcolm for the diagrams.

Many thanks also to the Manjushri Institute for their co-operation in the study.

Last, but not least, many thanks to my parents for making it all possible.

ABSTRACT

Meditation techniques are described; therapeutic and mystical contexts of practice are discussed; the physiological and psychological research is reviewed. Meditation induces a relaxed hypnagogic type state, and is associated with both therapeutic and mystical effects.

Semantic differential (SD) and mysticism scales were administered to meditators and non-meditating controls. Statistical analysis reveals three significantly different groups: (1) non-meditators; (2) therapeutic and (3) mystical context meditators.

A second study at a Buddhist centre is reported. Four techniques are used: participant observation; a Ganzfeld description; an informal semi-structured interview and the semantic differential. Cluster analysis of the SD data reveals the lay and ordained groups not to differ significantly. The patterning of the groups' data is explicated. Meaning of specific concepts is revealed to be important. Meditation techniques practised, their effects and general outlook of the interviewees are described and discussed. Emphasis is placed on the importance of the meanings attributed to these by interviewees.

Content analysis of the interview data reveals expectation and experience of meditation effect to be correlated.

There is no significant difference between lay and ordained groups for expectation and experience of therapeutic effects; however, there is a significant difference for mystical effects. Lay and ordained groups differ in their Ganzfeld description.

It is concluded that the lay mislabel an hypnagogic state as a mystical state. The context of practice is associated with outcome.

Implications for other studies are discussed.

It makes the wounded spirit whole,
And calms the troubled breast,
'Tis manna to the hungry soul,
And to the weary, rest.

Hymn - John Newton (1725-1807)

There is a sort of transcendental ventriloquy through which men can be made to believe that something which was said on earth came from heaven.

G.C. Lichtenberg: Aphorisms, (1764-99)

It is not enough to understand what we ought to be unless we know what we are;
and we do not understand what we are, unless we know what we ought to be.

T.S. Eliot: Religion and Literature, 1935

CONTENTS

PART I: INTRODUCTION AND REVIEW

CHAPTER I

INTRODUCTION

INTRODUCTION

Over the last two decades Western society has seen an upsurge in interest in meditation, and eastern religions. Some 92,000 people are reported to have learnt to meditate in Britain alone (West, 1979). This interest is reflected by the Psychological Abstracts, in which we find no entry for meditation until the early 1970's. Since that time there has been a sharp increase in the amount of published research into meditation, which is only now showing signs of abating.

This thesis will investigate the phenomena of meditation by studying the importance of the cognitive context - or system of beliefs either meta-physical or 'scientific'* - in which meditation is practised in contemporary Britain.

Before going further into these questions, and delineating the nature of the contexts in which meditation appears to be practised, we will first denote the nature of meditational exercises.

Meditation exercises

The shorter Oxford English Dictionary defines meditate and meditation in the following way:

meditate:-
(1) To reflect upon, to study, ponder
(2) To observe with intentness
(3) To plan by revolving in the mind - to design mentally
(4) To think
(5) To exercise the mind in (especially devotional) thought or contemplation

meditation:-
(1) The action or act of meditating, serious and sustained reflection or mental contemplation
(2) In religious use: the continuous application of the mind to the contemplation of some religious truth, mystery, or object of reverence, as a devotional exercise.

---

*The context refers to the set of beliefs normally endorsed by a group about the nature of the outcome of a meditational practice. This will necessarily often also include a system of metaphysical or religious beliefs within which the practice of meditation makes sense. However, for certain individuals and groups the system of beliefs will appear to be primarily scientific in nature. They do not,however, escape being metaphysical in the truest sense (cf. Heidegger, 1977 esp. pp 91-113).

This description of meditation reveals it to be by no means a distinctive act, for although it is essentially a mental activity, that activity can differ greatly, from planning to intent observation, and in religious use the contemplation of religious truths. These concepts of meditation contrast with the concept of meditation that many Westerners hold, of which Ornstein is representative:

> "The concept of meditation refers to a set of techniques which are the product of another type of psychology, one that aims at personal rather than intellectual knowledge. As such the exercises are designed to produce an alteration in consciousness - a shift away from the active outward orientated linear mode and towards the receptive and quiescent mode." (Ornstein, 1972, p.123).

For Ornstein the meditative exercises represent the antithesis of discursive thinking. The confusion is clarified by Naranjo (1971):

> "in the Christian tradition meditation is most often understood as a dwelling upon certain ideas, or engaging in a directed intellectual course of activity, while some of those who are more familiar with Eastern methods of meditation equate the matter with a dwelling of anything but ideas, and with the attainment of an aconceptual state of mind that excludes intellectual activity" (p.6).

This idea that meditation differs simply in meaning between the East and West however, is an oversimplification. Both sorts of meditation exercise exist in both cultural settings.

In order to explicate the nature of meditation more fully, we will below reproduce typical instructions of meditation.

(1) "So I began by searching out my heart in the way Simeon the New Theologian teaches. With my eyes shut I gazed in thought, ie. in imagination, upon my heart. I tried to picture it there in the left side of my breast and to listen carefully to its beating. I started doing this several times a day, for half an hour at a time, and at first I felt nothing but a sense of darkness. But little by little after a fairly short time I was able to picture my heart and to note its movements, and further with the help of my breathing I could put into it and draw from it the Prayer of Jesus in the manner taught by the saints, Gregory of Sinai, Callistus and Ignatius. When drawing the air in I looked in spirit into my heart and said, 'Lord Jesus Christ', and when breathing out again I said, 'Have mercy on me'. I did this at first, for an hour at a time, then for two hours, then for as long as I could, and in the end almost all day long."

Anon. (1979)

(2) "(THE USE OF BREATHING OBJECTS)

(35) In the second method (of attaining mental concentration), by using breathing objects, there are employed the Dorje Recitation, and the 'Pot-shaped'.

(The Concentrating upon the Dorje Recitation)

(36) The first procedure, in employing the Dorje Recitation, is: While maintaining bodily and mental tranquility, concentrate the mind upon each inhalation and exhalation of breath to the exclusion of all else. Count (inaudibly) from one and two up to twenty-one thousand six hundred breathings. This will enable one to attain expertness in knowledge of the number of exhalations and inhalations (per day).

(37) Next, take note of when the breathing beginneth (so many seconds after the exhalation) and in what manner the breath entereth. And consider whether the breath entereth at more than one part of the body.

(38) In virtue of these practices, the mind followeth the entrance and exit of the breath (and, like the breathing, becometh rhythmically attuned). Thus doth one become well acquainted with the nature of the process of breathing.

(39) Then keeping the mind concentrated upon the breathing-process, observe how the breath passeth from the tip of the nose (through the nostril openings) to the bottom of the lungs, how it originateth (or cometh in), and how long it is retained (before being exhaled).

(40) By this practice, one cometh to know, just as they really are, the colours, the duration, and the retention-period of each breathing.

(41) Then, by observing the condition of the five fundamental elements (in the body, namely earth, water, fire, air and ether), each by itself, unblended with another, the increase or decrease of the number of inhalations and exhalations is to be noted.

(42) Now, by visualizing each expiration as the syllable AUM (or OM), white in colour, and each inspiration as the syllable HUM, blue in colour, and the retention period (of the breathing) as the syllable AH, red in colour, one cometh to know,(intuitively, or without mental process), the time required for each part of the breathing-process."

(Evans-Wentz 1958, pp 125-7)

These two examples of types of meditation, although by no means exhaustive of techniques practised in different cultural and historical settings, indicate the basic nature of meditational techniques. We will discuss these techniques before turning to describe some further ones.

The techniques described above are what Ornstein (1972) terms 'concentrative meditation' techniques, as opposed to the 'opening up' meditations

(described below). The distinction is based on the following criteria:

> "In terms of the psychology of consciousness, there are two general varieties of meditation: those exercises which involve restriction of awareness, focusing of attention on the object of meditation or on the repetition of a word... and those which involve a deliberate attempt to 'open up' awareness of the external environment."
>
> (Ornstein, 1972, p.125).

A central aspect of many of the concentrative techniques appears to be an attempt to restrict awareness to a single unchanging source of stimulation for a definite period of time. A common point of concentration used is the breath. This may consist of a simple observation of the breath, perhaps facilitated by counting, but is very often performed in conjunction with some words (a mantra) often with symbolic meanings, as in the examples quoted.

Other concentrative techniques involve unanalytic observation of objects. Such objects may be those with symbolic value to the meditator, such as a picture of a sage, Yantras, (symmetrical symbolic pictures) the Cross, etc. The object need not be an external one. Often the object is some part of the body such as an intercranial point, or the nose; an autonomic body process, such as the heart or other organ (often with specific symbolic meaning associated such as the chakras of the Hindu tradition), or a repetitious body movement (a mudra). Techniques of meditation also involve listening, either to a repetitious external sound (eg. a waterfall) or by blocking the ears (naj yoga) listening to the internal noise so produced.

It will be noticed that within the instructions of meditation reported here, there is very often a symbolic value attached to the object of meditation. It is often reported that anything can act as an object of meditation, or that a mantra can consist of meaningless or profane words. However, the vast majority of mantras used, if not all, have a special meaning for the meditator. In Hindu tradition a mantra is considered to be the body of a deity (Staal, 1975) and the right mantra for a person will aid them in

piercing the veils of illusion to attain the Godhead in the same way as the right note will splinter glass.

These techniques are practised in many different cultures, from Eskimo (Freuchen, 1959) to Hindu (eg. Brent, 1972; Brunton, 1970). A rich meditative tradition exists also within Christianity which include techniques of the concentrative sort (Fr. Matthew, 1979).

The 'opening up meditations' differ from the concentrative meditations in that they attempt to train the meditator to be aware of his actions, perceptions and thoughts, rather than restrict his awareness to one object. In the Za-Zen exercise described below, the meditator just observes his own mental processes, not trying to control them, not being critical about the thoughts that arise or attempting to solve a problem. He must maintain a state of simple unanalytic observation.

These techniques are not only to be practised during formal meditation sessions but are to be practised during everyday activities. This may be done by treating the activity as a sacrament as in Karma Yoga. One does not judge one's actions, one merely observes. Some practices necessitate the performing of ordinary habitual actions slightly differently so as to afford them full attention. Other practices are based on the proscription of actions, identified by the code of moral conduct of the school, in order to force the practitioner to observe his actions to inhibit their occurance. The Buddhist practice of mindfulness requires the practitioner to observe his actions, perceptions and thoughts not only during formal meditation sessions but also throughout the day. Instructions for this type of practice include :

> (3) "In this type of Za-Zen it is all too easy for the mind, which is not supported by such aids as counting the breath or by a koan to become distracted. The correct temper of mind therefore becomes doubly important. Now in shikan-taza the mind must be unhurried, yet at the same time firmly planted or massively composed, like Mount Fuji, let us say. But it also must be alert, stretched like a taut bowstring. So shikan-taza is a heightened state of concentrated awareness wherein one is neither tense nor hurried, and certainly never slack. It is the mind of

somebody facing death. Let us imagine that you are engaged in a duel of swordsmanship of the kind that used to take place in ancient Japan. As you face your opponent you are unceasingly watchful, set, ready. Were you to relax your vigilance even momentarily you would be cut down instantly. A crowd gathers to see the fight. Since you are not blind you can see them from the corner of your eye and since you are not deaf you hear them. But not for an instant is your mind captured by these sense impressions.

This state cannot be maintained for long..."

Yasutani Roshi (1975)

(4) "Another very important practical and useful form of 'meditation' (mental development) is to be aware and mindful of whatever you do, physically or verbally, during the daily routine of work in your life, private, public or professional. Whether you walk, stand, sit, lie down, or sleep; whether you stretch or bend your limbs; whether you talk or keep silent - whether you eat or drink - even whether you answer the calls of nature - in these and other activities you should be fully aware and mindful of the act performed at the moment. That is to say, that you should live in the present moment, in the present action. This does not mean that you should not think of them in relation to the present moment, to the present action, when and where this is relevent."

(Walpola Rahula, 1959, p.71)

(5) "Watch your thoughts come into your mind. Do not try to stop them. Try to observe them. You may be able to stay conscious - that is separate from the images for a second or two, but then you will identify with the mind, lose your status as an observer and race off along a thought line."

(Long, 1969, p.16)

The essential aspect of these practices is thus to develop an awareness of what one is doing and thinking, in order that this awareness facilitates control of these.

The two sorts of techique are very often practised in conjunction. Sometimes the practice of one may specifically be used to facilitate the practice of another, as in breathing before the practice of Za-Zen, (used to still the mind). Or conversely, insight* meditation may be used in order to

---

* Insight meditations are essentially mindfulness techniques designed for developing wisdom or knowledge about oneself and the world. (See Conze, 1972)

identify the source of problems, which are interfering with concentrative meditation. The action of these two sorts of meditation is often conceptualised as their being in a reciprocal relationship to facilitate the achievement of the goals (see p.38 Chapter 2).

Having described these two forms of meditation as identified by Ornstein we will turn to some other practices conceived of as meditation by many schools, which are ignored by Ornstein's criteria. These we will term 'contemplative meditations' (in spite of the semantic ambiguities involved). The meditations so far described have been ones, that one may consider to be essentially aconceptual. However, there exist in a number of schools techniques which are by no means aconceptual. In these practices the meditator is specifically instructed to muse over some problem, text, or set of ideas in order to gain understanding about them. Instruction for the use of these techniques include those cited below.

The meditations upon mind and matter

(6) The second method, the Analysing from the Standpoint of Substance and Non-substance, is according to the following meditations:-

> "Is one's mind a thing which 'Is' as being composed of matter; or is it a thing which 'Is not' as not being composed of matter?
> If material, of what material substance is it?
> If an objective thing, of what shape and colour is it?
> If a cognizing faculty, is it merely an ephemeral thing like a thought?
> If non-material, how doth it assume various aspects?
> And who made it?"

(Evans-Wentz, 1958, p.142)

(7) "And then you should ponder a little, considering the variety of consolations, but especially of tribulations that the good suffer; and then with great humility approve, praise and love all this will. Consider that will in your own person, in all the good or ill that happens to you and may happen to you, except sin.

(St. Francois de Sales quoted in Huxley 1968, p.329-330)

These techniques involve the meditator in musing over philosophical problems of central importance in the way they practise the other forms of

meditation. Often these are seen as giving the correct meanings to their other practices. Christians will contemplate passages in the Bible, attempting to discern the significance of these, to come to understand them at a deeper level than the conventional surface levels.

It is unclear as to whether the knowledge gained is discursive or tacit in nature, however the latter appears most likely. These meditations play a major part in the practice of many meditators. They may be of major importance in engendering meaning into the experience and practice of other meditation techniques. One text on meditation introduces a Buddhist meditation of this sort with a preamble entitled 'How should we make our perfect human rebirth highly meaningful?' (Thubten Zopa, 1973) which suggests this to be a major function of the contemplative techniques.

The account that Ornstein has offered of the processes involved in meditation practices, although differentiating between two major forms of meditation, does not include the contemplative meditations or take into account the meanings that the various practices have for the meditator. He acknowledges in one sentence in his book that the context in which meditation is practised may be of importance to the meditator,

> "If this alteration (of consciousness) is isolated from the context needed to support it (as when typically Westerners try meditating) it can be meaningless or even disruptive".
>
> (1972, p.123)

but no further discussion of this is made.

Deikman (1966) also points to the importance of a context in which meditation is practised:

> "techniques of contemplation and renunciation are exercised within the structure of some sort of theological schema. This schema is used to interpret and organise the experiences that occur" (p.31)

The point is also made within meditative schools, e.g.:

> "As a necessary preparation... the devotee, before embarking upon the practice of 'The Six Yogas' must have a sound knowledge of Buddhism...

> Buddhism is essentially a basis and support for the realisation of Nirvana, the Ultimate Reality"
>
> (Chen-Chi-Chang, 1953, p xxxi)

In all of the techniques of meditation that have been described above there is a symbolic aspect to the object of meditation or a direct attempt to control the mind. The points of the body upon which the meditator concentrates are not arbitrary but derived from psycho-physiological theories associated with the groups. The context in which meditation is practised cannot be dissociated from that practice and may well influence that practice, engendering beliefs about the outcome of the practice in the meditator. We will now consider two contexts which reading of the literature and discussion with meditators suggest that meditation is practised in contemporary Britain.

Therapeutic Context

Caycedo (1966) reports that techniques of meditation and yogic exercises have been used in the treatment of physical and mental disorders for many thousands of years.

In contemporary Western society the practice of meditation has been taken up by many in search of psychotherapeutic and physical benefit. Transcendental Meditation - essentially a mantra meditation taught by Maharishi Mahesh Yogi - in particular appeals to those seeking therapeutic effect. Maharishi (1968) describes the technique of TM as "a natural and effective cure for mental illness". The advertising materials circulated by the TM organisation stress the therapeutic effects of TM practice:-

> "This gradually brings about a permanent and beneficial reduction in the heart rate, indicating less wear on the heart and improved cardio-vascular efficiency."
>
> (Clance, 1974).

and

> "stress is one of the most serious problems facing the corporate world today, and one which obviously demands a solution... a tremendous number of businessmen have found such a solution. They are among the 500,000 people in this country (U.S.A.) who practice Transcendental Meditation or 'TM', a simple mental technique which allows the body to rest deeply so that stress can be released."
>
> (St. Louis Commerce, 1974)

The material contains many such claims, and testimonials to TM's therapeutic effect. These therapeutic effects of TM, it is claimed, are supported by research (see review below, pp 6-33) and this research is used to advertise the technique.

The TM system is based on an unsophisticated, but plausible, philosophical system, which explains the technique in terms of the idea that just as matter has the potentiality of creating different amounts or levels of energy, likewise thought has the potentiality of creating different levels of energy. The TM technique enables the practicer to attain these levels, thus bringing about the therapeutic benefits, achieving greater efficiency, creativity and clarity. Maharishi states that the technique involves no suggestion, belief, mental control or physical manipulation. He emphasises that TM is practised as a preparation for successful activity and not an escape from the problems of life. Maharishi further maintains that the deep rest and relaxation produced by TM is beneficial for physical and mental health, and in fact is as necessary for these as are sleep and dreaming.* The TM technique is thus primarily practised in a therapeutic context.

Other techniques of meditation also have been reported to bring about primarily therapeutic change. They however have tended to not be so successful in banishing the mystical elements of the practice, nor appeal

---

* (Culled from Maharishi, 1966, 1968, 1969)

to the same mass audience as TM. This may be due to both the research confirming TM to be psycho-therapeutic and the mass advertising of the technique.

Mystical Context

Meditation, as Ornstein rightly reports, is very often practised not just to induce relaxation and therapeutic effects in the meditator, but in order to induce an altered state of consciousness. Meditation is traditionally practised to produce the mystical experience in the meditator; to enable them to attain Enlightenment, Union with God, or the Ultimate Reality. We will describe first what is meant by the mystical experience, before turning to discuss this context in which meditation is practised.

Mysticism

It is probably safe to say that mystics have lived in every culture and time. Underhill (1949) displays an enormous panorama of mystical experiences drawn from Greece, Palestine, Persia, India and Europe. James in his "Varieties of Religious Experience" (1960) discusses the mystical at some length and gives us criteria by which we may recognise an experience to be mystical:

> "(1) Ineffability - The subject of it immediately says that it defies expression, and that no adequate report of its content can be given in words. It follows that its quality must be directly experienced; it cannot be imparted or transferred to others....
> (2) Noetic Quality - Although so similar to states of feeling, mystical states seem to those who experience them to be also states of knowledge. They are states of insight into depths of truth unplumbed by the discursive intellect. They are illuminations, revelations, full of significance and importance, all inarticulate though they remain; and as a rule they carry with them a curious sense of authority for aftertime....
> (3) Transiency - Mystical states cannot be sustained for long. Except in rare instances, half an hour, or at most an hour or two seems to be the limit beyond which they fade into the light of common day. Often, when faded, their quality can but imperfectly be reproduced in memory - but when they recur it is recognised....
> (4) Passivity - Although the oncoming of mystical states may be facilitated by preliminary voluntary operations, as by fixing the attention, or other ways which manuals of mysticism prescribe- yet when the characteristic sort of consciousness has set in, the mystic feels as if his own will were in abeyance, and indeed sometimes as if he were grasped and held by a superior power."
>
> (James, 1960, p.367-368)

These criteria of the mystical experience laid down by James enable us to identify the mystical state ,when it is experienced and reported. Stace (1961) lays down the psychological characteristics of the mystical state which he considers comprise their 'universal core'. These are:

> "(1) The Unitary Consciousness, from which all the multiplicity of sensuous or conceptual or other empirical content has been excluded, so that there remains only a void and empty unity....
> (2) Being non-spatial and non-temporal. This of course follows from the nuclear characteristic just listed.
> (3) Sense of objectivity or reality.
> (4) Feelings of blessedness, joy, peace, happiness etc.
> (5) Feeling that what is apprehended is holy, sacred or divine... this feeling seems less strong in Buddhist mystics than in others, though it is not wholly absent and appears at least in the form of deep reverence for an enlightenment which is regarded as supremely noble....
> (6) Paradoxicality.
> (7) Alleged by mystics to be ineffable."
>
> (p.110-111)

These characteristics point to the nature of many mystical experiences, building around those offered by James. They are, however, not as rigorous as James' - why should the characteristics of feelings of joy, peace, happiness be mystical rather than normal such emotions, and what does non-spatial and non-temporal mean? If these are 'core' characteristics of the mystical experience they need to be reported for all mystical experiences. They are not. Characteristic 5, as noted, but rejected by Stace, is particularly prone to this criticism. Having characterised the nature of the mystical experience we will quote some reports of such experiences.

> "When I was sixteen I had an experience which I can only describe as mystical.... Something happened suddenly and quite out of the blue .... the sheer wonder and ecstasy of it have never left me over the years ..... The feeling was that I suddenly, that very moment, became aware of the answer to the mystery of life and the knowledge of it made me want to shout with joy. It seemed at that moment so simple - I wondered why one didn't see it and feel it and be bursting with joy! As if I had been dead before that moment, and suddenly I was alive. Of course the actual experience didn't last long, I imagine, but the memory of it has never faded, and it completely changed my life. From time to time I have again experienced these wonderful ecstacies, always at completely unexpected times, sometimes while washing-up and doing daily chores about the house. Always this same feeling, leaving me weeping with a great joy and feeling of deep reverence and feeling of worship and love, I think best described as a sort of homesickness, a

> nostalgia for some-other-where, almost as if I had known an existence of such great beauty and indescribable happiness and am yearning and homesick for it again....
>
> I don't know who coined the phrase nostalgia for some-other-where but whoever it was, he or she knew this thing, this certainty, and was able perfectly to express it in those words."
>
> (RERU 975)
>
> (Cohen and Phipps, 1979, p.158)

> "Similarly with Saint Teresa. 'One day, being in orison,' she writes, 'it was granted to me to perceive in one instant how all things are seen and contained in God. I did not perceive them in their proper form and nevertheless the view I had of them was of a sovereign clearness, and has remained vividly impressed upon my soul. It is one of the most signal of all the graces which the Lord has granted me.... The view was so subtile and delicate that the understanding cannot grasp it'."
>
> (James, 1960, p.387).

Although these experiences sometimes occur spontaneously they are often induced by spiritual exercises. A central exercise for the induction of such experience is reportedly meditation. Meditation is thus practised in a mystical context; the goal being to induce, or at least, in accordance with James' passivity criterion, facilitate the occurence of, the mystical experience.

> "By pure contemplation (meditation) it is possible to pass beyond what is accidental and transitory, beyond the limitations of time and space and at last to contemplate the Absolute."
>
> (Smith, 1977, p.39)

Meditation is central in the world's mystical traditions as a method for the induction of the mystical experience. The contemporary Westerner taking up the practice of meditation will often do so in this context. As in the case of Huxley, whose report of his own mystical experiences (Huxley, 1959) is criticised by Zaehner (1957) because"his mind was permeated through and through with Vedantin and Mahayana Buddhist ideas" - so too will the Westerner practising meditation be influenced by ideas derived not only from western culture, but also from the (often eastern) groups in which he is interested, and with which he is involved. These ideas may influence the way that the effects of meditation, once produced, are perceived and understood

by the meditator.

In this thesis we will investigate the contexts in which meditation is practised. It appears that there are two major contexts in which meditation is practised, thereapeutic and mystical. The groups which teach meditation may reinforce these concepts of the practice, by the way it is taught, the introductory lectures given, the advertising material, and the interpersonal contact between members of those groups.

Having introduced the concept of meditation, the type of exercises to which this concept refers, we will turn to the effects of the practice of these techniques, as indicated by psychological and physiological research.

CHAPTER 2

REVIEW OF THE RESEARCH

Review of the Research into Meditation

This review of the research into meditation will be divided into two sections. The first section will deal with the research into the physiological correlates of meditation, the second with the psychological effects of meditation.

Physiological studies

In this section we will discuss the results of the physiological studies of meditation. To this end two major series of studies will be discussed. In Appendix 1 the results of the majority of the physiological studies of meditation are presented. There are a number of methodological and theoretical problems with many of these studies, which demand that their findings be treated with caution. These studies are referred to, as appropriate, in our discussion and an attempt is made to draw out the findings and conclusions that can safely be accepted.

With reference to Appendix 1 it is apparent that there have been a number of conflicting findings about the physiological correlates of meditation. These have arisen from a combination of identifiable factors:

(1) Differences in meditation techniques being investigated
(2) Differences in expertise of meditating subjects
(3) Differences in experimental procedures
(4) Differences in methods of data analysis.

The conclusions drawn by researchers on the basis of their findings have also differed widely. The two most important conclusions for the present purposes are those drawn by Wallace et al (1970, 1971, 1972) and those of Fenwick et al (1977). We will present these conclusions, and then by analysis of the factors that have given rise to the different findings upon which they

are based, draw out those findings and conclusions that can be safely drawn.

(1) Wallace et al 1970, 1971, 1972) concluded:-

Meditators during the easily learned practice of Transcendental Meditation exhibit the physiological signs of "a wakeful, hypometabolic state... very similar to those observed in highly trained experts in yoga, in Zen monks who have had 15 to 20 years of experience". (1972, p.89). They suggest that Transcendental Meditation represents a unique fourth major state of consciousness along with waking, sleeping and dreaming, and induces deep relaxation of therepeutic benefit.

These findings and conclusions have been accepted by numerous writers and used as the basis for further studies of the psychological effects of meditation. They have also been widely disseminated to the public and are believed by many to be THE scientifically demonstrated effects of meditation, being used widely by the TM organisation in their advertising of the technique.

(2) Fenwick et al (1977) concluded:-

The Wallace group did not consider simpler explanations of the observed changes in metabolic rate. The changes appear impressive compared to those taking place during sleep, but are trivial when compared to those which occur during the waking state. The changes observed are related to the initial metabolic rate of the subject, and his degree of experienced subjective tension. "It was also found that non-specific techniques of relaxation such as listening to music, were equally as effective as meditation. One important point was that the changes which were produced by meditation and by listening to music were relatively trivial in physiological terms and were similar to the degree of change which occurs in a person sitting quietly, half raising and then relaxing his arm." (p.114). The electroencephalograpic changes that

took place are indicative not of a major state of consciousness but of the hypnagogic state. "Both the physical and psychic phenomena of meditation are consistent with the subject being in a hypnagogic state." (p.115). During meditation this level of alertness is held steady.

We will now consider the factors that have given rise to these different results and conclusions:

(1) Differences in meditation techniques being investigated.

Both Wallace et al (1970, 1971, 1972) and Fenwick et al (1977) investigated T.M. This factor cannot therefore be concluded to result in the differences in findings for these studies. There are studies which consider other meditation techniques. The results of these studies differ most in detail of the electroencephalographic findings. These differences may be due to the differences in techniques of meditation practiced. Wallace et al's (1972) claim that the states are very similar must be rejected. For example, Anand et al(1961) report no blocking of alpha rhythm by external stimuli during Yoga meditation. They do report blocking of alpha - which did not habituate to repetition outside of meditation.

Kasamatsu and Hirai (1966) on the other hand, report alpha blocking by external stimuli during Zen meditation, which did not habituate to repetition.

Wallace et al (1970, 1972) when reviewing these studies assert that physiological changes and EEG patterns are very similar. However they are only similar in that alpha is reported, the alpha blocking response is very different. Wallace et al overlook this point.

(2) Differences in expertise of meditation subjects

Wallace et al (1970, 1971, 1972) used transcendental meditators

with a mean of 29.4 months experience of practice. Fenwick et al (1977) used transcendental meditators with a mean of 34.8 months experience. The experience of the two groups of subjects thus appears to be similar, although it is not possible to check as the ranges of both groups are not given. Reviewing all the articles included in Appendix I the difference in experience of the subjects used is considerable, ranging from as little as 0.25 months to as much as 240+ months. Ages of subjects also differed from 18 years to 72 years. One must also consider the intensity of the training in meditation received, which ranges from the series of lectures and training sessions which can be completed on consecutive evenings in less than a fortnight for T.M. to the lifetime commitment from early adolescence in a monastic Zen order. Although there is a great difference in this factor in the studies included in the table, this is largely due to the studies of Das and Gestaut (1955); Anand et al (1961) and Kasamatsu and Hirai (1966) who investigated highly proficient meditators in the Orient. The difference between the groups of subjects for the other studies on this factor appear to be minimal, most studies including subjects of differing experience but over a similar range (1 - 8 years).

(3) Differences in experimental procedures.

The differences in experimental procedures adopted by different studies are very large, and most probably responsible for most of the differences in findings. The differences range from differences in equipment used to major differences in experimental design and control procedures. These will be dealt with separately.

(i) Equipment:- Different researchers have used different equipment to measure physiological variables. This is a very specialised area and for the present purposes we must assume that any one EEG recorder, for example, is technically equal to any other, although it is likely that this is not in fact the case. EEG electrodes have been placed in standard positions in all

studies. Of greater importance for our purposes is the degree to which the equipment measuring physiological variables may have interfered with the subject's meditative ability. All studies report familiarisation of the subject with the experimental procedure. However, this familiarisation consisted in many studies of a short period before measurements were started (eg 30 minutes for Wallace and Benson (1972)). Such a short period may well be insufficient; a more acceptable method is the use of a complete preliminary session, the data from which are unused. This is especially relevant when considering the use of arterial catheters to extract blood samples, mouth pieces to measure respiration, and rectal thermometers to measure temperature. The obtrusiveness of the measuring instruments has often been great; this must interfere with the state being measured. The methods used by Fenwick et al (1977) appear to be considerably less obtrusive than those of the Wallace group. That Wallace's subjects reported their meditation to be fairly normal cannot simply be accepted as a valid statement when one considers the evidence from social psychological studies on demand characteristics (eg Crowne & Marlow 1964; Orne 1962; Rosenberg 1968).

(ii) Experimental design:- The design of the experiments is crucial in our assessment of the findings and conclusions. The studies of Wallace et al (1970, 1971, 1972) did not use an independent control group. The meditators acted as their own controls, before and after the meditation session. This design is insufficiently rigorous, for it does not allow for the possibility of similar changes in resting controls. Moreover the results cannot be validly attributed to the practice of meditation in the subjects tested. The graphical presentation of data by Wallace and Benson (1972) is supposed to indicate the increase or decrease of a variable during meditation. That of the alpha activity during meditation, for example, peaks in the middle and decreases after the treatment period. However, that the peak was in the middle of the session and not at the end indicates that the effect may not be meditation related. Cook and Campbell (1979, pp 120-123)

discussing this type of experimental design point out that there must be "a noticeable discontinuity after $\bar{x}$(cessation or removal of treatment).... If there is not ..... then any difference might be due to the treatment having no long term effect rather than to the treatment effect dissipating because it was removed" (p.121). This would indicate that the patterns recorded by Wallace et al cannot be concluded to result from the practice of meditation, but may result from the effects of relaxing. This lack of adequate control of these studies demands that we view the findings with extreme caution. This lack is also apparent in other studies. Those studies that have included non- meditating controls give a different view. For the respiratory and temperature variables no significant differences have been found between meditators and non-meditators. (The study of Elson et al (1977) being discounted because of gross differences between control and meditator groups). Jevning et al (1978a) have found differences in blood flow during meditation, and differences in certain metabolite concentrations (1978b, 1977), although no other cardiovascular changes have been demonstrated to be induced by meditation. G.S.R. have not been investigated using suitable controls. The EEG pattern of Zen meditators has been demonstrated to differ from that of non-meditators (Kasamatsu and Hirai, 1966). The study of T.M. by Banquet (1973) reports differences in EEG records between control and experimental subjects; these are not scored blindly. Those studies which have included blind scoring of EEG records have resulted in:

(1) inability to differentiate meditators from resting controls

Fenwick et al (1977)

(This also supported by non-blind studies of Jevning (1977, 1978 b)

(2) Meditators spending more time in sleep stage than controls (Otis, 1974).

Studies scoring EEG records according to sleep criteria indicate that much of the time during meditation is spent in one of the conventionally defined

sleep stages, (most in sleep stage 1,but Pagano et al (1976) report much of the session to be spent in "clear physiological sleep"). Fenwick et al (1977) and Otis (1974) suggest that the state attained is similar to the hypnagogic state. This claim appears to be founded in fact, unlike the claim of a "fourth major state of consciousness" (see also Davidson (1976)who discusses the earlier work in close detail, concluding that "the claims that: (a) TM represents a state of profound physiological rest, greater than that attainable with sleep of much longer duration; and (b) the specific changes in consciousness and the unique (and in my opinion, unquestionable) benefits of meditation are somehow linked to the physiological changes discussed above still seem to lack a solid basis in experimental fact" (p.354).

The differences in experimental procedure are thus responsible greatly for the differences in findings and conclusions drawn.

(4) Differences in methods of data analysis.

The methods of data analysis used in different studies have differed greatly. The earlier studies tend to present 'typical' EEG spectrographs and averages for other data, as was the practice at the time (Davidson, 1976), some of the studies consisting of very few subjects. Such methods of analysis are open to several criticisms, not least of which is that experimenter bias can enter in the scoring of EEG records. Blind scoring of records is a prerequisite of the data analysis to avoid experimenter bias. Many studies have not used such a procedure. Those studies that have used blind scoring procedures have found no differences between meditators and controls. Younger (1973) points out that:

(1) The BMD-X92 program used by Wallace et al (1979, 1971, 1972) does not check for artifacts.

(2) A programming error has recently been discovered in the BMD-X92 program by Kibrick (1973) which produces results under certain circumstances which

appear plausible but are actually invalid.

(3) All currently available techniques of EEG spectral analysis operate on the assumption that the hypothetical statistical generator of the EEG is stable over time. Whether this assumption is valid is not as of yet known.

(4) That the method of discriminant analysis of EEG spectra is too powerful for meaningful EEG discriminations.

These criticisms of the analysis methods used, make the results of the Wallace et al studies dubious. The study of Fenwick et al (1977) appears to be more carefully analysed.

Conclusion.

On the basis of the above criticisms the conclusions drawn by the Wallace et al (1970, 1971, 1972) studies on the physiological correlates of meditation are unjustified because of serious faults in their experimental data. The conclusions drawn by Fenwick et al (1977) are more firmly based in experimental evidence.

Psychological studies

The research into the psychological effects of meditation will be reviewed by structuring the studies according to whether the meditation exercise is considered to have psycho-therapeutic effects or mystical effects on the practitioner.

Therapeutic Context

As with the physiological measures, many of the studies that have investigated the therapeutic effects of meditation have studied TM, the claims of this group being congruent with such study. Most of this research has used as a starting point the results of the Wallace et al (1970, 1971, 1972) studies reviewed above. Benson and Wallace (cited in Gattozzi and Luce (1971)) report that of 480 meditators (TM) who completed a questionnaire on their mental and physical health, 84% judged their mental health to have improved

significantly since learning to meditate. This study however depends on subjective judgement solicited from subjects and cannot thus be accepted at face value. Studies using more objective measures of mental health include:

	Authors		Test Instrument *
(1)	Seeman, Nidich and Banta	(1972)	P.O.I.
(2)	Nidich, Seeman and Seibert	(1972)	P.O.I.
(3)	Fehr, Nerstheimer and Törber	(1973)	F.P.I.
(4)	Ferguson and Gowan	(1973)	S.T.A.I.
			I.P.A.T.
			N.D.S.
(5)	Orme-Johnson, Kiehlbauch, Moore and Bristol	(1973)	M.M.P.I.
(6)	Orme-Johnson, Arthur, Franklin, O'Connell and Zold	(1973)	M.M.P.I.
(7)	Ballou	(1973)	S.T.A.I.
(8)	Hjelle	(1974)	P.O.I.
(9)	Ferguson and Gowan	(1976)	N.D.S.

These studies have regularly found significant differences from non-meditators, or changes in people taking up meditation in positively valued directions on a variety of test scales, eg, less anxious, less neurotic, more self actualising etc.

However, a number of problems exist in the experimental design of all these studies, such that in no case has the practice of meditation per se been sufficiently isolated from extraneous variables for the conclusion that the improvements result from that practice to be valid.

The major problems with the experimental designs are:-

(1) That in a number of cases (1,2,4)**, although using no-treatment controls, and administering tests before and after the subjects have learnt to meditate, the experimental subjects differ from the controls in their pretest levels on the test (eg are more anxious). As Smith (1975) points out, "At the very least, meditators, by their very decision to learn meditation, demonstrate some motivation for self improvement not demonstrated by non-meditator controls" (p.559). It appears that the differences between the groups may be considerably greater than this, although the researchers often make very little of this fact, or don't even mention it, let alone treat it statistically (eg, Ferguson and

---

* A glossary of these test instruments is to be found in Note 1

** Numbers in brackets refer to study numbers above.

Gowan, 1976). These differences between groups at initial testing must invalidate any claim that the changes in one group necessarily result from the treatment (ie, meditation).

(2) A number of studies (4,8,9) compare long term meditators with neophytic meditators and non-meditator controls. As TM is reported to have a high attrition rate, - up to 70% (Otis, 1979) - the long term group may represent a highly self-selected group. Differences between long term meditators and the other groups may well depend greatly on this selection process, rather than the effects of the long term practice of meditation.

(3) The use of no control group (3), but comparison with population norms only, is not sufficient to identify meditation as the crucial variable.

(4) In two studies (4,9) a large proportion of the significant differences found results from scales on the N.D.S. This instrument is not reported elsewhere and it is difficult to obtain more information about the scales used*

These criticisms of these papers insist that we view their conclusions with caution. It does appear that 4-10 weeks of meditation practice is associated with psycho-therapeutic benefit; however this has not been demonstrated to be a resultant of the meditation practice per se. However, the results of the above studies are widely circulated, and used to advertise the TM technique, as are a number of other studies (see Kanellakos and Ferguson (1973) and Orme-Johnson and Farrow (1977)). A number of researchers have investigated the therapeutic effects of meditation using different types of measures. We will describe these in more detail, first looking at those which have investigated TM.

---

* The Ferguson and Gowan (1973/1976) articles offer more information about the N.D.S. The present author wrote to the address given in the paper but received no reply.

Brautigam (1971) compared group conselling and TM as treatments for drug abusers. She found significant differences between these groups (after 3 months of treatment) in drug abuse, anxiety and other behaviours, such that the TM group improved more than the counselling group. However, because of unintended differences in the treatments including the fact that the counselling group had signed up to learn TM and were clearly disappointed or failed to attend when they did not receive this treatment, she concluded that the exercise itself was not the critical therapeutic variable. Instead she suggested:

> "Meditation opened up new opportunities for social contact without drugs... Meditating offered an opportunity to break with conscious role expectations and find a new role, that of a meditator" (p.9).

Ottens (1975) compared TM and self control as methods of reducing cigarette smoking. Both groups reduced their cigarette consumption significantly compared to a no treatment control. The treatments however did not differ significantly from each other. Furthermore there were differences between groups in the financial renumeration received for participation in the experiment. This factor alone may have been responsible for the reduction in smoking behaviour.

Stek and Bass (1973) compared students interested in taking up TM, students who practised TM, students definitely not interested in TM and a random baseline group on a number of scales. In this apparently well conducted study, they found no significant differences between groups on any of the scales.

Glueck and Stoebel (1975) compared TM, biofeedback (alpha conditioning) and autogenic training (Luthe and Schultz 1969; Wolpe 1958) in the treatment of psychiatric in-patients, using a number of behavioural, physiological and mental tests. Unfortunately the experiment had to be abandoned due to adverse effects in patients receiving the biofeedback and autogenic training treatments. The TM group were then matched with

no treatment controls within the institution. The authors report significantly more improvement in a group of patients who practised TM for 8 weeks + before discharge, than the controls. In fact they "showed a greater level of improvement than the improvement rates for all hospital discharges in the 1972-73 year" (p.309). In a follow up on the TM group after discharge (response rate 70%) 42% reported they still meditated regularly, 26% occasionally and 32% had ceased. The major difference between these groups was whether they had contact with the TM centre in their home communities, (ie those who continued to meditate went to the TM centre). There are,however,a number of problems involved in this study. Firstly, the attrition rate for the TM subjects is high. The data presented is selected by the completion of a critical level of meditation. Thus only a subset of patients who received the treatment are considered in the results. These patients may represent a set, whom one may expect to show a better recovery rate from spontaneous remission anyway. This hypothesis is especially feasible as the matched controls also showed a high recovery rate, while receiving no treatment. It also appears that initial selection of subjects may have produced a sample of atypical patients. Also the study was not run blind, and hence was open to experimenter bias effects.

Carrington and Ephron (1975 a & b) report the use of TM as an adjunct to psychoanalysis. These reports are not of controlled experiments but of observations made during the use of TM in psychoanalytic practice. They report TM lessening tension, reducing anxiety, enabling patients to relax, promoting 'psychological growth', and reducing drug usage. They see meditation as a clinically useful tool,which can be used in conjunction with classical psychoanalytic techniques. They also proffer an explanation of the effects of meditation in neo-Freudian terms and draw attention to similarities in meditation with psychoanalytic techniques. Moreover TM is advocated for use by psychoanalysts to improve their performance. These reports can only be

considered with interest, as they lack any basis in experimental evidence.

We will now consider a number of reports of experiments using other techniques of meditation. Lesh (1970) compared subjects (a group of student counsellors) interested in meditation with those 'definitely against' meditation. Half the 'interested' group were taught a Zen meditation technique. All subjects completed a number of tests before and after a four week experimental period. The meditator group improved significantly in empathy, while the controls showed no change. However this change was not independent of personality characteristics of the group. The author concludes that the meditators were "an exceptional group of people" and differed significantly on a number of the scales administered from the controls at pretest.

De Grâce (1976) randomly assigned subjects to control and experimental groups, the latter being trained in a Zen technique. Subjects were tested with the C.P.I. (Gough, 1957) and A.V.S. (Allport et al, 1962).* There were no significant differences between the groups at pretest. After 5 months of meditation there were significant differences on 2 scales of the C.P.I. (dominance and capacity for status). These are interpreted as being resultant of the practice of meditation. However a fuller explanation would take into account the effects of the philosophy of Zen Buddhism (to which the meditator group alone were exposed), the opening of horizons by the newness of the experience, the effects of group meetings and discussions.

Shapiro (1979) compared students, randomly assigned to either a group which learnt Zen, or a control group, on a number of tests. After three weeks the meditators differed significantly on 2 scales only, other scales moving non-significantly in the hypothesised direction. The author suggests that these changes may have resulted from the complete 'experience' rather than just the practice of meditation.

Vahia et al (1973) attempted to isolate the essential components of a

---

* See note 1 (p .227)

Patanjali yoga-meditation therapy used in a psychiatric hospital in India. They compared this therapy with a therapy that consisted of 'yoga-like exercises'. The patients receiving the meditation therapy are reported to have improved significantly more than the controls on the variety of measures used. However, the experiment was not run blind, and this factor alone has been shown to influence the outcome of such experiments (eg, McReynolds et al, 1973).

Smith, in his review of the literature (1975), concludes that meditation has generally been shown to have therapeutic effects over 4-10 weeks of practice, but that expectation of relief and the regular practice of sitting quietly are two variables not sufficiently controlled in previous studies. He conducted an experiment (Smith, 1976) to isolate the effects of TM from these two variables. This experiment displays a sophistication of design unprecedented within this literature. Subjects receiving TM training and procedures designed to control for the effects of expectation and sitting were compared to no treatment controls. These groups did not differ at pretest on a number of scales measuring anxiety and other personality factors. After a 3 months experimental period both TM subjects and the subjects receiving the control treatments had scores indicating significant reductions in anxiety from the no-treatment controls. However, there was no significant difference between TM and the control treatments. Smith thus concludes that TM is no more effective in reducing anxiety than treatments controlling for expectation and sitting quietly and that "the crucial therapeutic component of TM is not the TM exercise" (p.635). There are two problems with this study: (1) that the control treatments although very different from TM are similar to other forms of meditation, ie, Za-Zen and contemplative techniques used in some schools; (2) that the results of some of the scales administered are not reported.

However, the experiment has clearly demonstrated that the claims that the

therapeutic effects of TM are dependent on the exercise per se are unfounded.

We have so far reviewed articles reporting the beneficial effects of meditation, or investigating the critical variables in the production of such effects. There are also a number of papers reporting adverse effects from meditation.

French et al (1975) report a case study of a woman without any history of behavioural disorder, who after learning TM experienced a moderate psychotic episode. This episode went into remission after a period of treatment. The authors argue that the practice of meditation was causally connected. Moreover they argue that this distressing experience could have been greatly reduced or even avoided ,if more experienced meditation teachers had been available to advise her when the episode was beginning. Although it is impossible to be certain that taking up meditation induced the psychotic disturbance, it is possible that the (unexpected)alteration in consciousness that meditation is reported to induce may have exacerbated the patient's problems.

Lazarus (1976) reports on a number of psychiatric cases he and colleagues had met in clinical practice, which he argues were precipitated by TM. These include attempted suicides, increased tension, anxiety, depersonalisation and feelings of failure and futility in patients. Lazarus argues that different individuals need different treatments for their problems and that the universal therapeutic claims of TM are unfounded. Although a large number of individuals may benefit, some experience severe exacerbations of symptoms from TM practice. He suggests that those who benefit most are "individuals whose level of anxiety and tension are moderate rather than severe"(p.602).

Otis (1979) carried out a series of studies into the adverse effects of meditation after discovering a high incidence of adverse effects in an early questionnaire study in 1971 of the therapeutic effects of TM. He dis-

covered a surprising patterning of adverse effects and length of practice of TM,such that those who gave up TM practice reported fewer adverse effects than did neophytic meditators; long term meditators reported most adverse effects.

From a further study of 832 novice and experienced meditators using the same questionnaire he concludes, "The number and severity of complaints were positively related to duration of meditation and the specific adverse effects reported were remarkably consistent between groups and formed a pattern suggestive of people who had become anxious, confused, frustrated, depressed and/or withdrawn, (or more so) since starting TM" (p.6).

An experimental study randomly assigning subjects to TM practice or one of three control conditions (mock mantra, sitting quietly and no treatment) revealed that adverse effects from meditation could not be explained by the TM explanation of 'unstressing'*. The data overall suggest that "the longer a person stays in TM and the more committed a person becomes to TM as a way of life (as indicated by the teacher trainee group), the greater the likelihood that he or she will experience adverse effects" (p.8).

Two possible hypothesesare advanced to explain the data:

(i) that the practice of meditation engenders adverse effects or exacerbates prior symptoms, or

(ii) those who drop out and those who continue may differ in some fundamental way(s) prior to learning TM.

There are methodological problems with these studies. Firstly the questionnaire used has not been greatly used and its validity and reliability are not known. The respondents to the original questionnaire (47% of the sample), may represent the extremities of the population, those who felt strongly either for or against TM practice. Moreover long term meditators are requested

---

* 'Unstressing' is TM jargon by which is meant that previously repressed problems are brought to the surface and solved or 'normalised'.

to supply information about events, how they felt etc. which happened some years previously. This can cause major distortions of information, as informants report events that are consistent with present beliefs rather than what really happened, (Cannell and Kahn, 1968). In the experimental study, subjects were unequally paid for their participation in the study, which may have resulted in differences in the data. Despite these problems however it is clear that any claim that TM is a simple panacea is unfounded. Acceptance of the "TM lifestyle" appears to be the crucial variable for the prediction of the continuation of practice.

A final paper to be considered in this section is that of Goleman (1971) which bridges the gap between the therapeutic and mystical contexts. Goleman considers meditation to be a "meta-therapy: a procedure that accomplishes the major goals of conventional therapy and yet has as its end-state a change far beyond the scope of therapies, therapists and most personality theorists - an altered state of consciousness" (p.2)

Meditation is practised to achieve the altered state of consciousness goal, the therapeutic effects are incidental, except that they are in the same direction and facilitate the attainment of the goal. These effects are similar to those of systematic desensitization, but less immediate and more global. A 'fifth major state of consciousness' is thus attained, by a fusion of the 'fourth major state of consciousness' described by Wallace et al (1970, 1971, 1972) with the normal waking state, in which everything is perceived as both sacred and mundane. This is the 'true sanity' of Laing (1967), and is not necessarily the conventional sanity, but the attainment of some ideal state.

Goleman presents his ideas as a series of hypotheses about meditation. As hypotheses they should be testable. Many of these 'hypotheses' are not testable and hence cannot be considered as hypotheses. The 'fifth major

state of consciousness' is based on the work of Wallace et al (1970, 1971, 1972) and as such must be rejected, because of the failings in that work.

The paper indicates how meditation is conceived of by many meditators and as such is of value.* It also indicates what may be an extremely important difference between types of meditators: those who practise meditation in order to attain a conventional morality and sanity and those who practise in order to attain an ideal state, or change of consciousness. The former are seeking to fit into the world as it is, the latter wish to attain an ideal, either transcendant in nature or as part of a change in man towards some profane utopian ideal. These are important distinctions, and may have important political consequences for a society in which meditation is practised. This will not be discussed here, but has been elsewhere (see eg, Marcuse (1970) whose discussion of psychoanalysis is relevant in connection with this point).

Mystical context

The review of the research on meditation which has investigated meditation as an exercise for the induction of the mystical experience, or an altered state of consciousness, will consist of two sections:-

(1) will consider experimental studies

(2) will consider theoretical papers.

(1) Experimental Studies

Deikman (1963) designed his experiment to test the hypotheses that:

(i) meditation induces the mystical experience

(ii) meditation training builds intrapsychic barriers to distracting stimuli

(iii) that these represent a process of deautomatisation (see below, pp 37-38)

---

* This paper may be a classic example of the process described by Berger et al (1977) as "The products of intellectuals are mobilized ex post facto to legitimate themes already present in the consciousness of a particular group" (p.182).

He used 4 subjects, taught to meditate on a vase and 4 controls, performing 'brief meditation control procedures' over 13 sessions. At the end of each session the subject was interviewed. All meditators reported a number of perceptual and affective changes, some of these very striking in nature. Meditators' performance, on a recognition test of the distracting material presented, was lower for meditation sessions than for a session when not meditating, or the performance of controls. Deikman concludes meditation is a principal agent in producing the mystical experience, does produce intrapsychic barriers and is explicable as a process of de-automatization.

Deikman (1966a) reports the continuation of the above project with his most successful subjects. Four subjects completed 40 sessions, one 78 sessions and one 106 sessions. No distracting stimuli were used, subjects reported their experiences at the end of the session. Subjects reported intense perceptual and affective changes, 'approximately in direct relationship to the number of sessions. It should be noted that vivid experiences on the one hand seemed to indicate a tolerance and compatibility with the procedure and on the other hand to motivate the subject to continue over a long period of time' (p.102).

Both these papers display a marked lack of methodological rigour. Firstly, the experiment is not designed in such a way that hypotheses 1 and 3 are directly tested. Thus the conclusions drawn can only be tentative; a type 1 error (Siegel, 1956) being committed in any strong assertions. Secondly, the control procedures are inadequate, groups differing in the number of sessions completed. Thirdly and most seriously, Deikman does not adequately control the demand characteristics of the experiment. All subjects were personally known to Deikman (implying cognitive and affective commitment to a positive result), knew the hypotheses being tested, knew meditation was

meant to induce a mystical experience, and received instruction emphasising cognitive and perceptual change. These factors may well have been responsible for the data produced (see Orne and Scheibe , 1964; Rosenthal, 1963a & b, 1966). The uniqueness of the perceptual changes themselves has been questioned (Weiner, 1972). Eagle et al (1966) report similar changes in a non-meditative situation. The changes are fairly easily explained in terms of contemporary visual perception theory (eg Hochberg's (1964) colour contrast induction effect).

Maupin (1965) investigated various cognitive functions' efficiency and their correlation with successful meditation (Zen) over 2-3 weeks. All subjects were initially tested on personality and cognitive measures, and reported their experiences at the end of each session. Experience reports were blind rated for success by independent coders, and correlations calculated between these and pretest scores. The only significant correlation was between success and 'tolerance for unrealistic experience' (a Rorschach measure,(Klein,Gardner and Schlesinger, 1962))and between success and adaptive regression in the service of the Ego. Methodological problems involved in this study insist that we consider the findings with caution. Firstly, some of the measures used do not measure the factors they are reported to measure (eg digit span as a measure of receptive attention). Moreover there is no attempt to control the demand characteristics of the experiment. The subjects,on pretest,appear to be atypical of the student population from which they are drawn (but maybe similar to the population of potential meditators). The correlations with pretest measures may represent a relationship between pretests and susceptibility to conform to experimental demand characteristics,rather than a relationship between pretests and success at meditation.

Weiner (1972) investigates the roles of expectation and attention in the production of the meditational effect. Sixty volunteer subjects were randomly assigned to 4 groups, a meditation group - meditating on a

blue vase - a concentration group told they were taking part in a perceptual experiment and should concentrate on the vase, and 2 role playing groups for the two experimental groups, to whom the nature of demand characteristics was explained. A number of personality, perceptual and cognitive measures were administered at the end of the series, some being answered after each session. No significant differences were found between the two experimental groups on any of the measures: over all 4 groups there were no significant differences. Thus the study was unable to conclude that there was any effect due to attentional or expectational influences. A major problem with the design is that it was designed to test whether expectation and attention exert any influence on the meditation effect. However, there was no attempt to demonstrate that any effect took place compared to controls, and hence it may be fallacious to attempt to correlate factors with an effect that has not been demonstrated to exist. Although demand characteristics are more carefully controlled than the other experiments reported, there are indications within the report that the degree of experimental rigour was not as high as may be desired. Finally, it is not clear that the 'role playing' groups actually fulfil the control purposes for which they are designed.

The present author's undergraduate dissertation (Todd, 1978) attempted to manipulate the context in which a meditation exercise was performed. Three groups were taught a uniform meditation exercise, either as a relaxing therapeutic exercise, an exercise to induce an altered state of consciousness and the mystical experience, or with no specific instructions, subjects being told they were a control group for a perceptual experiment. At the end of each meditation session, subjects were interviewed about their experiences. Experiences were rated on nature of subjective state, types of experience and perceptual change. No statistically significant results were found.

There are a number of major methodological flaws in the study; eg it was not run blind, and most important the explanations about the practice offered subjects were not highly convincing. It was noted that subjects' responses to the meditation technique were congruent to their previously formed expectations about meditation as evaluated by a pre-experimental interview. As a pilot study it suggests that previously formed beliefs about meditation may influence the outcome of the practice.

(2) Theoretical papers

Deikman has produced a number of papers in which the relationship between meditation and the mystical experience are discussed (Deikman, 1963, 1966a & b, 1971). We will draw out the central ideas from these. Deikman (1966b) categorises mystical experiences as:

(i) untrained sensate (eg, Symonds (James, 1960, pp. 376-377)

(ii) trained sensate (eg, Julian of Norwich (Warrack, 1952, p.80)

(iii) trained-transcendent (eg, St John of the Cross (1953, Vol. 1, p.457)

The sensate experience is one of strong emotion, vivid perception and heightened cognition: the transcendent is beyond the normal modes of these. The trained-untrained dimension results in identical experiences, but the trained report it in a way more closely conforming to the cosmological tradition in which training takes place. The third type of experience is qualitatively different to the first two, and represents a later stage of advancement. Deikman also delineates criteria for recognition of the mystical experience based on those of James (1960):-

(a) intense realness
(b) unusual sensations
(c) unity
(d) ineffability
(e) transensate phenomena

These however, add very little to those of James, and are conceptually confused: (how, in practice, can one differentiate between transensate phenomena

and unusual sensations?) The mechanism which engenders these experiences is 'deautomatization' (Gill and Brenman, 1959) which is a reversal of the 'automatization' of thought and motor apparatus stemming from Hartmann (1958). It is an:

> "undoing of the automatizations of apparatuses - both means and goal structures - directed towards the environment. Deautomatization is as it were, a shakeup which can be followed by an advance or retreat in the level of organisation. Some manipulation of the attention directed towards the functioning of an apparatus is necessary if it is to be de-automatized" (p.178) quoted by Deikman, 1966, p.33).

This change in cognitive structures and functioning is thus accomplished according to Deikman by "reinvesting actions and percepts with attention" (p.37) through meditation. How meditation achieves this is not discussed, except that it exerts a force in the reverse direction to automatization. As has been noted previously (q.v. p.35) the changes can be explained in terms of contemporary perceptual theory, without introducing the vague concept of automatization. Deikman considers the experiences of his subjects (1963, 1966b) to be not necessarily identical to true mystical experiences but analogs thereof. Quite what he means by this is not clear.

Goleman (1972a & b) uses the traditional Buddhist teachings of the Visuddhimagga as a framework to develop a typology of meditational states. The Buddhist system depends on a cultivation of sila (moral purity), samadhi (concentration) and prajna (insight) which interact as the practitioner advances. The advancement is through jhanas, or levels of absorption, until the final goal of Enlightenment is achieved. Table 2.1 summarises the jhanas through which one progresses and the subjective experiences associated with each. The first four jhanas depend on physical forms as meditation objects, the formless jhanas are attained by passing beyond all perception of forms. The levels attained by the insight techniques simultaneously are also noted. These two practices however, interact in a spiralling fashion,

Table 2.1

Goleman's Visuddhimagga map of the states of consciousness induced by meditation (with physiological concomitants of the states)

PATH OF JHANA Subjective Landmarks	Objective Measures	PATH OF INSIGHT Subjective Landmarks	
	Shut-down of metabolic function; "near-death" metabolism	Nirodh: total cessation of experience; neither knower nor object.	Nirvana: cessation of awareness as primary object; no awareness of physical/mental phenomena.
Jhana 8 Neither-perception-nor-non-perception.	Metabolism bare minimum	Effortless insight. Instantaneous awareness of mind-moments; fatigueless energy; equanimity; cessation of pain.	
Jhana 7 Awareness of No-thing-ness			
Jhana 6 Awareness of Infinite Consciousness		Desire to escape physical/mental phenomena Realization of dreadfulness of mind-moments physical pain.	
Jhana 5 Awareness of Infinite Space		Pseudo-nirvana rejected Clear perception of end of mind-moments; lights, rapture, etc. vanish	
Jhana 4 Equanimity and one-pointedness; cessation of feelings of pleasure, bliss.	Jhana 4 Cessation of breath Concentration impervious to any and all distractions	Pseudo-nirvana Clear perception of arising and passing of mind-moments; accompanied by: bright light rapture, happiness, tranquility, devotion	
Jhana 3 Feelings of bliss, one-pointedness, and equanimity; rapture ceases.			

Table 2.1 (contd)

Jhana 2 Feelings of bliss, one-pointedness and rapture; no thoughts of primary object.		Pseudo-nirvana (contd) energy, strong mindfulness equanimity toward mind-objects attachment to these states.
Jhana 1 Continuous, sustained concentration on primary object: accompanied by feelings of rapture and bliss, one-pointedness; thoughts hindering concentration, sensory perception, and awareness of pain all cease.	Decreasing metabolic indicators: heart rate, cardiac output, respiration rate, etc. Jhana 1: No response to external inputs; habituation. Mindfulness: non-habituation to external stimulus.	Reflections Awareness and its objects seen as distinct processes; experience of impermanence, unsatisfactoriness, and impersonality of mental functio
		Mindfulness All sensory stimulus and thoughts (mind-moments) register in awareness.
Access concentration Primary object dominant thought nterspersed with other thoughts, hindrances to concentration tentatively overcome; awareness of sensory inputs and body states remains: feelings of rapture, happiness; flashes of lights and visions; sensation of body lightness.	Alpha, theta states	Access concentration

From Goleman, (1972a. p.31)

each adding to the practice of the other. There are schools which practise each of these in isolation. Goleman also maps these jhanic levels against the physiological changes reported to take place during meditation (Table 2.1). This mapping of jhanic levels against physiological changes must be treated as purely conjectural for two reasons:

(i) The physiological changes on which this is based (ie those measured by Wallace et al (1970, 1971, 1972) are not soundly demonstrated, q.v. pp 17-24.

(ii) The claims that these subjective and physiological states are attained by great yogis in other cultures are considered by anthropologists to be based merely on hearsay and popular rumour (Ekvall, 1964).

In his second paper Goleman (1972b) applies this framework to a variety of meditation techniques. Table 2.2 summarises this. Each school is discussed in reference to the Visuddhimagga 'map' in an attempt to find how these systems fit against this map, ie, are they talking about the same sorts of techniques, and subjective experiences? The principal criteria used are:

> "(1) The mechanics of the technique... (2) internal consistency in description: if a concentration technique, whether other characteristics of the jhana path are mentioned... inclusion in this classification is restricted to those cases where both criterion (1) and (2) are clearly met in the literature pertaining to each of the fifteen systems" (p.197).

The conclusion drawn by Goleman is that these systems are seeking to attain the same end state and use fundamentally the same techniques to attain that state.

The major problems with Goleman's position are, the eclectic method by which he builds up the evidence for his argument and his assumption that the end state for which the meditators strive is identical, regardless of the school in which the meditator is practising. Let us consider the latter first. Goleman writes,

> "The different names used among meditation systems to describe one and the same way and destination are legion. Sometimes the same term is used in special but very different technical senses by different schools. 'Void', for example, is used by Indian Yogis to refer to jhana states and by Mahayana Buddhists as signifying the realization of the essential emptiness of all phenomenon." (p.196).

Thus according to Goleman, although the meditators in different systems

TABLE 2.2

Applied Typology of Meditation Techniques

Teacher, System or school	Technique	Type	Name of Fifth State
Hindu Bhakti	Japa	Concentration	Union
Sufi	Zikr	Concentration	Baga: Objective Consciousness
Hesychasm	Jesus Prayer	Concentration	Quies: Purity of heart
Meher Baba	Varied spectrum of meditations	Integrated	Sahaj Samadhi; Sadguru
Sri Aurobindo	"Bringing down the Overmind"	Concentration	Supermind
Patanjali's Ashtanga Yoga	Samadhi	Concentration	Sahaj Samadhi
Ramana Maharshi	Self-inquiry	Concentration	Jivan-Mukti
Maharishi Mahesh Yogi	Transcendental Meditation	Concentration	God-consiousness; Union
Swami Muktananda	Shaktipat-diksha	Concentration	Turyatita
Kirpal Singh	Shabd Yoga	Concentration	True Master
Tantra Yoga	Yantra, maithuna, mantra, visualization, etc.	Concentration	Siddha
Tibetan Vajrayana	Mahamudra: shiney and thagthong	Integrated: concentration and insight	Bodhisattva
Zen	Zazen: koan breath, and shikan-taza	Integrated: concentration and insight	"No-mind"
Gurdjieff	Self-remembering	Insight	Objective Consciousness
J.Krishnamurti	Self-knowledge	Insight	Choiceless Awareness

(From Goleman 1972b, p.198)

say different things about the state, what they are in fact describing is phenomenologically identical. This is assumed when using the categorisation scheme. However, there is no reason to believe that the experience should be uniform except that such claims are made by many mystics. The position Goleman is maintaining is philosophically dubious. How can one be certain that the state is the same if people describe it differently? This will greatly depend upon the philosophy of language accepted. Many traditions speak of the impossibility of isolating the Path from the Ultimate state. If this is so the Path must influence the state. How then can different paths be said to induce the same state? Can one isolate the conceptual system of the school for understanding the influences of the meditation techniques from the state induced? If they cannot be separated how can one speak of a Unitary state identical to practitioners in different schools? Moreover if as James (1960) says the state is imperfectly reproduced in memory, then what is reproduced in memory will be an interpretation of the state, dependent upon the terms of reference of the school in which the mystic practises. A claim at present that the states induced by meditation in different traditions are identical must be viewed with caution, as this is purely conjectural.

Secondly, Goleman's method is rather eclectic. He has investigated the literature of a number of different meditation traditions, and appears to draw from these those aspects of the tradition which fit with his scheme, ignoring those which do not. Taking the case of TM:- Goleman quotes from two TM publications (one of which is not referenced). No mention of the dominant theme for practitioners of TM in the West-of meditation as a therapeutic exercise-is made. He considers TM within the Hindu bhakti tradition, as demonstrated by the use of Maharishi writing on the Bhagavad Gita as his major reference, rather than use of the other numerous references which discuss TM, rejecting the necessity for devotional exercises, and making it very much more a therapeutic exercise. This is not to deny that TM has a mystical

component, but to point out that the sampling of the literature used by Goleman may not be completely representative. This demonstrates the major problems with his approach. The map he uses to investigate other traditions is itself the product of one of these traditions. One must beware when applying it 'as a template' to the 'otherwise shifting sands', because it is itself part of the shifting sands, and may distort our view of the other systems, making us pick what is congruent with our template and ignore what is not.

The paper is the first attempt within the psychological literature to compare different meditation systems, and as such is an important milestone. As a description of various schools, using one terminology, and pointing to a method of investigating meditation the paper scores highly. It is however marred by some assumptions, and problems in the use of the template.

Summary and Prospects

From the various studies of meditation reviewed above it appears safe to conclude that:

(1) During meditation the subject is relaxed.

(2) That there are minor physiological changes; (decreases in oxygen consumption, CO_2 output, heartrate, respiration rate, blood pressure, changes in blood flow and concentration of metabolites).

(3) That there is a change in the state of consciousness, that both physiologically and subjectively resembles the hypnagogic state.

(4) That generally meditation has been associated with psycho-therapeutic effects - normally within 4-10 weeks of practice - and may be most effective in treatment of mild chronic anxiety.

(5) That any claim that meditation is a simple panacea must be rejected, as it has also been associated with adverse effects.

(6) That meditation can relatively quickly produce accounts from subjects, that resemble classical mystical accounts.

(7) That no study has demonstrated that any of the above effects are

specifically induced by the practice of the meditation exercise per se.

It appears that a number of factors may be involved and/or associated with the production of the meditation effect.

The physiological studies of the effects have not shown any major effects to be unique to the practice of meditation. All can be observed in relaxed subjects. This conclusion cannot say anything about the potential long term benefit derived from the practice of meditation (Fenwick et al, 1977).

The studies of the psycho-therapeutic effects of meditation suggest that expectation of relief and sitting quietly are equally effective as TM in production of therapeutic benefit, (Smith 1976). Other studies suggest social aspects of the practice (Brautigam, 1971; Glueck & Stroebel, 1975 and Otis, 1979) as well as personality of the meditator prior to taking up meditation (Ferguson and Gowan, 1976; Lesh, 1970; Otis, 1979) may be important in both maintaining the practice of meditation and producing the therapeutic effects.

The studies of the mystical effects of meditation depend on reports by subjects. It does appear that an altered state of consciousness is induced by the practice of meditation but it is not clear that these effects do not depend on expectation of such effects and/or experimental artifacts. Theoretical accounts of the relationship between meditation and the mystical experience suggest that meditation is directly responsible for induction of the experience, but this has not been shown. Personality factors appear also to be related to success in meditation although they have not been demonstrated to be directly so involved. Some work has begun to attempt to codify and compare the techniques used in different traditions and their effects.

The position that exists at present is then one that suggests that meditation has both therapeutic and mystical effects. It also appears that these effects may not be purely dependant on the practice of a meditation exercise per se.

Meditation appears to be practised in two main contexts. These differ such that one widely considers meditation to be a practice for the production of therapeutic benefit, the other for the production of a mystical experience. Do these contexts in which meditation is practised influence the outcome of that practice?

The studies reviewed above have typically failed because of the problems involved in controlling for the various concomitants of meditation. We will consider meditation in this thesis not in isolation, but as it is practised in contemporary Britain. We will investigate the contexts in which meditation is practised and attempt to ascertain their influence on that practice.

Two studies will be reported below.

The first study was carried out in the Durham area, to investigate the existence of the contexts previously suggested, and is used to develop an instrument for this investigation.

The second study investigates the effects of the context on a set of meditators at a Buddhist centre, in order to ascertain more specific effects of the context.

PART 2: DURHAM STUDY

CHAPTER 3

DESIGN OF THE DURHAM STUDY

Design of Durham Study

A preliminary study of meditation in the Durham area was carried out to fulfill two purposes.

(1) To develop an instrument to be used in further studies.

(2) To demonstrate the existence and influence of the two contexts in which meditation is practised.

Development of the semantic differential

Background:- The semantic differential is a technique developed by Osgood, Suci and Tannenbaum (1957). It is generally accepted to measure the connotative meaning of words, rather than their denotative meaning. The theoretical model on which this instrument is based postulates the existence of a semantic space. Each concept is defined as a point in this multi-dimensional space. The position of this point is derived by means of its allocated position on the scales which define the dimensions of the space. The concept's point in the space is thus a function of its position on these scales. The subject's task is to judge the position of the concept on the scales provided.

The semantic differential has been widely used to investigate the meaning of words, and differences on other variables between groups of subjects (Sneider and Osgood, 1969). Heise (1969) reviews the methodological research on the semantic differential and reports it to be a highly reliable instrument.

It was thus decided that the semantic differential would be an appropriate instrument for the investigation of differences between meditators and non-meditators and groups of meditators.

Procedure

Concepts:- Initially the researcher and his supervisor each drew up a list

of concepts, which appeared to be of importance in the practice of meditation. A number of meditators, personally known by the researcher, were also asked to draw up lists of concepts central to their system of meditation. These lists were compared and the most commonly occurring concepts were extracted to comprise a list of 60 concepts. This list was then reduced in size by the removal of synonyms. The resulting list was ranked by the researcher and supervisor to indicate the judged importance of the words within a variety of meditation systems. The 30 concepts judged to be the most central were thus chosen.

Scales:- A list of bipolar opposite adjectival scales was drawn up for use in the semantic differential. These were drawn from Osgood et al (1957) and Bailey (1973). A number of adjectival opposites, unused by these writers, were included because of their relevance to the present subject matter. This list of scales was reduced by a similar process to that used for the concepts. Sixteen bipolar adjectival opposites resulted. The standard seven-point scale (Osgood et al 1957) for the bipolar scales was adopted.

The order and polarity of the bipolar adjectival scales was randomised to produce a standard semantic differential, consisting of 30 concepts each to be rated on 16 scales. The order of concept presentation for each test booklet was also randomised. Standard semantic differential instructions were adopted (Osgood et al 1957).

Each semantic differential test booklet thus consisted of standard instructions to be read before filling in and 30 randomly ordered concepts to be scored on 16 scales. The instructions and a typical score sheet to be completed are presented in Appendix II. The 30 concepts used were:-

1. Body
2. Concentration
3. Consciousness
4. Death
5. Effort
6. Energy
7. Faith
8. God
9. Heaven
10. Hell
11. Infinity
12. Knowledge
13. Life
14. Love
15. Meditation
16. Mind
17. Money
18. Pain
19. Pleasure
20. Reality
21. Salvation
22. Science
23. Self
24. Sex
25. Soul
26. Thought
27. Time
28. Truth
29. Unity
30. Zero

The sixteen scales used were:

aimless - purposeful
angular - rounded
bad - good
colourless - colourful
egotistical - altruistic
fast - slow
hard - soft
intangible - tangible
meaningless - meaningful
mental - physical
passive - active
public - private
spacious - constricted
stable - changeable
subjective - objective
timeless - temporal

Mysticism Scale

Attached to the semantic differential was the 'mysticism' scale Research Form D, (M Scale)developed by Hood (1975).

The M Scale consists of 32 items measuring two factors; 'mystical experience' and'religious orientation'. Twenty items (items 1,2,4,6,8, 10,11,12,15,18,19,21,23,24,27,28,29,30,31,32) measure mystical experience. Twelve items (items 3,5,7,9,13,14,16,17,20,22,25,26) measure religious interpretation. These items are to be answered in one of 3 ways (see instructions) by the subject and numerical values are thus allocated for analysis. The instrument as used is presented in Appendix II.

A front page of the booklet requested personal information and information, where relevant, about meditation practice (see Appendix II).

Test Administration

Subjects: The tests were administered to 42 subjects in two groups:

(1) meditators

(2) non-meditating controls

(1) Meditators: Test booklets were given out to 20 meditators in the Durham area to be completed and returned to the researcher. Sixteen booklets were returned completed. The meditators were taught in the following schools:

Number	Meditation Group
6	Transcendental Meditation
4	Carmelite
3	Divine Light Mission
2	Hinayana Buddhist
1	London School of Meditation

Subjects'age range was 18 to 49 years (mean = 25.5 years). There were 12 males and 4 females.

The meditators were contacted by attendance of the researcher at public meetings of the groups concerned, or, in the case of the Carmelites, contact with the local Catholic College.

(2) Non-meditating controls: A control group of non-meditators was selected to match the meditators in age, sex and educational attainment. Individuals were approached in public places (libraries, public houses, colleges, etc.). The attrition rate of this group was marginally higher than the meditator group (27.27% compared to 25%) hence 22 booklets were handed out in order to secure return of 16, from subjects who resembled the meditators. (Age range 18 to 43 years (mean = 23.75 years), 12 males and 4 females).

Procedure

Subjects were approached either at the meeting or in the public place and requested to take part in a psychology experiment that required the filling in of a questionnaire. It was explained that the questionnaire would take approximately half-an-hour to fill in, and should be done in their own time, while alone. It was furthermore explained that answers would be in strictest confidence, but that name and address were requested so that they could be contacted if necessary. Subjects were also asked if they attended or had attended an institute of higher education. Test booklets were given out in stamped, addressed envelopes for returning to the researcher.

Reliability study: Semantic differentials were readministered to 12.5% of the sample from both groups chosen at random, after a period of 2 weeks in order to estimate test-retest reliability.

CHAPTER 4

RESULTS OF THE DURHAM STUDY

Results of Durham Study

The results of the Durham study are split into two sections.

1) information about meditation requested and results of the M.scale.

2) analysis of the semantic differential and results of this analysis.

1) Meditation information

It was hypothesised on the basis of the literature of the groups from which these meditators were sampled, from attendance of public meetings and informal discussion with representatives of the groups, that Transcendental Meditation is predominantly practised in a therapeutic context, and that the other meditations sampled are predominantly practised in a mystical context.

Information supplied by the subjects confirmed this.

Meditators who practised T.M. predominantly reported that meditation was practised to bring about relaxation eg. "I took up meditation 1½ years ago as I heard it made you calmer ... when I meditate I find calm".

Meditators in the other groups reported the practise as one for attaining 'nirvana' or to come 'closer to God' and reported their experience in these terms eg. "I have experienced certain fuller states of awareness which I can't describe adequately in words and therefore won't try, but which have brought me to a higher state". Some non-meditators supplied information about experiences resembling those described in the M.scale. These were reported as occuring spontaneously, especially when in places of natural beauty and alone eg. "(when) totally alone miles from people or habitation, for no explicit reason. To describe the experience as a deep appreciation of natural things is not nearly enough". Two non-meditators related these experiences in Christian terms eg. "My experience was that often termed the Baptism of the Holy Spirit".

Mysticism Scale

The standard scoring procedure for the M.scale was used (Hood, 1975). Scores for comparing the following groups were obtained:

a) meditators

b) non-meditators

and

c) therapeutic context meditators

d) mystical context meditators

It was hypothesised that

1) meditators would score higher on both factors of the M.scale, i.e. Mystical experience and religious interpretation than non-meditators; as they would have had more mystical type experiences, induced by meditation, than would the non-meditators, and overall should be more religiously orientated.

2) that mystical context meditators would score higher on both factors than would therapeutic context meditators; as the mystical context meditators would have had more mystical experiences and interpreted these more religiously than would the therapeutic context meditators, who would be more interested in therapeutic effects.

A series of t-tests (Robson 1973) were performed to test these hypotheses. Results are presented in Table 4.1:

Table 4.1: Results of group comparisons for M.scale scores

Hypothesis	Groups being compared	Factor	d.f.	t.value
1	meditators vs non-meditators	mystical experience	30	1.566
	" " "	religious interpretation	30	1.976*
	" " "	total	30	1.90*
2	mystical vs therapeutic	mystical experience	14	0.553
	" " "	religious interpretation	14	-0.442
	" " "	total	14	0.166

* significant values one tailed test $p \leq 0.05$

Conclusions

From these data we can conclude (though tentatively), that meditators score higher on the M.scale than non-meditators, especially on the religious interpretation factor. However the scale does not differentiate between mystical and therapeutic context meditators.

Discussion

These results suggest that the difference between meditators and non-meditators in their mystical experiences lies predominantly in the way these are interpreted; the meditators interpreting them in more religious terms.

Two major caveats arise here. Firstly the reliability and validity of the M.scale is only reported at a preliminary stage, (Hood, 1975). A study by Hood (1976) of church attendance and religious experience using the M.scale in conjunction with other instruments, yielded ambiguous results. These results may be indicative of the imperfect validity of the scale rather than of complex interaction of mystical experience, religious interpretation and church attendance identified by Hood. This imperfect validity may thus be reflected in the present results, especially confounded by the different religious, non-Christian groups involved.

Secondly, a large number of subjects reported difficulty in responding to the M.scale, adding notes to their responses to this effect. Subjects reported considerable difficulty in deciding upon the meaning of the descriptions in the M.scale.

Because of these disappointing results and these caveats it was decided not to use Hood's M.scale in further studies, although certain questions were adapted for use in the interview schedule used (see Chapter 6).

Semantic differential

The semantic differential data was coded in the conventional form, (Osgood et al, 1957) and stored as a matrix of dimensions 32 x 30 x 16 on the Northumbrian Universities Multiple Access Computer (N.U.M.A.C.).

Test-retest reliability was calculated (i). Two types of analysis were then performed on these data

(ii) An exploratory cluster analysis by cases, using the BMDP2M package (Dixon, 1975).

(iii) A series of t-tests with F-ratios (Edwards, 1954) to enable the reduction of the size of the semantic differential.

(i) Test-retest reliability

A product-moment correlation coefficient (Ferguson 1959; Edwards, 1954) between test and retest scores was calculated for the 4 subjects who completed the retest. The value of r was calculated to be 0.784. This reliability is comparable to the normal test-retest reliability of the semantic differential (Heise, 1969). This semantic differential was thus concluded to be a reliable instrument.

(ii) Cluster analysis of semantic differential data

Cluster analysis techniques are essentially classificatory procedures for the description of multivariate data, and are generally used for the grouping of objects or individuals under investigation. These techniques are comprehensively introduced and reviewed by Everitt (1974) and Cormack (1971).

The BMDP2M cluster analysis by cases (Dixon, 1975) as implemented on the NUMAC system was used. This allows selection from a variety of options according to the theoretical and practical demands of the investigation. Thus an hierarchical cluster analysis was calculated, clustering with all variables of equal weight, and operating within Euclidean space. The BMDP2M program uses a centroid clustering technique to represent the position of each cluster within Euclidean space. This technique is congruent with the theory of semantic differentiation, which also uses Euclidean space and centroids. The BMDP2M program uses centroids which is reportedly particularly appropriate when the variability of responses is constrained, (Everitt, 1974), as in semantic

differentiation where the subject makes a response on a discrete continuum consisting of seven options.

Techniques used in conjunction with the cluster analysis

A number of techniques were used in conjunction with the cluster analysis. (1) A graph was drawn up, which plotted amalgamation distance[1] against the amalgamation order of the cluster analysis. This graph is used to indicate the boundaries of any clusters produced and is an aid in the interpretation of the dendograms in the following way (Everitt, 1974).

When looking at the dendograms the boundaries of the clusters will be indicated by the change in direction of the connecting branches. However, in order to check that these really represent the boundary of a cluster, we must be sure that there is a greater distance between the centroid of the cluster and the new case being added, than was the case for the previously added members of this cluster. This would be indicated on the graph plotting amalgamation distance against the steps of the analysis by a series of plateaux with steep inclines between. In this case each plateau would represent a cluster and the steep incline should correspond to the boundary of the cluster, as indicated by the dendogram. Thus, for example, for the first dendogram and amalgamation distance plot (diagram 4.2 and 4.3) one would expect to see a plateau for the first 6 steps,[2] a steep incline upwards on the seventh, a plateau for the next seven steps, with another steep incline at the fifteenth step and

---

[1] In cluster analysis cases are joined together, or amalgamated, to form groups of similar cases. The amalgamation distance is the distance between the centroid of the cluster (or the single case) and centroid of the other cluster, to which it is being amalgamated at each level of the analysis. The results of the cluster analysis are represented in a dendogram, which is a two-dimensional diagram illustrating the fusions which have taken place at each successive level of the analysis.

[2] It should be noted that the numbers on the steps of the cluster analysis axis do not refer to the case numbers on the dendograms, but to the nodes on the vertical axis (amalgamation order) of the dendogram.

a gradual, but probably steepening, climb from then on. As this is not the case we would have to conclude that the potential clusters are not distinct. (2) Kruskal-Wallis one way analysis of variance by ranks (Siegel, 1956) was used on the clustered data. This technique requires at least ordinal measurement on the variables. In this case it has been used to differentiate the ordering of the amalgamation of individuals as members of predetermined groups, from the random ordering expected if there were no relationship between these groups and the clusters identified by the cluster analysis.

Each subject is ranked according to the order of amalgamation in the cluster analysis. This is a purely ordinal scale set up on the basis of the algorithm used in the calculation of the cluster analysis. This scale is thus a qualitative representation of the relationship between the various subjects in the 480 dimensional Euclidean space, in which the cluster analysis has been performed. These ranked cases are then assigned to predetermined groups for the Kruskal-Wallis test.

By use of these techniques the results of the cluster analysis were interpreted. Statistical significance of these results, indicative of the certainty of interpretation is thus availabile.

Results of the cluster analyses

Two cluster analyses were performed on the data using the BMDP2M program. The first used data from all subjects on all scales and concepts, and the second meditators only data.

General description of Figure 4.2: The dendogram produced by the cluster analysis shows the meditators (S's 1-16) spread throughout the sample. There are no clear clusters as indicated by our analysis of the interpretive aid (Figure 4.3). A possible cluster is produced to the left side of Figure 4.2, bounded by the addition of subject 18. Subjects added after subject 18 may

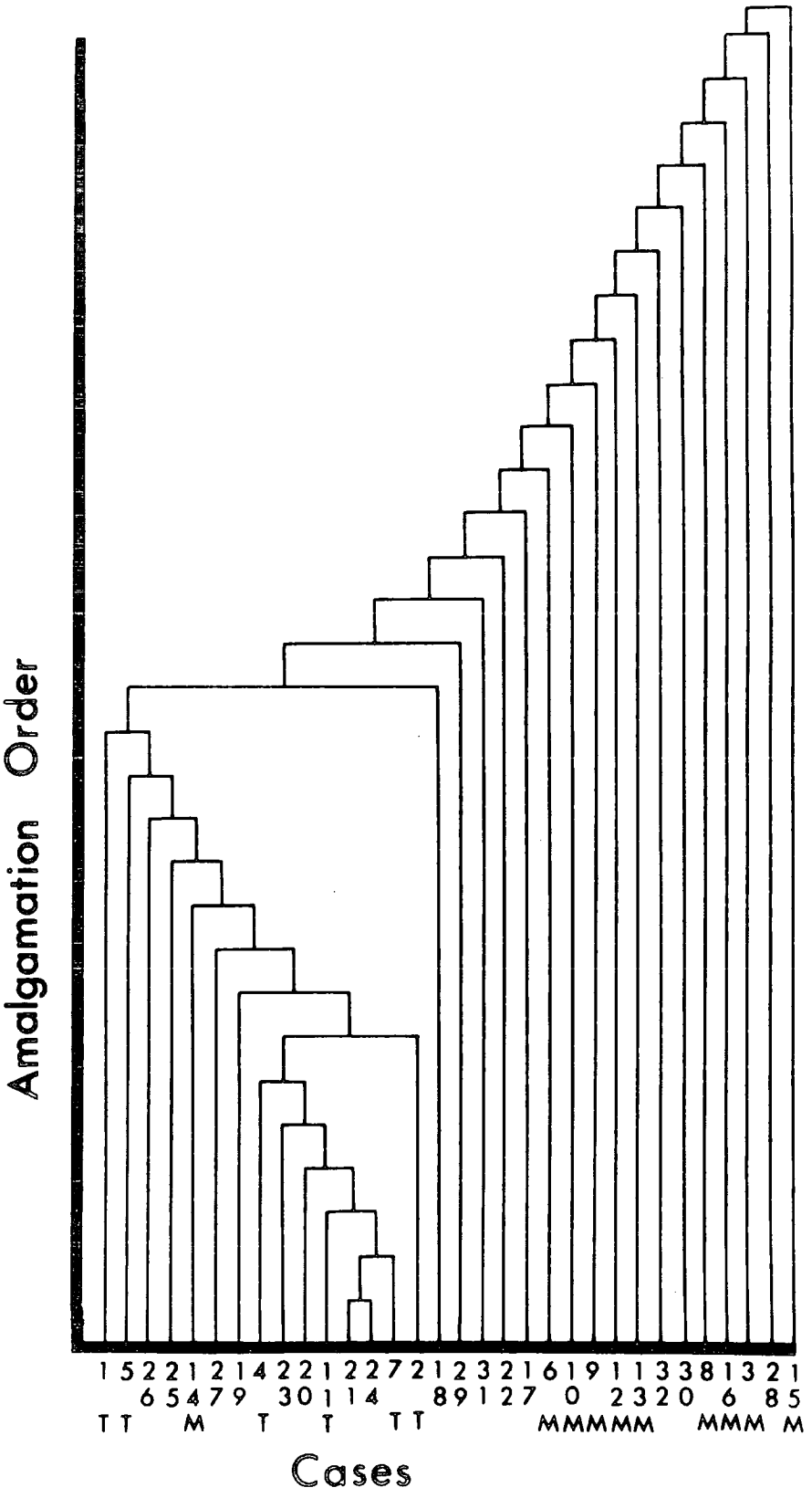
represent outliers to this cluster. A careful analysis of this figure reveals the following details. (i) All meditators hypothesised as meditating in the mystical context, bar one Carmelite are outliers added after subject 17. (ii) All meditators hypothesised as meditating in the therapeutic context are members of the possible cluster comprising of non-meditators, therapeutic context meditators, and one Carmelite.

The overall patterning of the cluster analysis is supportative of the hypothesis that the concepts as measured by the semantic differential scales, differ in meaning between meditators practising in the therapeutic and mystical contexts; therapeutic context meditators more closely resemble non-meditators in their understanding of these concepts.

General description of Figure 4.4: This dendogram of the cluster analysis of meditators only, shows the meditators bunching together according to the school of meditation they practise. There are no clear clusters, as indicated by analysis of Figure 4.5. However, the overall patterning of this dendogram is supportative of the hypothesis that the meditators have different meaning for the concepts measured, according to the school of meditation in which they practise.

Figure 4.2

Dendogram produced by the cluster analysis performed on the semantic differential data of all Durham subjects



T = Therapeutic context meditator

M = Mystical context meditator
unmarked = non-meditator

Figure 4.3

Graph plotting amalgamation order against amalgamation distance for cluster analysis performed on the semantic differential data of all Durham subjects.

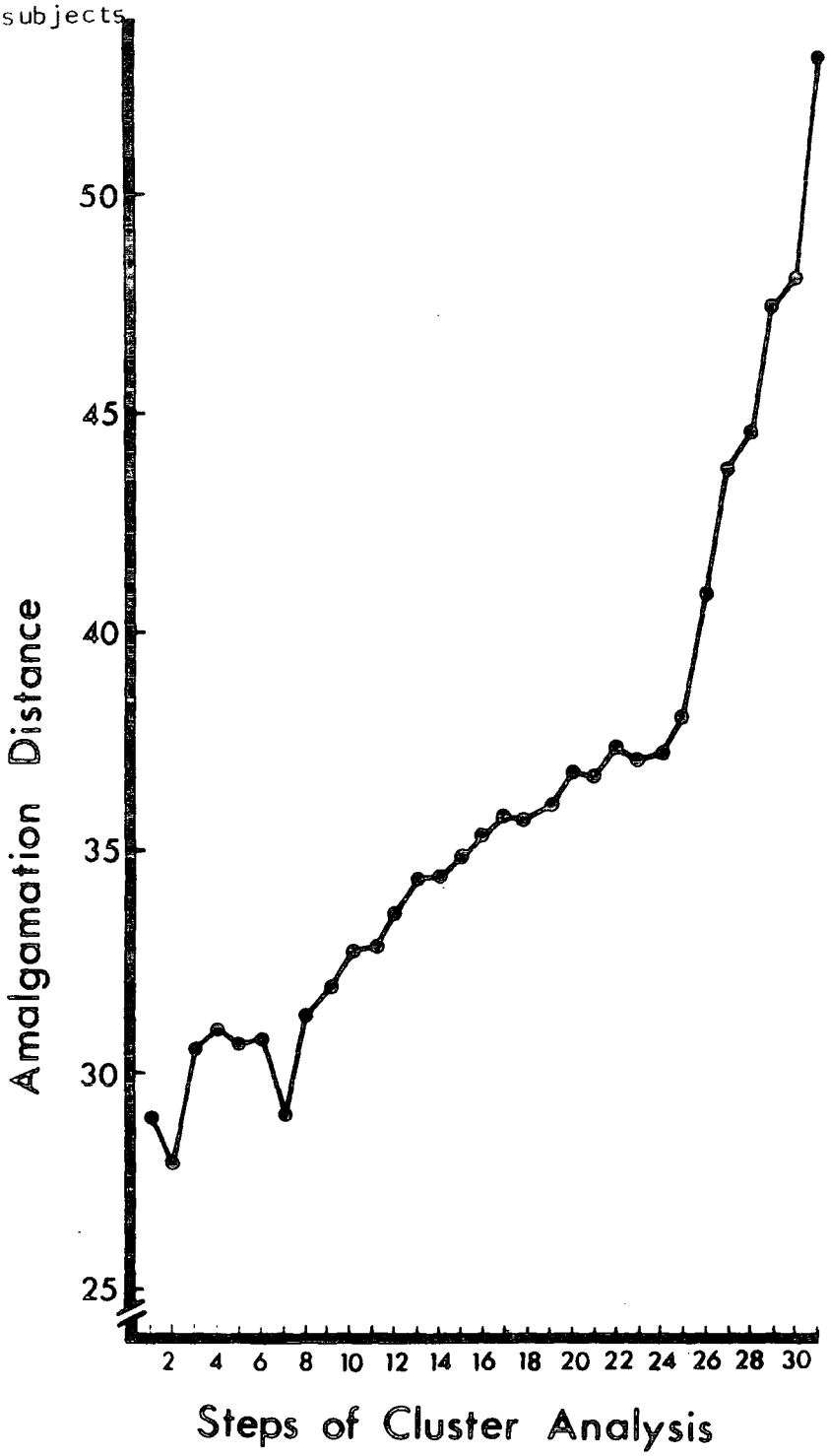
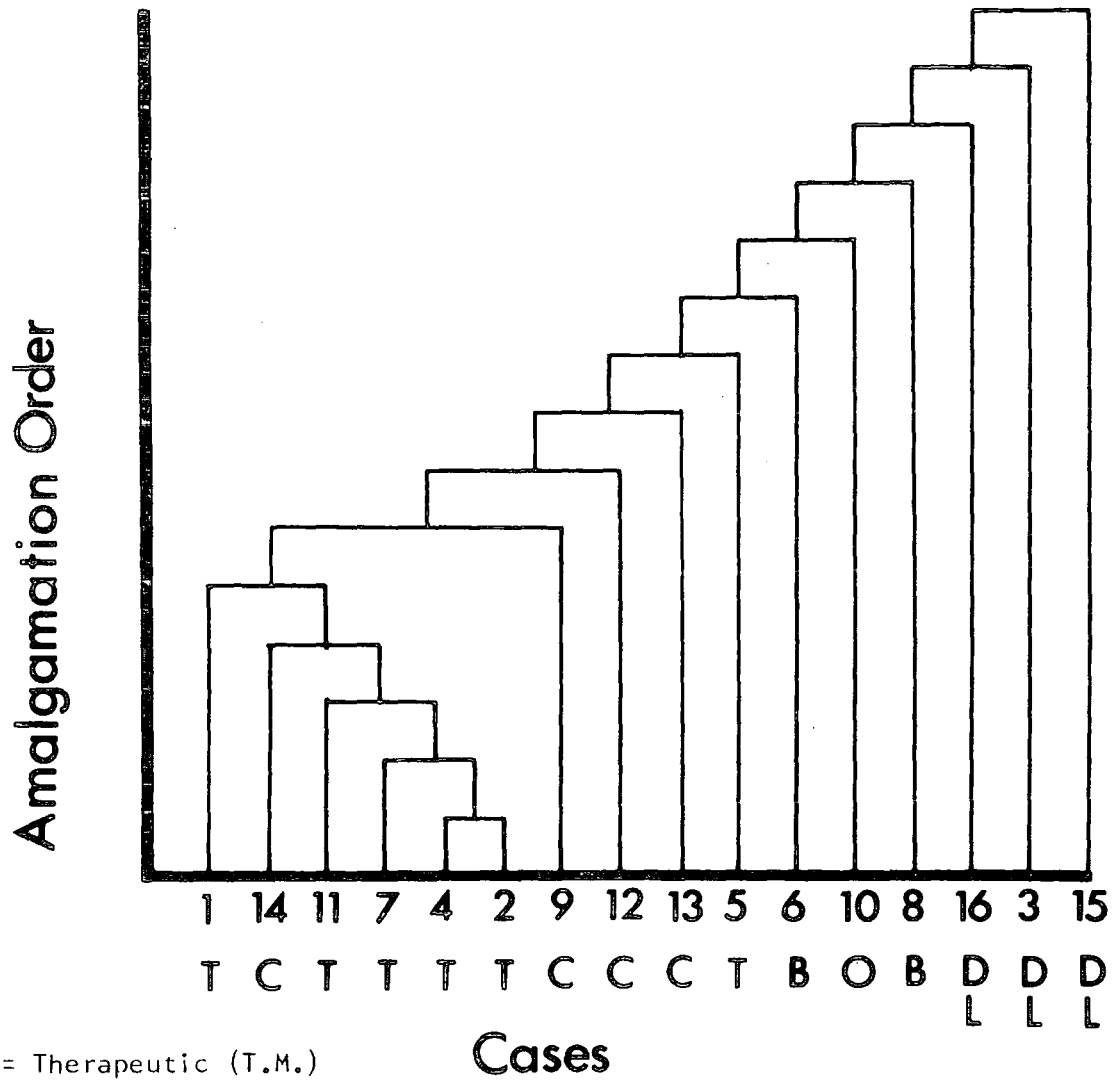


Figure 4.4

Dend ogram produced by the cluster analysis performed on the Durham Meditator semantic differential data



T = Therapeutic (T.M.)

B = Buddhist

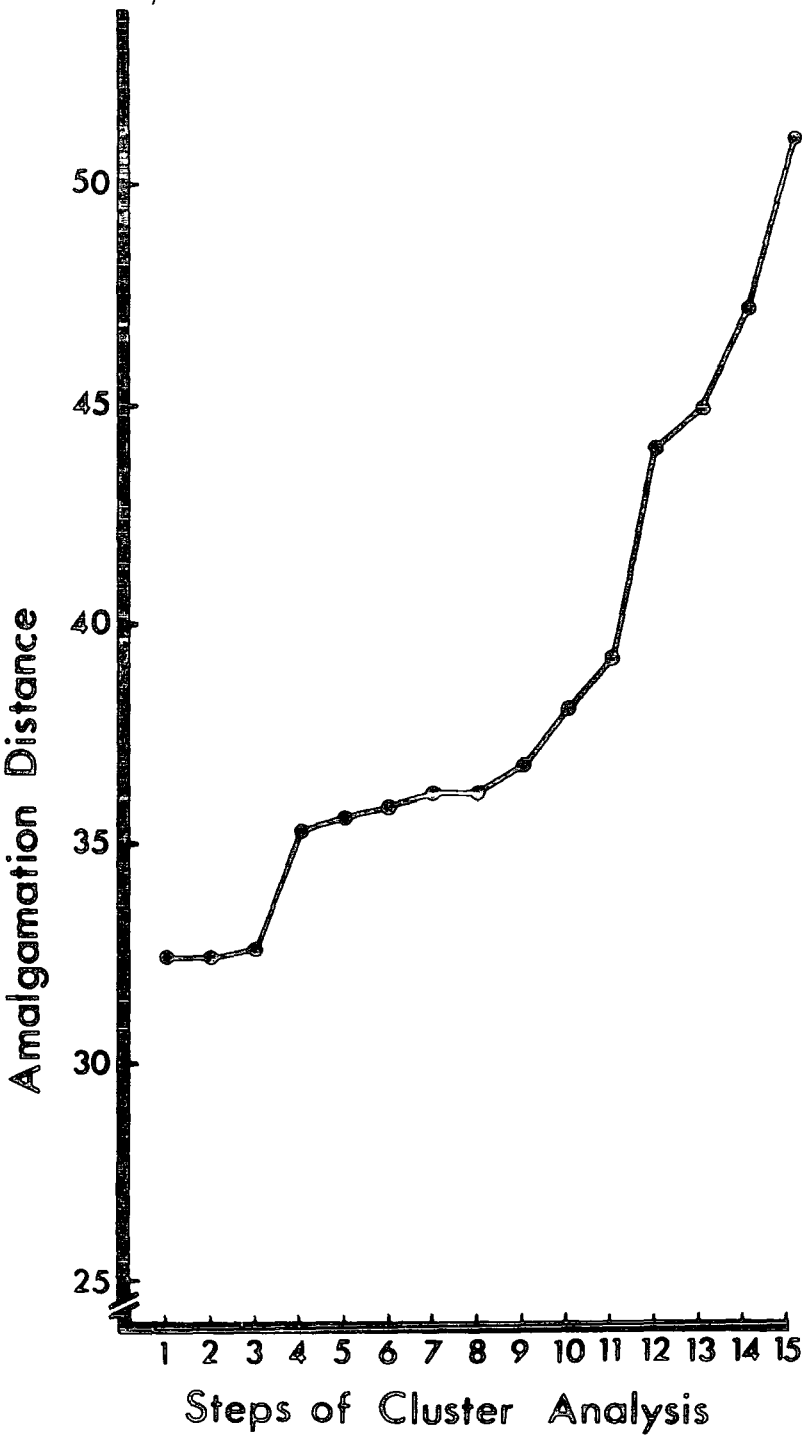
C = Carmelite

DL= Divine Light

O = other

Figure 4.5

Graph plotting amalgamation order against amalgamation distance for cluster analysis performed on the semantic differential data of the meditators only



Detailed analysis of the Clusters

The Kruskal-Wallis analysis of variance by ranks was used to test the following null hypotheses, suggested by the patterning of the clusters described above.

(1) There are no differences amongst the following three groups

(a) non-meditators (subjects 17-32)

(b) therapeutic context meditators (subjects 1,2,4,5,7,11)

(c) mystical context meditators (subjects 3,6,8,9,10,12,13,14, 15,16)

(2) There are no differences between non-meditators (a) and meditators (b + c).

(3) There are no differences between therapeutic context meditators (b) and mystical context meditators (c).

This sequence of tests is analogous to a parametric analysis of variance, followed by orthogonal comparisons.

Table 4.6 below presents the results of these tests.

Table 4.6: Results of Kruskal-Wallis analysis of cluster patterning of semantic differential data

	Groups being compared	degrees of freedom	H value
1)	(a) non-meditators (b) therapeutic context meditators (c) mystical context meditators	2	12.36*
2)	(a) non-meditators (b) and (c) meditators	1	0.616
3)	(b) therapeutic context meditators (c) mystical context meditators	1	7.35*

* significant $p \ll .01$.

Thus comparisons 1 and 3 of the above table are significant at the .01 level of significance. Comparison 2 however is non-significant at $\alpha = .05$.

Thus we can reject the null-hypotheses being tested in (1) and (3)

but must accept it in (2).

Discussion

It is apparent from these Kruskal-Wallis tests that:

there exist differences between the subjects compared in Table 4.6 such that they reflect three groups, non-meditators, therapeutic context meditators, and mystical context meditators. The two groups of meditators cannot be meaningfully united for comparison with the non-meditators. There are two distinctly different groups of meditators.

From the patterning of the dendogram in Figure 4.2 it can be seen that the therapeutic context meditators more closely resemble the non-meditators in their understanding of the concepts scored in the semantic differential. Thus the differences between the groups revealed by the cluster analysis of the semantic differential are such that

(1) There is a distinct group of meditators, who practise meditation in a mystical context and whose scoring of the semantic differential differs from the therapeutic context meditators and from the non-meditators.

(2) The therapeutic context meditators resemble the non-meditators in their scoring of the semantic differential, and amalgamated with this group represent a second distinct group.

It is possible that some differences between groups have been clouded by the large number of concepts scored, some of which may show very little or no difference between groups. We will now turn to a closer analysis of the semantic differential data collected in order to discern the most salient concepts and scales and thus reduce the size of

the instrument. This analysis will also reveal more information about the groups discerned above.

(iii)

t.tests performed on the semantic differential data

Introduction

A series of t.tests (Edwards, 1964; pp. 246-277) were performed, using a program written for this purpose implemented on the NUMAC system, to compare the scores in one concept/scale cell for the cases within one group with the identical concept/scale cell of another group. The groups compared in this fashion were

(a) meditators, non-meditators

(b) therapeutic context meditators, mystical context meditators.

F-ratios (Edwards, 1964; pp. 271-273) were also calculated for these concept/scales cell intergroup comparisons to check the validity of assumptions in the t.test and to explicate possible sources of inter-group difference.

Results

The results of the comparisons of meditators and non-meditators, and mystical and therapeutic context meditators, for each concept and each scale by t.test and F ratio, at $\alpha = 0.01$ are presented in Appendix III. Figs/ III.13 -.20 The number of significant t and F values for each scale and concept required for there to be a significant difference between groups on that scale or concept, as derived from the binominal distribution (Sakoda, Cohen and Beall, 1954), and the number of values that could be expected by chance are indicated on the figures.

(Group means, standard deviations, t values and F ratios upon which these figures are based are presented in Appendix III).

Table 4.7

Table of number of significant t values expected by chance and number observed for comparison of meditators and non-meditators and mystical and therapeutic contexts.

	Expected		Observed	
alpha level	.05	.01	.05	.01
Meditators vs Non-meditators	24	5	151	69*
Mystical vs Therapeutic	24	5	93	50*

Table 4.8

Table of number of significant F values expected by chance and number observed for comparison of meditators and non-meditators and mystical and therapeutic contexts.

	Expected		Observed	
alpha level	.05	.01	.05	.01
Meditators vs Non-meditators	24	5	85	29*
Mystical vs Therapeutic	24	5	112	54*

* For 480 repeated statistical tests the critical number of significant values at $\alpha = .01$ for these to be in turn significant is 11 at $\alpha = .01$ (Sakoda, Cohen and Beall, 1954). These values are therefore significant at $\alpha = .01$.

Discussion

The results presented above were then used to identify the concepts and scales that most discriminate between the groups compared. The procedure will be described below after discussing certain aspects of these results.

(a) The relationship between t's and F's: The F-ratios (Appendix III Tables III.6 - .12)show that the variances of the populations sampled are not always homogeneous. This is considered by some statisticians (e.g. Edwards, 1954; pp.273-274) to be an unacceptable violation of the assumption of homogeneous variances of populations underlying the use of t-tests. However, Boneau (1960, 1962) has shown that the t-test is robust under violation of the homogeneity assumption, and hence we take the results of our tests at their face value, though with due caution.

(b) Results of t-tests: There are more significant t values for each set of comparisons than one would expect by chance, from the binominal distribution. There are more significant t values for the meditator-non-meditator comparison than for the therapeutic-mystical context comparison (Table 4.7). This is a surprising result, considering that the cluster analysis technique found no significant difference between groups. This difference probably reflects the global nature of cluster analysis, as opposed to the individual analysis of the cells being performed with the t-tests. With reference to Appendix III Figures III.13-.17 it can be seen that the concepts that differentiate between the meditators and non-meditators differ from those that differentiate between mystical and therapeutic context meditators. Effort and meditation and concentration are particularly good examples of this at $\alpha = .01$. The differences between groups in their use of the scales (Appendix III Figures III.15 - .19)

are not so pronounced, with greater numbers of values overall for the meditator - non-meditator comparison. This indicates that it is largely in the meaning of the concepts that the groups differ, the scales being more homogeneous in their use.

c) Results of F ratios: From table 4.8 we see that there are more significant F values for the mystical-therapeutic comparison than for the meditator - non-meditator comparison. The variances of the groups being compared differ. The standard deviations of the groups being compared differ considerably on many concept/scale cells. Reference to tables .3 and .4 in Appendix III indicates that the standard deviation of the meditators is generally greater than that of the non-meditators. Tables .9 and .10 in Appendix III indicate that the standard deviation of the mystical context meditators is generally higher than that of the therapeutic context meditators.

This would suggest that the non-meditators are a more homogeneous group than the meditators, and that the therapeutic context meditators are more homogeneous than the mystical context group. This is congruent with the findings of the cluster analysis, probably reflecting characteristics of the populations sampled. The therapeutic context group is made up entirely of meditators practising T.M. whereas the mystical context group comprises of meditators practising within a variety of schools.

Reduction of the size of the semantic differential

Tht semantic differential was reduced in size to ten concepts to be scored on ten scales, for use in further study, by identification of the most intergroup discriminating concepts and scales.

This reduction was performed by ranking the concepts and scales according to the number of significant t values each yielded for each

of the two comparisons. A cut off point of rank ten was adopted. Thus 16 concepts and 10 scales were identified. The interaction between the 16 concepts and the ten scales was then analysed in order to ensure that the concepts yielded significant values on the scales. On the basis of this analysis six concepts were dropped,as either being of low rank overall or incompatible with the scales identified.

Thus the ten concepts and scales listed below were identified as yielding the best differentiation between meditators/non-meditators and mystical/therapeutic contexts.

concepts	scales	scale number
Body	changeable/stable	(2)
Effort	mental/physical	(5)
Energy	intangible/tangible	(6)
Hell	timeless/temporal	(7)
Infinity	meaningless/meaningful	(9)
Love	private/public	(10)
Meditation	aimless/purposeful	(12)
Reality	bad/good	(14)
Soul	spacious/constricted	(15)
Unity	egotistical/altruistic	(16)

Of these concepts"effort"differentiates highly between the two contexts of meditation and"meditation"and"energy"between meditators and non-meditators. The other concepts ranking highly on both comparisons. Thus a new 10 x 10 semantic differential was developed for future use.

Summary

The cluster analysis reveals the existence of two groups within the

meditators: mystical and therapeutic, such that the therapeutic context meditators more closely resemble non-meditators, than they do the mystical context meditators. This finding is supported by the t-tests and F ratios calculated for each concept/scale cell for the comparison of the scores of these groups. This suggests that the therapeutic context meditators are a more homogeneous group than are the mystical context meditators, reflecting overt characteristics of the samples, that is that all therapeutic context meditators practise TM whereas the mystical context meditators practise a number of different techniques.

The semantic differential was reduced to 10 x 10 dimensions on the basis of the discriminatory ability of the concepts and scales.

PART 3: MANJUSHRI STUDY

CHAPTER 5

DESIGN OF THE MANJUSHRI STUDY

Design of the Manjushri Study

A second study was carried out at the Manjushri Institute in Cumbria. The Manjushri Institute is a resident centre of Tibetan Buddhism, a further description of which is given below (p.p. 81-82).

This study used a number of methods to investigate the context in which meditation is practiced and the effects of the context on the outcome of practice. These methods are described below.

(i) Participant Observation

Observations were made while visiting the Institute. The method used may be described as phenomenological. This is used in the sense of an attempt to suspend the 'natural attitude' in order to describe the phenomena as they appear, without commitment to these observations being used to test an hypothesis, or fit a predetermined framework of explanation. Thus we have fulfilled only the first prerequisite of a truly phenomenological account. This technique has been described as "mundane phenomenology" (Thinès, 1977), and is adequate for the present purposes. Notes were made on any observations of interest when observed, and resumés of the observations made twice daily.

(ii) The Ganzfeld

A Ganzfeld is a homogeneous visual field, first described by Metzger (1930). Research has shown that with regard to a number of visual functions or skills, the Ganzfeld produces an experience markedly different from the experience of structured fields. Numerous papers have been written about effects of varying brightness and/or chromaticity of the field and the introduction of images into the field, many of which are reviewed by Avant (1965). We will describe certain specific characteristics of the unadorned Ganzfeld experience reported and explain why this led us to use this technique in the present study.

Observers of the Ganzfeld report.after relatively short periods of time, visual effects, or even the impression that vision ceases to function. Descriptions of these effects by observers include the feeling of "swimming in a mist of light which becomes more condensed at an indefinite distance" (Metzger, 1930; cited by Koffka, 1935) "a sea of light characterised by a lack of depth and spatial orientation" (Metzger, 1930). Subjects reported the experience to be a 'blank out' a 'complete disappearance of the sense of vision', a 'complete absence of seeing'. More prolonged exposure to the Ganzfeld can produce hallucinatory effects (Miller and Ludvigh, 1960; Bexton, Heron and Scott, 1954) especially when coupled with homogeneous stimulation of other sensory modalities. Cohen (1960) reports that aftereffects to prolonged exposure to homogeneous stimulation (20 minutes) can induce extreme fatigue, lightness of body sensations, poor motor coordination, loss of balance, disturbed time perception, dizziness, temporary states of depersonalization and appearance of intoxication in observers.

It has been generally found that observers find it difficult to apply language, usually adequate for expressing visual experience of structured fields, to this unstructured field. This may result from the 'indefinite', 'indeterminate' and 'ambiguous' nature of the experience reported by observers (Gibson and Waddell, 1952).

EEG records of subjects exposed to the Ganzfeld, result in increases in alpha activity associated with the period of blank out. This, it is suggested, indicates 'a functional similarity between no stimulation and prolonged uniform stimulation' (Cohen, 1956; Cohen and Cadwallader; 1958). The results of EEG work on the Ganzfeld have been claimed to show marked similarities to the results of EEG recordings of meditators (Ornstein, 1972 pp.140-144). This claim must be considered with great caution in the light of

the problems of this work discussed previously.

These effects produced by the Ganzfeld suggested similarities to some effects produced by meditation, which in the traditional literature are described as mystical effects. Of particular interest is the reported difficulty in description of the Ganzfeld effect, which closely resembles the difficulty experienced by mystics in reporting their experiences. Since the stimulus, that would be presented to subjects exposed to the Ganzfeld is identical in all cases, any differences in response to the Ganzfeld are dependent on differences between the subjects. It was thus decided to use the Ganzfeld as a stimulus that produced an ambiguous experience with parallels to the kind produced by meditation.

Construction of the Ganzfeld

A simple portable Ganzfeld was constructed. This consisted of a uniform white globe of diameter 8 inches, viewed through a $4\frac{1}{2}$ inch diameter aperture, and mounted in a white box. The Ganzfeld was viewed by the observer using one eye only, the other was covered with an eyepatch.

The Ganzfeld was illuminated by a 3 amp white bulb. This bulb was mounted on a headstrap so that it was just above the observer's viewing eye but out of the field of vision. This arrangement enabled a uniformly illuminated homogeneous visual field to be presented monocularly to the observer.

Preliminary testing revealed that the Ganzfeld effect could be induced

by between 30 seconds and 3 minutes observation.

This Ganzfeld was presented to all interviewees at the beginning of the interview session. The procedure adopted is described in the description of the interview procedure.

(iii) The interview

The interview schedule designed for this study was a semi-structured informal one. The design of this schedule took account of methodological problems involved in formal interviewing (e.g. motivation, accessibility, cognition and bias), which are thoroughly reviewed by Cannell and Kahn (1968). However, criticisms of the formal interviews were taken into account, (Brenner 1978, Silverman 1973) and the concept of the interview as a sterile social interaction rejected. The interview is conceived of a specific sort of social interaction in which the task of information transfer is predominant, and over which the interviewer has control. The design of the schedule is thus specifically to facilitate this transfer with a minimum of bias, and hence care is taken in its design, so as to make the interviews uniform but rejecting social sterility. The interview is thus to allow the interviewee to describe the meaning of events etc. for him. The approach is similar to that used by Harré and Secord (1976) and Marsh, Rosser and Harré, (1978). However explicit negotiation of meaning at the end of the interview is not used. A fuller discussion of the theoretical and methodological points is to be made elsewhere (See Note 2).

The interview schedule used consisted of twenty-one major questions asked verbatim of all interviewees, each with a number of probe questions, which were asked depending on the responses given to the main questions.

In general terms the interview was designed to glean information of five sorts, and consisted of five identifiable sections:

(a) Questions about the techniques of meditation practised.
(b) Questions about the effects of and experiences from that meditational practice.
(c) Questions about the goals of meditation.
(d) Questions about religious and mystical experiences.
(e) Questions about the respondents general outlook on life.

The specific questions asked are presented in Table 5.1

During the interview, if particularly interesting information arose or ambiguous answers were made, the interviewer would request more information with questions or comments of the sort:

"Could you say any more about that?"

"What do you mean by that?"

as well as, "How often?", "When?", "Where?","Why", etc. Obviously the exact wording of these questions was dependent on what had been said, but great care was taken to avoid biasing or leading questions.

As can be seen from the interview schedule sections A, B, C and E consisted of open ended questions to be answered in the respondents own words. Section D consisted of more closed questions to be answered briefly, but with the option to elaborate as the interviewee saw fit. In practice, these questions were answered either with yes/no answers or some brief qualifier to one of these.

Thus the questions asked were designed to extract information of the following type, with the onus on the interviewee to supply those aspects of that information that were important to him or her.

(1) The techniques of meditation that were practised by the interviewee. Specifically the technicalities of this practice, (object of concentration, nature of insight, posture etc), and how long and how often this technique was practised. If other techniques had been practised in the past, why they were no longer practised.

(2) Effects felt from meditation, both experiences during meditation and those noticed after meditation; what was difficult about meditation, what distracted him or her from meditation

Table 5.1

Interview Schedule

A Type of meditation practised

Q1 Would you please describe the technique of meditation that you practise?

(a) Where do you direct your concentration? (mantra, breathing, body point, just sitting, observing thoughts, feelings).
(b) What posture do you maintain?
(c) What is the typical length of a meditation?
(d) How often do you meditate?

Q2 (i) Do you practise any other techniques in conjunction (ii) or have you practised any other techniques in the past?

(a) (If yes) Would you please describe these techniques? (as in Q1)
(b) (If yes to ii) Why have you ceased to practise this technique?

B Effects and Experiences of meditation

Will you please answer the following questions with regard to your own experience only.

Q3 Would you please describe your experiences during a typical meditation?

(a) How do you feel during meditation?
(b) Does your feeling change as the session progresses?
(c) Do you have any unusual sensations during meditation? (visual, tactile, olfactory, kinasthetic). Can you describe them?
(d) Does your perception change during meditation?
(e) How does the time pass?
(f) What is your intent as you meditate?

Q4 What kind of things distract you during meditation?

(a) Do you find thoughts distract you during meditation?
(b) What kind of thoughts do this?
(c) Do you find feelings or discomfort distract you? Will you elaborate?
(d) Do you find meditation easy or hard?

Q5 Do you notice any effects after meditation?

(a) How do you feel at the end of a meditation?
(b) How do you perceive things outside after meditation?
(c) How do you perceive yourself after meditation?

Q6 How often do you feel you have a successful meditation?

(a) What kind of effects or state are you attempting to attain in meditation?
(b) How do you feel if you don't meditate?

Q7 Have you ever had any adverse effects from meditation?

Table 5.1 (contd.)

C Goals of meditation.

Q8 What is your purpose in meditation?

(a) What is the desired effect?
(b) Can you describe the role of meditation in the philosophy you practise it?
(c) What is a successful meditation?

Q9 Why did you take up meditation?

(a) What effect has meditation had on your life?

D Questions about religious and mystical experience (Modified from the Hood Religious and Mystical Experience Inventory).

Will you please answer the following questions briefly and elaborate where you feel it is important

Q10 Have you ever experienced a perfectly peaceful state?

Q11 Have you ever had an experience that could not be put into words?

Q12 Have you ever experienced profound joy?

Q13 Have you ever had an experience that was beyond time and space?

Q14 Have you ever had an experience in which a new view of reality was revealed to you?

Q15 Have you ever experienced what you would call ultimate reality?

Q16 Have you ever had an experience in which you became aware of a unity of all things?

(a) When did you have these experiences?

Will you answer the following questions as fully as you like?

E General outlook.

Q17 What do you see as the purpose of your life?

(a) How do you feel about yourself/and yourself in the world?
(b) What do you think about the present state of the world?
(c) Do you think the world situation will improve, and how?

Q18 Do you believe in God?

(a) Is God a personal or impersonal being/reality?
(b) Is matter the sole reality?

Q19 Do you control your own destiny?

(a) How are your mind and body related?

Q20 Would you like to add anything to anything you have said?

Q21 Is there anything of importance that we have not covered?

and what a successful meditation consisted of.

(3) Whether meditation had ever induced any adverse effects.

(4) What the purpose of meditation was and why he or she had taken up meditation.

(5) Whether the interviewee had ever had a mystical or religious experience and how this had come about.

(6) What the informant felt was the purpose of his/her life; what they thought of the way the world is and their position in that world.

(7) Whether they believed in God, and their general cosmological orientation.

(8) Whether they felt they controlled their own destiny.

Interviewees were also given certain instructions about the sort of answer that was required. Specifically it was stressed that answers to questions should (a) refer to their own personal experience only, or (b) that they should give brief answers and elaborate as they saw fit, or (c) that they should answer questions as fully as they could.

Thus interviews were conducted,which although structured allowed the interviewee a wide scope to describe aspects that were important to him or her. The structure of the interview was one that facilitated the answering of questions by the interviewee. That is, the interviewee was drawn into the interview by relatively factual questions, which enabled a rapport to be built up, and enabled the interviewee to learn his/her role and become familiar with the situation (see Cannell and Kahn, 1968). Then more difficult questions about experiences etc. were posed once the initial reticence had been overcome. Easier questions about their outlook on life came just before the end. Interviewees were given the opportunity to add anything at the end of the interview.

The major problems involved in interviewing were thus carefully observed and overcome by care on the investigator's part.

The Manjushri Institute: Background Information

The Manjushri Institute is situated 3 miles outside Ulverston, Cumbria. The Institute is primarily a college teaching Buddhism in the Tibetan tradition. The living conditions at the Institute are simple to frugal, meals being taken in a communal dining room, most residents having rooms shared with 2/3 other members of the same sex. Couples also shared rooms, those with children living in outhouses converted to flats.

Tibetan Buddhism

Tibetan Buddhism is part of the Mahayana school of Buddhism. Buddhism was first introduced to Tibet at some time in the mid seventh Century (between 617-650AD). The type of Buddhism imported was Vajrayana, - a Tantric form of Mahayana- that is one that had been influenced by Saivism (a Hindu cult, the roots of which are to be found in pre-Aryan Indian religion).

Upon its introduction to Tibet, this Buddhism came into contact with Bön the native religion, and a process of mutual assimilation and accommodation took place.

The most important of the various cults of Buddhism in Tibet and that which survives to this day is the cult of Tara. Within this cult there are three sects, each tracing their lineage back, via different teachers, to the original Buddhist teaching. The Manjushri Institute is connected with the Gelug sect -'the virtuous ones'. The iconography developed, the identity of historical figures as incarnations of deities, the symbolism and lineage of these sects and their interrelation is extremely complex, even for a Tibetan. The following texts are recommended to the interested reader: Beyer, (1973); Humphreys, (1951); Ekvall, (1964).

It will suffice to say here that the Buddhism taught at the Manjushri Institute is highly ritualistic with a complex cosmology involving different levels of existence ranging from hells to heavens (each with different pleasures or agonies) and a belief in deities who incarnate at different times as

historical figures. The Bodhisattva ideal- a saviour who returns to aid others to reach Nirvana, (see Humphreys, 1951; chapter 12) - is greatly stressed in this school. The teaching and practices are fundamentally soteriological in nature.

PROCEDURE

Participant Observation

The researcher visited the Manjushri Institute for the week 29/5/79 to 6/6/79. This was not during the term time, and no courses were being run at the time of the visit. During this period an attempt was made to take part as fully as possible in the activities at the Institute, in order to (1) observe practices, social interaction etc.; (2) build up relationships with members of the community in order to glean information about their practices to potentially supplement and validate the interviews; (3) build relationships to facilitate the interviewing.

Initial contact had been made with the Manjushri Institute through Durham University Buddhist Society, some months previous to the visit and facilities made available for the study. It was not generally known that I had come to investigate meditation at the Institute and I was thus treated as any other visitor. I felt I was fairly easily accepted by the members of the community on these terms. This was facilitated by helping on the building projects in the mornings (see below). This enabled observation of the normal daily routine and potentially to see behind any 'fronts' maintained, by to some extent becoming a member of the 'team'(cf, Goffman, 1969). Notes were taken at regular intervals, about practices observed, social relations between community members, comments made and behaviour observed. Care was taken just to observe, without making the observations fit any preconceived pattern or hypothesis.

Administration of Semantic Differential and Conducting the Interviews

The semantic differential was administered to all informants at the

beginning of the interviews conducted. Interviews were conducted after an initial 2 day period of observation, and familiarisation.

All interviewees were obtained informally. Members of the community were approached and requested to take part in an interview which would take in the region of $\frac{1}{2}$ to $\frac{3}{4}$ hours. It was explained that I was a psychology student interested in meditation. The interview could be conducted at any time convenient, and a meeting would be arranged. Most interviewees would be met in one of the communal rooms. Informal conversation would normally take place during the walk to the interview room.

The interviews took place in a small, quiet room. The interviewer sat at a table opposite the interviewee. A tape recorder was placed on the table; the box containing the Ganzfeld to one side. On entry the interviewee was asked to take a seat and the general format and aim of the interview was explained in the following way.

> "I'm a psychology student at the University of Durham doing a study on meditation. I would like you first to fill in a questionnaire that I'm going to give you, then I would like you to look into a box for a couple of minutes and then we'll go on to the interview. Will you read the instructions, then if you are clear what to do fill in the form. If you have any questions about how to fill it in please ask."

The interviewee would then read the instructions to the semantic differential and any queries about how to fill it in would be answered.

After filling in the semantic differential the following format was observed. The interviewee was thanked for his cooperation and told that I would explain exactly what the semantic differential was about at the end of the interview session. The interviewee was then asked his/her name, age, length of meditation practice and how long at the Marjushri Institute; this was recorded along with sex on a separate recording sheet.

It was explained that the interview would be taped, but that the information about who the interviewee was would be kept totally separately from the interviews and that answers were completely confidential. The information about whom they were, being collected in case I should need to contact them again in order to clarify any points made. It was then explained that I would like them first to look into the box for three minutes and then I would ask some questions. If the interviewee asked any questions about what the Ganzfeld was; what to expect or subsequently any questions about the interview, it was explained that I would rather not answer those questions until the end of the interviews. But that at the end of the interview I would explain fully and answer any questions the interviewee should care to ask. The light source was then attached around the interviewee's head ensuring that the bulb etc could not be seen and an eye patch placed over the unused eye. The interviewee was seated comfortably and was instructed to look into the box, fixating straight ahead so that he/she could not see the surround. The interviewee then looked at the Ganzfeld for three minutes and after emerging, removing the eyepatch and light source was asked the question:

"Will you please describe what you saw inside of the box?"

The answer to this being taped. Immediately following this the interviewee was told:

"I will now ask you some questions about your meditation practice", and the interview questions previously described were asked.

During the asking of the interview questions the investigator attempted to maintain an informal and friendly manner. Non-verbal gestures of interest and sanction were made, as well as verbal non-commital sanctions, as appropriate. Gross sources of bias such as 'very good' etc. were avoided. The aim was to make the interview as natural as possible, so that the interviewee felt

he was speaking to an interested and sympathetic party, and could speak freely. The investigator was aware of the sources of bias in interviewing, and made all efforts to ensure that gross bias did not enter into the interviews through his behaviour, beyond the limits of maintaining friendliness and informality. Subsequent analysis of the recorded material indicates that gross bias did not enter the interviews via intonation or other verbal sources.

At the end of the interview interviewees were thanked for their cooperation in answering the questions and debriefed. This took the form of generally explaining the semantic differential, and Ganzfeld, explaining that the interview was designed to investigate the types of meditation practised, their effects, the way they related these effects in language, their expectations of effects and the interrelationship between these two. Any questions about the interview made by the interviewee were answered. The interviewee was also asked if he was happy with the way the interview had gone and if he had discussed the interview with anyone else previously. At this point, before leave taking, the interviewee was requested not to discuss the interview with anybody else. This point was stressed, and it was explained that if they discussed the interview with someone else, before they too did the interview, then it may well affect the way they answered the questions and invalidate the research. The interviewee was again thanked before leaving.

Notes were made about the interview on the recording sheet immediately after the interview. These consisted of notes on demeanour, the way the interview had gone, subjective impressions about the interviewee etc. Thus full records were kept of salient aspects of the interview.

Eighteen interviews were conducted over five days. This resulted in the collection of approximately ten hours of taped material. The interview sessions took between thirty minutes and one hour thirty-five minutes, depending on the interviewee.

The interviewees:- were all full-time residents at the Institute, and consisted of 10 males and 8 females. The sample was made up of both lay members (11) and ordained members (7) of the community. There were 5 ordained females, 2 ordained males, 3 lay females and 8 lay males. The ages of the sample ranged from 20 years to 37 years (mean = 29 years 5 months). They had been practising meditation for between 10 years and 1½ years (mean = 4 years 9 months). The ordained members had been ordained for between 6 years and 1 year (mean = 2 years 6 months) and practising meditation regularly for between 10 years and 3½ years, (mean = 5 years 8 months). The lay had been practising meditation regularly for between 1½ years and 8 years (mean = 4 years 4 months). Fifteen interviewees had attended an establishment of higher education, two as post-graduates. The sample is fairly representative of the overall population structure of the Manjushri Institute, except perhaps in the number of ordained members compared to lay, as the ordained represent approximately 1/3rd of the total resident population of the Manjushri, and are comprised only marginally more of females than males.

The taped interviews were transcribed resulting in 102 pages of double spaced foolscap (approximately 41,000 words) for analysis.

CHAPTER 6

INTERVIEW ANALYSIS TECHNIQUE

Interview Analysis Technique

Content Analysis

The interview technique, being informal, results in discursive data. Simple numerical analysis of responses, as would be possible with a formal interview of closed questions, cannot be performed. Content analysis is an appropriate method of analysis for these types of data. Content analysis is

> 'any technique for making inferences by systematically and objectively identifying specified characteristics of messages' (Holsti 1968; p. 601)

The objectivity of the technique depends on the explicitly formulated rules used to identify the characteristics of the message, and which enable more than one coder to obtain the same result from one object of analysis. In a systematic analysis the inclusion or exclusion of content in categories is according to consistently applied criteria of selection. The task is essentially to go through a message, in the present case an interview transcript, and on the basis of a set of rules code the content of that message into content categories. Holsti (1968) provides a thorough review of the theoretical and practical issues involved in the use of content analysis.

Three points about content analysis merit discussion here. Firstly quantification is usually accepted as one of the most important characteristics of content analysis. This has often resulted in content analysis being merely a frequency count of the recording unit, which has most often been the single word, as this is the most explicit unit available. Such a unit restricts the analysis considerably, moreover it implies that frequency of assertion, or word, is related to the importance of the assertion. This implication may be invalid in many cases.

Secondly content analysis must be restricted to purely manifest content. Only those symbols or combinations of symbols actually occurring

in the message should be coded. This criterion is simple enough when an explicit unit, such as the word, is used, but more complex when the unit requires more interpretation, eg. the theme. These problems are most usually overcome by careful choice of the recording units and explicit definition of content categories. These will depend on the nature of the data and the hypotheses being investigated.

The third point refers to the units of analysis to be used. Geller Kaplan and Lasswell (1943) have demonstrated that different units can result in different results from the same data, although these differences are primarily of extent rather than direction.

The most frequently used units of analysis are,

i) the single word or symbol

ii) the theme

iii) the character

iv) the paragraph, sentence or other grammatical unit

v) the item

For the present study only i) and ii) are relevant, the others being applicable either to different types of data or different types of investigations. The choice of the unit will entail different problems with reference to the first two points.

i) The single word or symbol has been used in many fields, in particular to analyse literary variables (eg. Mosteller and Wallace, 1964). For the present study a simple word count technique was deemed inadequate for the explication of the relationship between context and effect of meditation.

ii) The theme, a single assertion about some subject, is often the most useful unit of analysis, and the one used in this study. The major problem with the use of the theme as a unit, is that it is not a natural unit, with clearly defined boundaries. Often themes may be interlinked in one sentence, necessitating a reduction

of the sentence to its component themes, before categorisation. Even with the development of a succinct categorisation, which reduces the problems, the difficulty remains, especially if the same theme is repeated within a sequence a number of times. A decision must be made as to whether this is to be coded as a continuation of one theme, and hence coded only once, or whether by repeating himself the subject is expressing the same theme more than once, and hence should be multiply coded.

This is usually overcome by the use of a context unit, which serves two purposes. Firstly,the context unit determines the frequency with which repeated items occurring in close proximity are counted seperately. Thus if a theme is repeated within a context unit it is still only counted once. This system also facilitates scoring as the coder has a dichotomous decision to make (appearance-nonappearance) which increases reliability. It is also useful when one cannot assume a relationship between frequency and importance of content attributes. Secondly,the context unit defines the largest body of content,which can be searched to characterise a recording unit. This is of minimal importance when using the word as recording unit, but of great importance for less explicit units such as the theme. Thus,when categorising a theme, reference is made only to the meaning of that theme within the context unit.

The choice of context and recording units is thus of great importance for a content analysis scheme. For the present study the units chosen were, the theme as a recording unit and the paragraph as context unit.

These units both reduce the assumption of a relationship between frequency and content attribute importance and facilitate the characterisation of content attributes. The assumption of relationship between frequency and content attribute importance was completely removed in the

statistical analysis of the content analysis results by nominalisation of these data, (see below, p.p. 138-141).

The content analysis of the interviews used a categorisation scheme developed in the conventional way, (Holsti, 1968), by the author,to investigate the relationship between context and effect of meditation. A categorisation scheme was initially drawn up on the basis of the hypothesis to be investigated. This was modified after preliminary reading of the interview transcripts, where it was obvious that the scheme was inappropriate. This prototype categorisation scheme was used for the content analysis of 3 randomly selected interviews. This revealed further inadequacies in the scheme, which were rectified by deletion of certain items, addition of new categories and modification of definitions of existing categories. This new scheme was used on a further 5 randomly selected transcripts, resulting in minor changes to the scheme, especially more succinct definition of certain categories.

This resulted in a content analysis scheme,in which the utterances of informants were classified on two major dimensions:

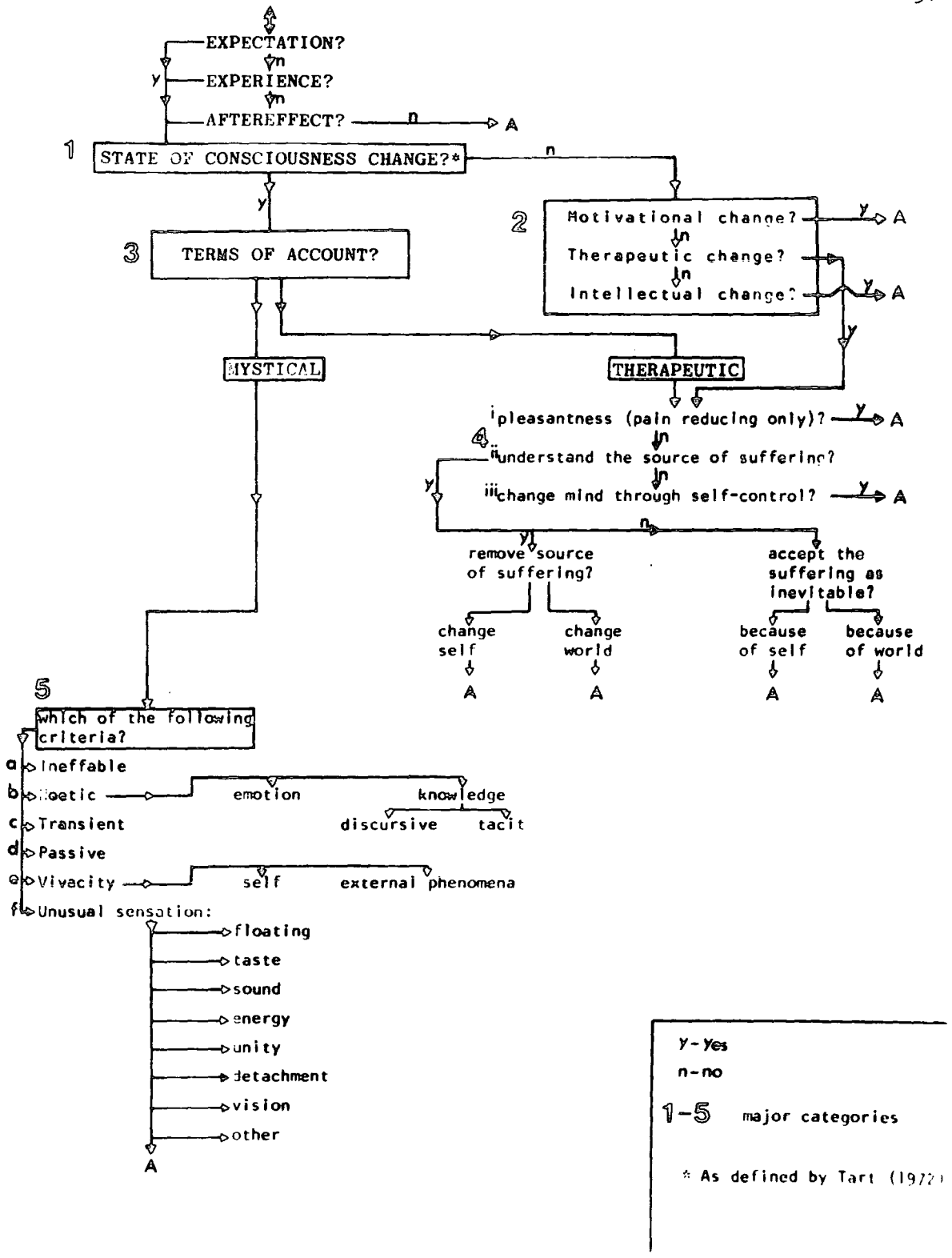
1) an expectation, experience, aftereffect dimension.

2) a therapeutic, mystical dimension.

1) The expectation, experience, aftereffect dimension required the coder to decide whether the utterance of the interviewee expressed some expectation about the practice of meditation, its aims, or his belief in its efficacity, or experience of some effect during meditation, or aftereffect of meditation upon him.

2) The therapeutic/mystical dimension required the coder to decide whether the above was in therapeutic or mystical terms, and consisted of the body of the categorisation scheme. This classification scheme was drawn up in the form of a flow diagram, to facilitate decision making, which is reproduced in Figure 6.1.

Figure 6.1 Flow diagram of the content analysis scheme



See text for explanation: A = continue reading text

Description of the categorisation scheme

We will now describe the categorisation scheme used, explicate the rules used to make decisions about the category membership of recording units and give examples of the sort of utterance to be coded in the different categories.

The first dimension to be described is that of expectation/experience. On reading the text the coder's first task was to decide whether the informant was describing what they expected meditation to do, or an actual experience they had had during meditation,or an effect meditation had had on them after they had completed a meditation session. This latter category included long term incremental changes that they reported in themselves as due to the practice of meditation. This decision was in practice easy to make because of the format of the interviews.

i. expectation

This category was chosen by the coder if the informant was expressing the way that a meditation exercise was conceived of as working, or the purpose for practising it. In practice specific questions asked by the interviewer resulted in the expression of an expectation. When describing the meditation practices that he or she practised in response to the question "would you describe the techniques of meditation that you practise?" the informants would often go further than just describe what they did when they meditated but would describe what the meditation practice was designed to accomplish. Thus any utterance which expressed the aim of the meditation practice was coded as an expectation. For example,[1] "The meditation I practise is designed to ....." or "I am supposed to do a mantra meditation each day that is meant to ..."
These are obvious examples, one less obvious and necessitating more

[1]. All Examples have been written by the author on the basis of the types of unit to be found in the transcripts for the categories.

reference to the context may be:

"Having practised this technique, one's mind should be in a state useful for other things ..."

This expressed expectation about one's state of mind after performing a particular meditation, but without any reference in the text that this state has been experienced by the informant himself. Questions such as "What is the desired effect of meditation?" clearly give rise to expectational utterances, as does the question "Why did you take up meditation?" when answered in the following way:

"Well I took up meditation after attending a course, because I had heard meditation was good for your mind. My mind was out of control and I ..... "

A final sort of expectational utterance encountered is one where the informant appears at first viewing to be describing an experience he or she has had but then negates this as in the following:

"You focus on that feeling as it comes and that gives you an insight into the infinite, ... but I have never had that happen."

It must be noted that, henceforth in this thesis when we refer to expectation, it will be to this sort of expectation to which we are referred, that is one mediated by an expectational utterance.

ii. experience

Any utterance by the informant which describes an experience, state, or change of attitude which they themselves have actually had during meditation is classified in this category. Most answers coded as belonging to this category are in response to the question, "Can you describe the experiences you have during a typical meditation?" This is preceded by the request, "Answer the following questions with reference to your own experience only". Typically answers categorised in this section are those such as:

" I become very peaceful and relaxed".

"I get a very pleasant feeling and then as the session goes on I start to see the Light".

However,not all answers given in response to the above question and the explicit instructions are codable as experiences. Occasionally it becomes apparent that the informant, in spite of the explicit request to speak from his/her own experience, is actually speaking from beyond his/her experience about what may be experienced by practising the technique i.e. an expectation, as in the last example in the previous section.

Not all utterances which are coded as experiences are in response to the question about their meditational experiences. Some informants describe the experience they have had while describing the techniques of meditation that they practise.

For example, "I meditate by following the breath and this gives me a feeling of lightness and great joy".

Thus,an experience is coded for any unit which the informants report having themselves experienced.

iii. aftereffect

This category refers to any effects induced by meditation which the informant has felt. These cover both short term effects such as in response to the question "do you notice any effects after meditation?" "Usually I feel a bit more peaceful for a little while, a lot more together, but that does not last for very long" or long term effects eg. "Over the years I have noticed that I am far happier more controlled, and definitely more spiritual."

Units thus coded are for the most part in response to the questions about the effects after meditation although some units thus coded are given in response to other questions. These,however,are manifestly

apparent as informants say that they are effects outside of the meditation.

The second dimension on which recording units are coded is the therapeutic/mystical dimension.

Therapeutic/Mystical Dimension

All utterances that express either an expectation about,experience during or after-effect from meditation are also coded on the therapeutic - mystical dimension, which characterises that expectation, experience or aftereffect within a classificatory scheme.

As meditation is reported to induce a mild altered state of consciousness (Tart,1971, 1972; Goleman,1971) the next classificatory decision to be made by the coder is whether or not this altered state is induced.[1] This decision is made with reference to Tart's (1972) definition of an altered state of consciousness, that is:

"An altered state of consciousness for a given individual is one in which he clearly feels a qualitative shift in his mental functioning, that is, he feels not just a quantitative shift (more or less alert, more or less visual imagery, sharper or duller etc.), but also that some quality or qualities of his mental processes are different. Mental functions operate that do not operate at all ordinarily, perceptual qualities appear that have no normal counterparts, and so forth." (pp. 1-2).

The decision is not always an easy one to make, because informants do not always explicitly report a change in mental functioning, and this has to be referred from within the context unit. This problem is most clearly related to the mystical context, as an altered state of consciousness must be reported in order to qualify for categorisation within the

[1] For the rest of this section we will refer to the unit being coded as if it were an experience. However we will be equally refering to expectations about meditation and after-effects from meditation. That is the "is induced" above is synonymous, for the present purposes, with "can be induced", "should be induced", "is meant to be induced", "is said to be induced", "was induced", "was first induced and has remained ever since" etc.

mystical categories. This necessitated that on occasion the inference be made that for the informant to be reporting an experience clearly to be classified within the mystical category, then a change in consciousness must be inferred from what was said about the experience. eg. "The experience is one where various energies rise up through the body, one feels things floating around inside the body, not things more abstractions". Thus an altered state of consciousness (A.S.C.) must be inferred from this report, (it does fit the criteria of an A.S.C.) although the only direct clue within the context unit that an A.S.C. is being reported may be the words "exhilarating feeling" elsewhere. This contrasts well with the explicit report of an A.S.C. being induced by meditation in the following: "Sometimes I can feel my consciousness change dramatically. It's like waking up and seeing for the first time".

This problem with the categorisation scheme is by far the most important when considering the validity of the scheme developed, as it is problematic in that it oversteps the manifest criterion often demanded of content analysis schemes. However, the inferred altered state of consciousness is made explicit by the definition of an altered state of consciousness used. Coders were informed of the problem within the categorisation scheme and requested to note the occurrence of any utterances by informants of this sort, which were so ambiguous as to make the categorisation decision impossible or unjustifiable by the stipulated criteria. No such cases were reported.

No State of Consciousness (S.O.C.) change

If no altered state of consciousness was reported by the informant, then the next decision to be made by the coder was which of the following things took place during meditation.

i) Motivational change. That is the respondent reports a change in their motivational level to practise meditation, or some other related

activity eg. prayer, renunciation. An example of this type of utterance is, "I do this meditation, not for the purpose of testing the ideas, but to convince myself to practise more, to motivate my practice".

In this category units to be coded can usually be recognised by the inclusion of a derivative of the word motive or one closely related. This is merely an aid in recognition, not the criterion. If a unit is coded in this category, the end of the decision tree is reached for this recording unit.

ii) Therapeutic. If the informant relates the experience in terms of some therapeutic change in his or her mental or physical functioning, then the experience is coded as therapeutic without an altered state of consciousness. This category would include all expressions of meditation as a relaxative or beneficially mind changing technique. The unit is then sub-categorised, where possible, in the same way as therapeutic changes brought about with an altered state of consciousness. (The sub-categorisation will be described when we turn to the therapeutic with altered state of consciousness category.) Typical expressions within this category are, "there are also breathing meditations designed to clear out disturbances in the mind and to help you relax" or "You can do one of many techniques, things like breathing meditations, just to calm the mind."

iii) Intellectual Understanding. The experience is related in terms of some intellectual or discursive knowledge attained during meditation. That is they may say they had a good idea during meditation or they understood a problem that had been worrying them. A distinction must be made here between the discursive knowledge attained in this category and that attained in the mystical state. The latter is most often ineffable and tacit, although it is occasionally discursive, and comes as a sudden flash of inspiration with no effort on the meditator's part. The former

however usually involves a conscious effort on behalf of the meditator. An example of this is "Such a meditation can give you an understanding of the problems you have, the mistakes you have made, by looking back over past experiences". If a unit is coded in this category the end of the decision tree is reached for this recording unit.

S.O.C. change

If a state of consciousness change is reported by the informant, then the coder must decide whether this change is related in therapeutic or mystical terms. We will now describe these categories and their sub-categories.

Therapeutic: This category is used for units in which the informant relates his or her experience in terms of some therapeutic change in his or her mental or physical functioning, when this change is mediated by the altered state of consciousness induced by meditation. This is perhaps best conceived of as the therapeutic change discussed by Goleman (1971) in which meditation plays the role of a meta-therapy. Whether meditation is a self administered psychoanalysis or behaviour modification through self-control is of little import for our present purposes. However comparison with psycho-therapeutic auto-hypnosis, as described by Salter (1973), may cast some light on this concept of meditation as a psycho-therapeutic technique. Thus all expressions in which a therapeutic change and an altered state of consciousness are reported are judged in this category. Units which would be categorised as being therapeutic with s.o.c. change are typically "When you practise this meditation, and it goes well, you can really feel purified, you feel lighter, less dark and tainted by your mistakes and problems. You feel better about yourself, it can happen instantly".

Therapeutic Sub-categories

The therapeutic category (both with s.o.c. change and without) is divided into a number of sub-categories to make the mechanisms, reported by the informants as mediating this change, more explicit.

i) pleasantness or pain reduction. This sub-category is used for units expressing the therapeutic change purely in terms of feeling better about oneself, but without any deep rooted change. With this sort of change the therapeutic change is mediated by some 'repression' type mechanism, the problems are merely forgotten or ignored. The pleasant feelings induced by the mechanism are such that the informant's problems are merely escaped. Perhaps in this case meditation can be conceived of as a behavioural sedative. A unit judged within this sub-category is typified by, "The result is a feeling of calm and being more at ease with myself. I feel less distracted and more level". Care must be used in this category as it can be confused with a unit categorisable within the self-control sub-category. Thus the recording unit and its context unit must be checked to ensure that no expression of gaining self-control is involved.

ii) understanding the source of suffering: For categorisation in this sub-category units must express that the meditator develops some understanding about the source of the suffering and that this ameliorates the situation. Thus knowledge about the source of their suffering allows the informant to take action to remove the problem. Typical of this sub-category is, "You calm down and you find that you can go over the old problems, and these can be eradicated by understanding, just knowing they are nothing by recognising them for what they are". Two sub-sections within the sub-category exist, each of which is itself divided into two. Coders are instructed to attempt to code the unit as low down the decision tree as possible, from the manifest content. The first decision faced in the

sub-sectioning is dichotomous. The coder should attempt to identify the strategy used to overcome the suffering once its source is understood. The first strategy is to (iia) remove the source of the suffering by some effort directed against it. An example is "The meditations eliminate the causes of suffering in the human life which are greed, hate and delusion". However this is itself sub-divided into (iial) change inner self and (iiall) change externals. There are two potential strategies for removing a source of suffering. If that source is within oneself one must change oneself in some way, one's view of the world, one's attachment etc. An example of this is, "Meditation is about understanding and then developing positive qualities in myself". The other strategy is one that sees the source of suffering as external to oneself. Hence in order to reduce one's suffering one must act upon the world, and thus change the world which is causing the distress. "Meditation improves my impact upon the world it helps me to act". These two sub-sections can be seen as the opposing poles of, in the first case, soteriology and, in the second, technology as described by Still (1979).

The second strategy, which may be adopted, is one of (iib) acceptance of the suffering as inevitable. However, once having accepted the suffering as inevitable one can continue to live with it, so that it does not really disturb one. An example might be, "I realised that pain is a necessity in life; it is not evil and I can live with this". Beyond this there are two sub-sections (iibl) that the suffering is inevitable because of one's own make up or self or (iibll) that the suffering is inevitable because of the nature of the world in which we live. The former may be characterised as one in which it is one's own fault that one suffers pain but that nothing can be done about it, one must merely accept the way one is and continue from there. eg. "A major advancement from practising meditation is the time when you realise that you're not normal, and you accept yourself for what you are".

The latter is where the suffering is felt to be inevitable because of the state of the world in which he or she lives. However this cannot be changed and the only strategy left is to accept this and make the most of one's own life in imperfect circumstances. An example of this might be, "The world is such a mess and causes so much suffering. But I can't change it and have just got to accept it for what it is".

These represent the different potential strategies for coming to terms with suffering once its source is understood. These sub-sections are the lowest branches of the decision tree in this direction.

iii) change mind through self-control. A unit is categorised in this category if the informant expresses his experience in therapeutic terms, in which he or she brings about some change in him/herself through self-control. This category is similar to the (iiaI) change inner self category, but does not include the expression of the idea that the person must first gain knowledge about the source of their suffering. They merely control their negatively valued traits such as anger, frustration, resentment etc, rather than look for some underlying source to this or understand it. For example, "I find that I can become uncontrollably enraged. Since I took up meditation this has become more controlled. It has taught me to control my anger, not to let it out on other people".

This category must be carefully differentiated from categories (i) (pain reducing) and (iiaII) (changing inner self). It must be clear within the context unit that the informant is both learning self control and that there is no understanding of a source of suffering involved through which the change is mediated. This is the final category within the therapeutic classification.

Mystical

This category represents the way in which an individual reporting an altered state of consciousness may report that altered state. To be

classified within this category a unit must be expressing an experience which fulfills at least one of the criterea by which we have previously defined the mystical experience. These categories are developed from the definitions of James (1960) and Deikman (1966). A unit coded in this category is then subdivided so that all those criteria of the mystical experience that are mentioned are scored within the defining sub-categories. This is thus an hierarchical coding, (Meyer,1975) which removes the need for the multiple coding of units within the major category, containing more than one experience type.

A. Ineffable: The informant reports an experience,but this experience cannot be adequately described in words. An example of such an unit is, "You can't describe it, that state, that feeling is totally beyond words, I would do it an injustice to try to convey it in words".

B. Noetic: The definition states that "although so similar to states of feeling, mystical states seem to those who experience them to be also states of knowledge". James (1960, p.368)

Thus within this category these two aspects are explicated. In order to be coded within this category a unit must express either an (i) affective feeling or a (ii) stage of knowledge or both, these acting as sub-divisions of the noetic category. The knowledge dimension is again sub-divided into (iia) discursive knowledge and (iib) tacit knowledge. These two sub-divisions are however only used in cases where the informant is extremely explicit about his or her type of experience. A typical example of a unit coded in the noetic category is, "All of a sudden you realise, you feel the truth of it. It's a feeling of suddenly understanding, an inner conclusion, it cannot happen through intellectualisation, you have to find your own personal experience".

C. Transiency: Mystical states cannot be sustained, they are imperfectly reproduced in memory. To be coded in this category the informant must refer to the fact that the experience passed away even if at the time it appeared to be extra-temporal or timeless. Unless memory

is explicitly referred to, the problems of expressing what occurred are coded within the ineffable category. e.g. "Once during meditation, I attained a state of bliss, this seemed to go on forever except that it just passed away, and I came out of that deep state".

D. Passivity: Although the mystical experience may be facilitated by some preliminary operations it is not inducible at will. Once it is set in the experiencer feels his will to be in abeyance. Units are coded in this category when the onset and/or continuation of the experience is clearly expressed as being beyond the control of the experiencer. eg. "Sometimes I just find myself drawn in, it's not in my hands, I am absorbed and my mind opens up".

E. Vivacity: Often the experience is more real than the ordinary experience of the environment, the experiencer's feelings of reality are effected. This can take two forms into which this category is sub-divided. Either the experiencer feels himself to be more real (i) Istigkeit or that (ii) observed phenomena in the external world are more real. Thus to be coded within this category the informant must express one of these two experiences. Examples are, for (i) "You really feel in tune with yourself how real you are" and for (ii) "When you come out you find the world is so rich, so much fuller and aglow, so there".

F. Unusual Sensations: Mystical accounts contain reference to unusual sensations, which take the form most often of perceptions. A number of sensations are listed and to be coded as within this category a sensation must be reported. These sensations act as subdivisions within this category.

i) Floating: this sensation refers to experiences such as leaving the body, feeling higher up than the body, feeling extremely light, moving upwards etc. An example of this is, "I found that I felt higher, as if I had left the ground, or even left my body below me."

ii) Taste: this sensation refers to the experience of an unusual taste in

the mouth, perhaps a sweetness, when no substance is supplying this taste. For example, "I tasted this warm sweet food of the Gods".

iii) Sound: refers to the hearing of sounds which were not created by any external stimulus. For example, "I heard a roaring which changed to humming bells".

iv) Energy: refers to a feeling of energy flowing in the body, or contact with some infinite source of energy. "I do have sensations, various energies rising up through the body".

v) Unity: refers to a feeling of being united with something, most often a higher being. Being one with the universe in which there is a complete removal of the normal subject-object relationship. "A sort of feeling of the unity of all things was also there".

vi) Detachment: A feeling of being detached from the normal self and environment, as if there were some distance between oneself and the world. Perhaps best described as being in the world but not of it. A typical example is, "You can lose your usual feeling of who you are and what you are,

vii) Vision: this refers to seeing a vision by other than normal sight. An example of this is, "I saw these lights, and then a Buddha came through the swirling in front of me".

viii) Other: a final category was included into which any other unusual sensation not listed could be entered. Coders were requested to note the nature of the sensation reported. This category was only to be used if the sensation could not be coded elsewhere. (Sensations coded in this section were, pain turning into pleasurable sensations, feelings of spaciousness, and psychic heat.)

Thus in order for a unit to be coded as mystical one or more of the previous categories had to be scored.

Thus all utterances which expressed expectation about, experience during or after effects from meditation could be coded in terms of whether

a state of consciousness change took place and what terms this change was experienced in, therapeutic or mystical. The coder was instructed in the use of the above scheme, in order to make decisions about the category membership of each potentially codable unit. The coder was told to attempt to code each unit as far down the scheme as was possible from the content. This system allowed units to be coded on two discrete dimensions for a further statistical analysis to be undertaken.

Having thus described the technique of content analysis in detail we will now describe the way it was used in practice.

Performance of Content Analysis

The content analysis technique described,was performed on all interview transcripts by the author and one independent coder, naive to the hypothesis being investigated, trained by the researcher in the use of the content analysis technique. Coding of three interview transcripts was also performed by each of three other coders, naive to the hypothesis and trained by the researcher, to enable inter-scorer reliability to be calculated. Instruction in the use of the scheme was based on a draft of the above description, and discussion of the technique, and explication of items referenced in the above description.

When coding transcripts the informant's response to the Ganzfeld was ignored, these were later coded by seperate coders (see below). Interviewees' responses to the questions culled from the Hood Mysticism Scale were also not coded. These questions were not coded as they were directly influenced by the question being asked and their inclusion would have distorted the content analysis data. Each unit in the text coded was marked for reference. Each unit coded was represented on a coding sheet for each interview. A typical coding sheet is reproduced in Table 6.2below. In this interview 15 codable units were identified, 6 expectations (D)

8 experiences (E), 1 aftereffect (A). Such a coding system allows us to investigate the interrelationships of the various categories.

TABLE 6.2 TYPICAL SCORE SHEET FOR ONE INFORMANT

CATEGORY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	UNIT NUMBER
1 A			D	D		D	A		E	E	E	E	E								
B	D	E			E			E						D	D						
2 A					E																
B		E					A	E						D	D						
C	D																				
3 T																					
M						D			E	E	E	E	E								
4 i																					
ii								E													
iii															D						
iia																					
iib																					
iial														D							
iiall																					
iibl																					
iibll																					
5 A																					
B																					
Bi									E			E	E								
Bii				D		D															
Biia																					
Biib																					
C																					
D																					
E											E										
Ei									E			E									
Eii																					
F																					
Fi																					
Fii																					
Fiii																					
Fiv										E											
Fv																					
Fvi																					
Fvii																					
Fviii													E								

Fviii pain - pleasure

Analysis of Ganzfeld Data

The interviewees' descriptions of the Ganzfeld were copied onto seperate sheets, so that there was no information as to the group membership, sex, etc. of the interviewee included. These descriptions were given to six coders (5 of whom were not the same as the interview coders), in random order.

The Ganzfeld effect, as reported in the literature, was explained to the coders, in the following terms.

A Ganzfeld is a homogeneous visual field, and this can produce certain visual effects, when viewed. The effect is usually reported to be one like seeing a mist, or a feeling as if some indistinct plane is before one. This may become a feeling that one is no longer seeing, not a seeing blackness, but as if visual perception had ceased. Mild hallucinations may be produced. James' (1960) definition of the mystical was also explained.

The coders were then instructed to

1) sort the descriptions into 3 groups.

Group (1) No report of the Ganzfeld effect.

Group (2) Report the Ganzfeld effect, but in prosaic and matter of fact terms.

Group (3) Report the Ganzfeld effect, but in elaborate terms, going beyond the simple description of the effect, reporting it like a mystical experience.

2) Rank the descriptions in order of elaborateness, rank 1 being given to the most elaborate description, rank 18 being given to the most mundane of the no effect category.

This method allows us to check on the reliability of the coding of these descriptions, and categorise responses in three groups, placing the descriptions on an ordinal scale for further analysis.

Analysis of M.scale questions

Questions 10 to 16 were adapted from the Hood Mysticism Scale. Answers to these questions were coded as either positive or negative for statistical analysis purposes. Qualifications of these answers were noted and are presented in the informal analysis.

Informal Interview analysis

In addition to the content analysis of the interview data, an informal analysis method was also developed, to attempt to cull the basis of each interviewee's responses from the overall interview, for merely descriptive purposes.

Each interview was read, and the answers to the various questions précised for each interviewee and entered under the following heads,

1) General description of techniques
2) Experiential Description
3) Intent
4) Distractions
5) Effects after meditation
6) Success
7) Desired effects
8) Adverse effects
9) Reason for taking up meditation
10) Life Purpose
11) Destiny Control
12) Ganzfeld
13) Answers to Hood Mystical and Religious Experience Questions.

Page and line numbers of relevant responses were noted. This method facilitated the description of the interview data which is presented in the results chapter below.

CHAPTER 7

RESULTS FROM THE SEMANTIC DIFFERENTIAL ANALYSIS

Analysis of the semantic differential data

The semantic differential data collected at the Manjushri Institute was analysed using the techniques previously described, (pp 56-58, p.56).

Reliability

Test-retest reliability was ascertained by readministration of the semantic differential to approximately 20% of the sample, at random, after 5 to 7 days. Pearson's product-moment correlation-coefficient was calculated (Ferguson, 1959) for these. The values of r ranged from 0.55 to 0.83 and were significant at $\alpha = .01$.

Cluster analysis

The data from all 18 subjects were analysed using the BMDP2M cluster analysis program on NUMAC (see p.56). The dendogram produced by this analysis is presented in Figure 7.1. The steps of the analysis are plotted against amalgamation distance in Figure 7.2.

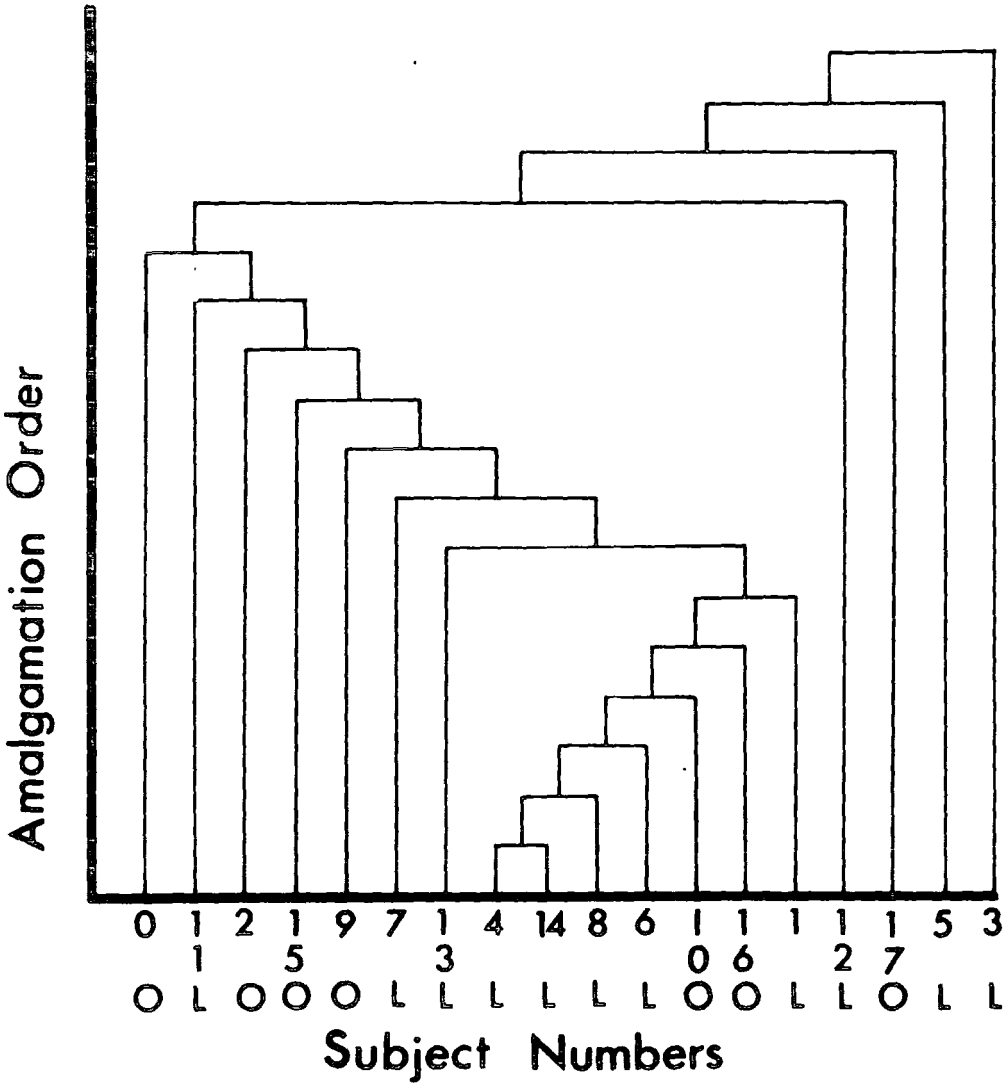
The dendogram suggests the existence of three clusters in the data: (1) bounded by S4 and S1; (2) bounded by S13 and SØ; (3) bounded by S12 and S3. These clusters, however, are not clearly defined as indicated by Figure 7.2. Kruskal-Wallis one-way analysis of variance (Siegel, 1956) was calculated for these data, in the manner previously described(pp 57-58)to test whether the amalgamation order discriminated between the lay and ordained groups. The value of H was calculated to be 0.45 (at $\alpha = .05$ critical value of H for one d.f. $H \geq 3.84$) and is therefore not significant.

The cluster analysis of these data thus indicates that although there are potentially 3 clusters these are not distinct and separate and do not split the subjects into lay and ordained groups.

A further cluster analysis was performed on the Manjushri data combined with

Figure 7.1

Dendogram produced by the cluster anlaysis performed on the semantic differential data of the Manjushri study subjects.

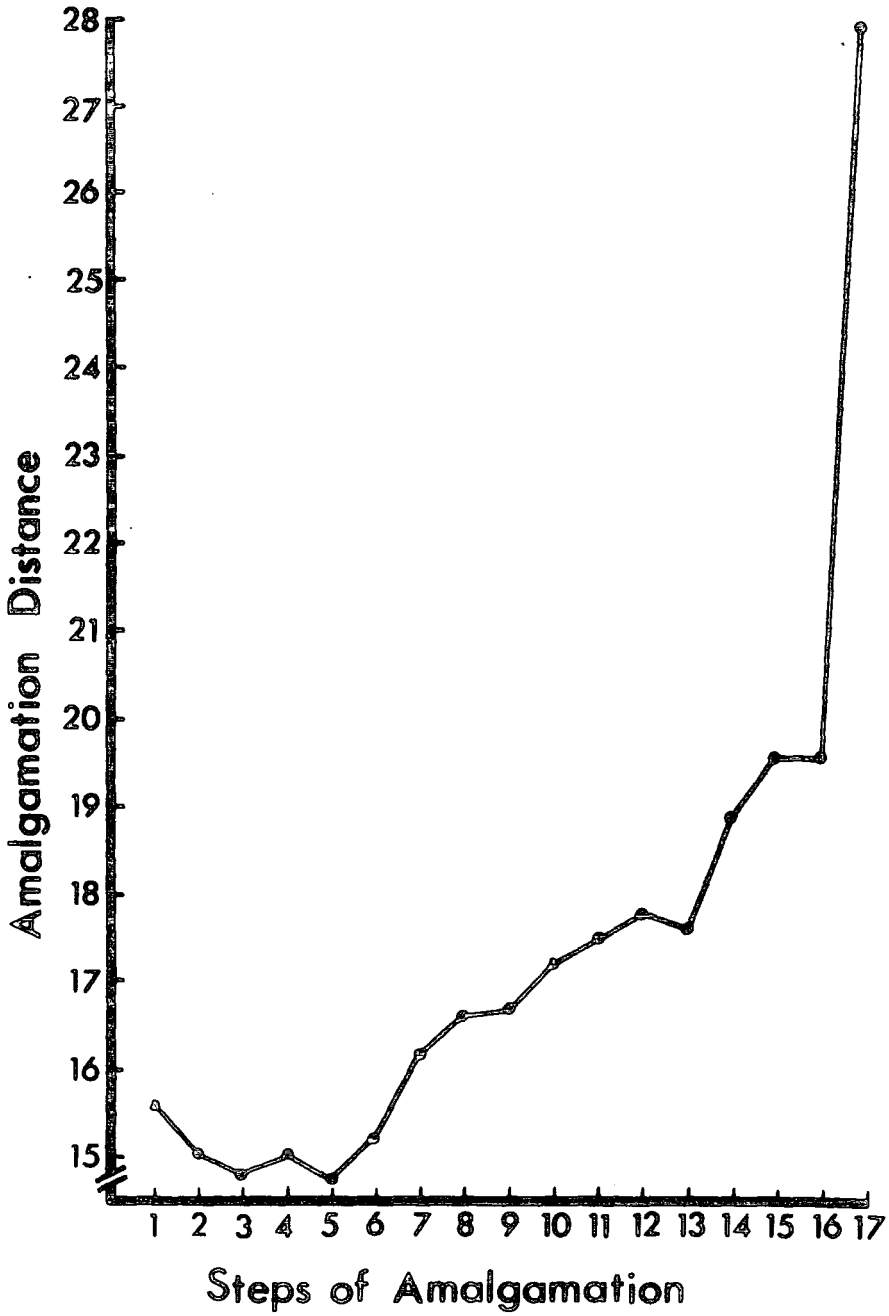


0 =ordained

L =lay

Figure 7.2

Graph plotting amalgamation order against amalgamation distance for cluster analysis of Manjushri semantic differential data



the comparable data from the Durham study, in order to ascertain their relationship with those data.

The dendogram produced is presented in Figure 7.3. From Figure 7.4 we can see there are no clear clusters in these data. To explicate the patterning of the data a canonical variates analysis was performed on the data using the S.P.S.S. Discriminant computer program (Nie et al, 1975; pp 434-462). This is a method, described by Everitt (1978), of particular aptitude for the plotting in two dimensions of multivariate data of these sort, in order to explicate their patterning. It is also extremely useful for checking the distinctness of clusters, and their areas of overlap. Figure 7.5 is produced from this canonical variates analysis. The functions identified by the analysis represent two dimensions which define the groups. They are made up by the algorithmic combinations of numerous semantic differential concept-scale cells. The 3 cells which maximally contribute to these two functions are:-

function 1: Body/aimless/purposeful
-Body/egotistical/altruistic
-Body/mental/physical

and function 2: Body/mental/physical
-Reality/aimless/purposeful
-Reality/spacious/constricted

As can be seen from Figure 7.5 there is considerable overlap between the groups. However, individuals identified as belonging to

(1) Manjushri ordained
(2) Manjushri lay
(3) Durham therapeutic
(4) Durham mystical
(5) Durham non-meditator groups tend to cluster in one

area of the available space. This is made clearer by the minimum convex polygons plot of these data (Figure 7.6). The Durham mystical meditators represent the only autonomous group with no overlap. The Manjushri ordained group most closely resemble this group, and are most overlapped by the Lay group. They are also the only group, other than the Durham mystical, that has no

Figure 7.3 Dendogram produced by the cluster anlaysis performed on the semantic differential data of the Manjushri study subjects and the comparable data from the Durham study subjects.

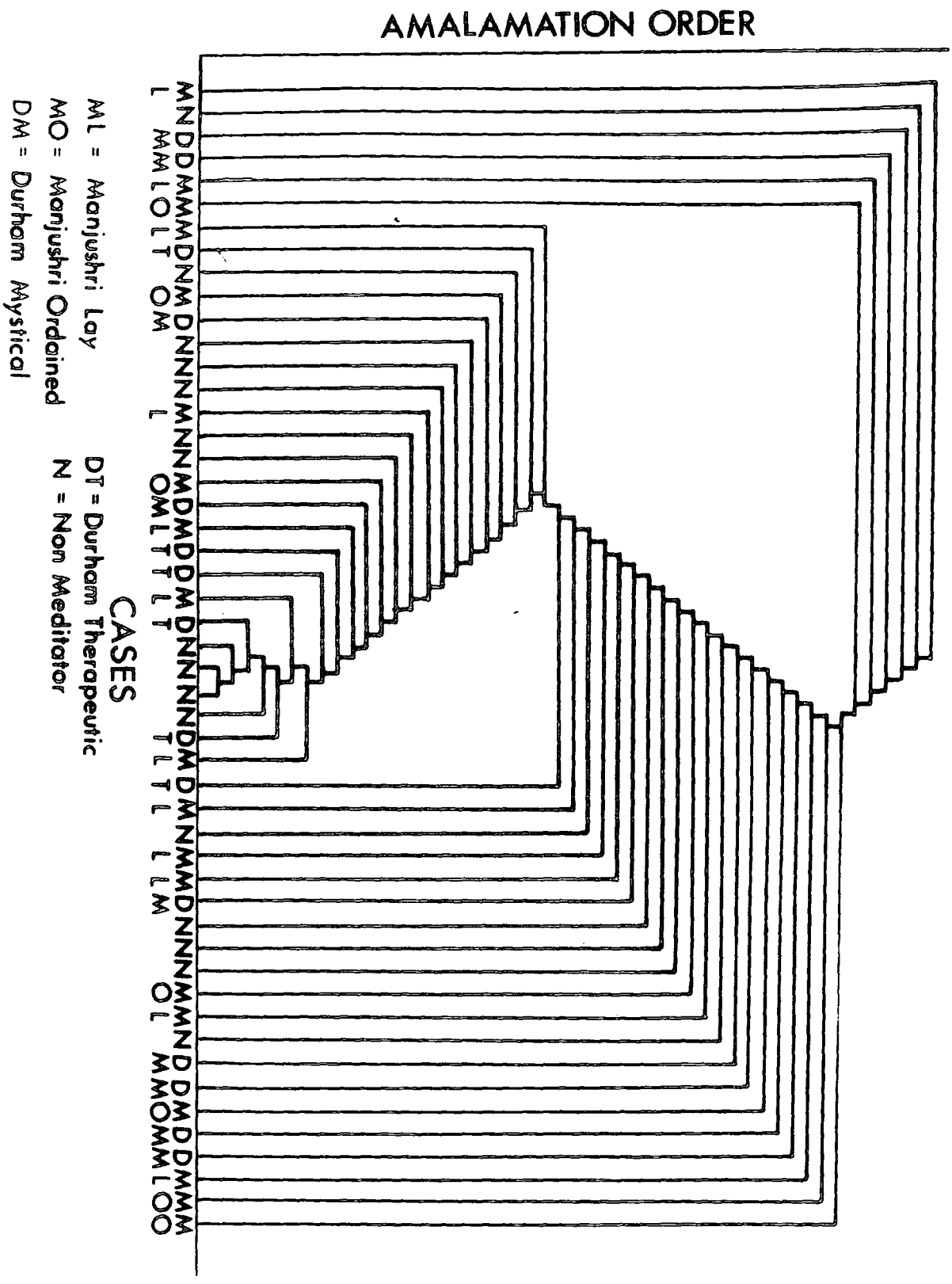


Figure 7.4

Graph plotting amalgamation order against amalgamation distance for cluster analysis performed on the semantic differential data common to all subjects in both Manjushri and Durham studies.

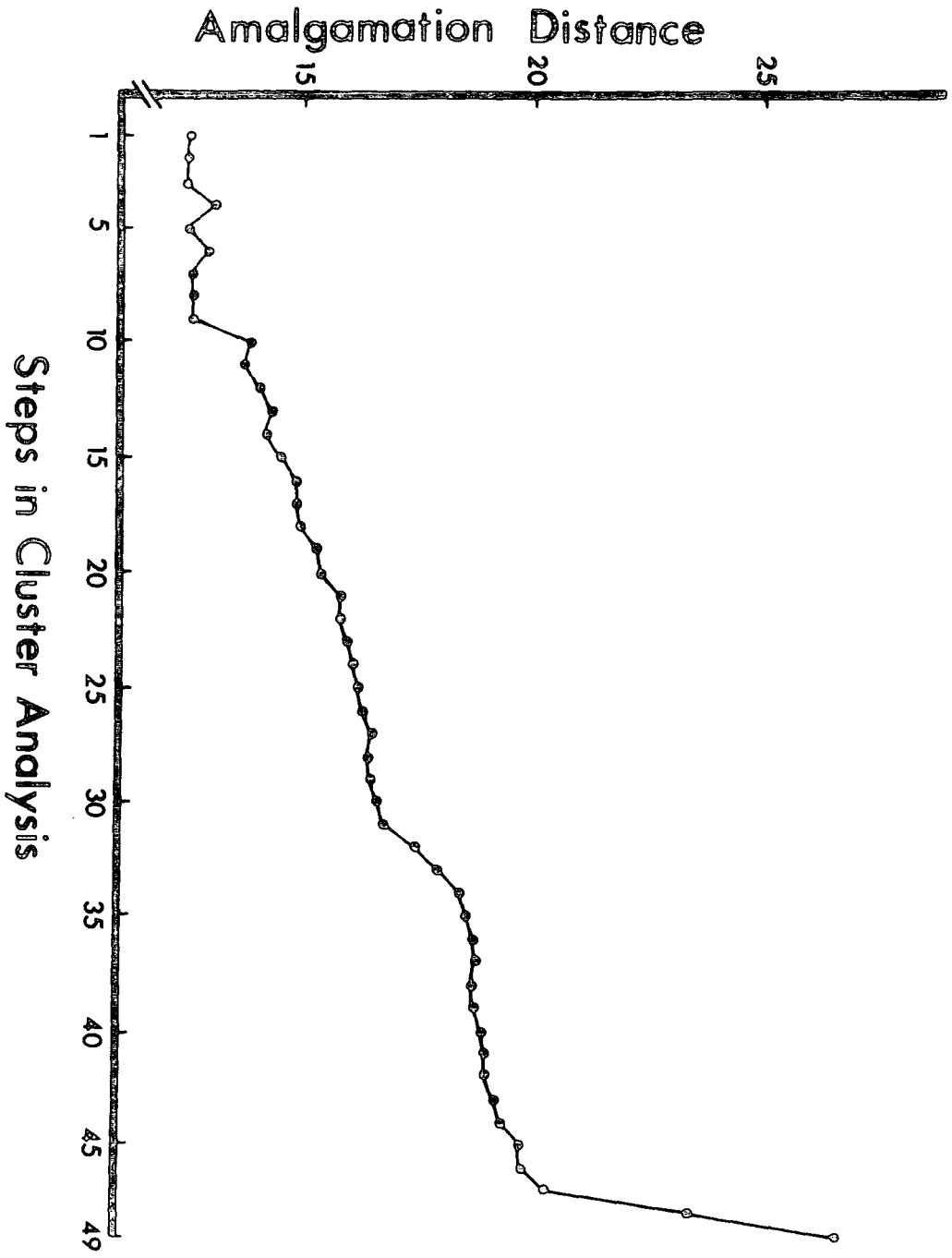


Figure 7.5

CANONICAL VARIATES PLOT OF S.D. DATA

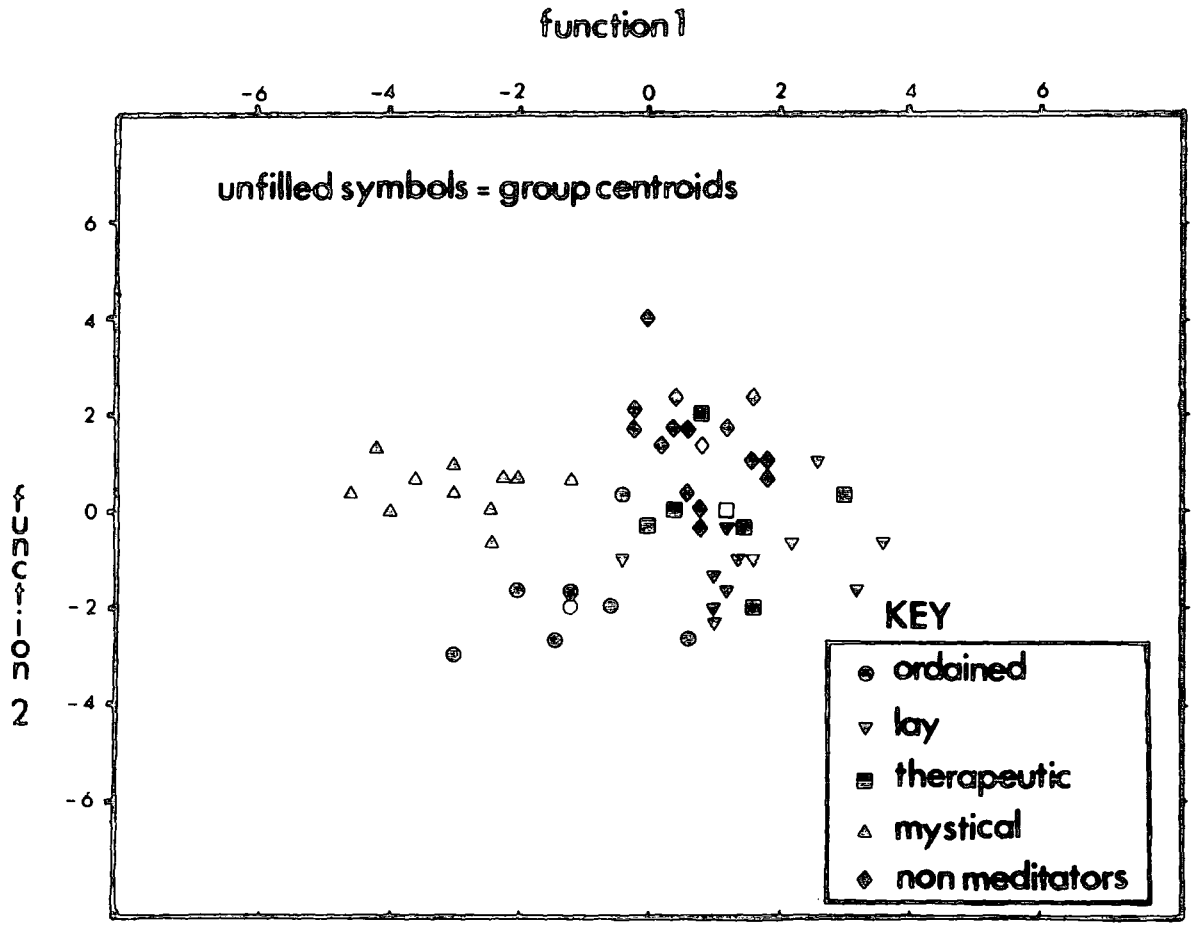
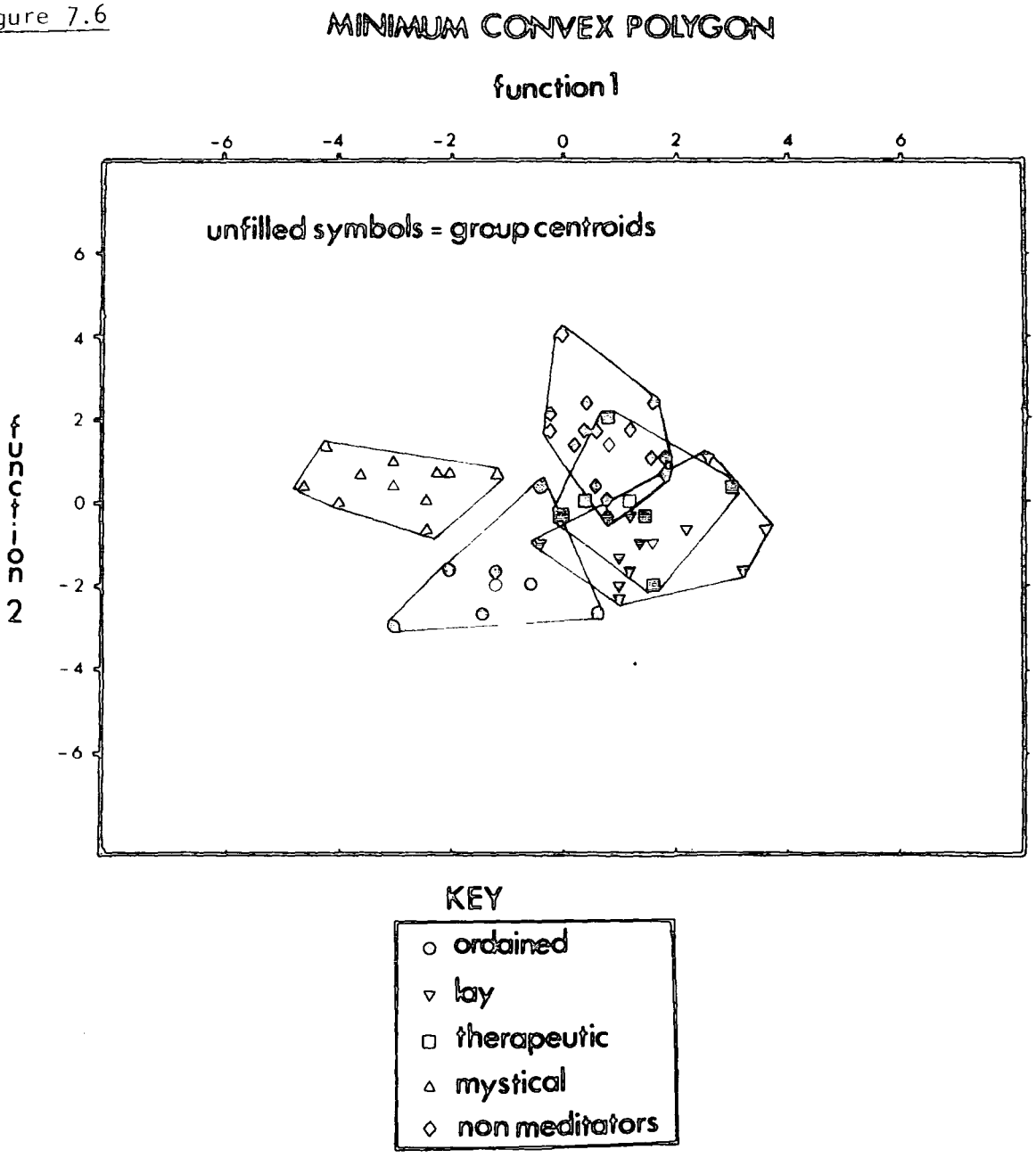


Figure 7.6


MINIMUM CONVEX POLYGON
function 1
-6
-4
-2
0
2
4
6
unfilled symbols = group centroids
function 2
6
4
2
0
-2
-4
-6
KEY
ordained
lay
therapeutic
mystical
non meditators

overlap with the non-meditators. The lay meditators most closely resemble the Durham therapeutic group, sharing much of the same space, but overlapping the non-meditator space less. The therapeutic meditator group resemble both the lay and the non-meditators.

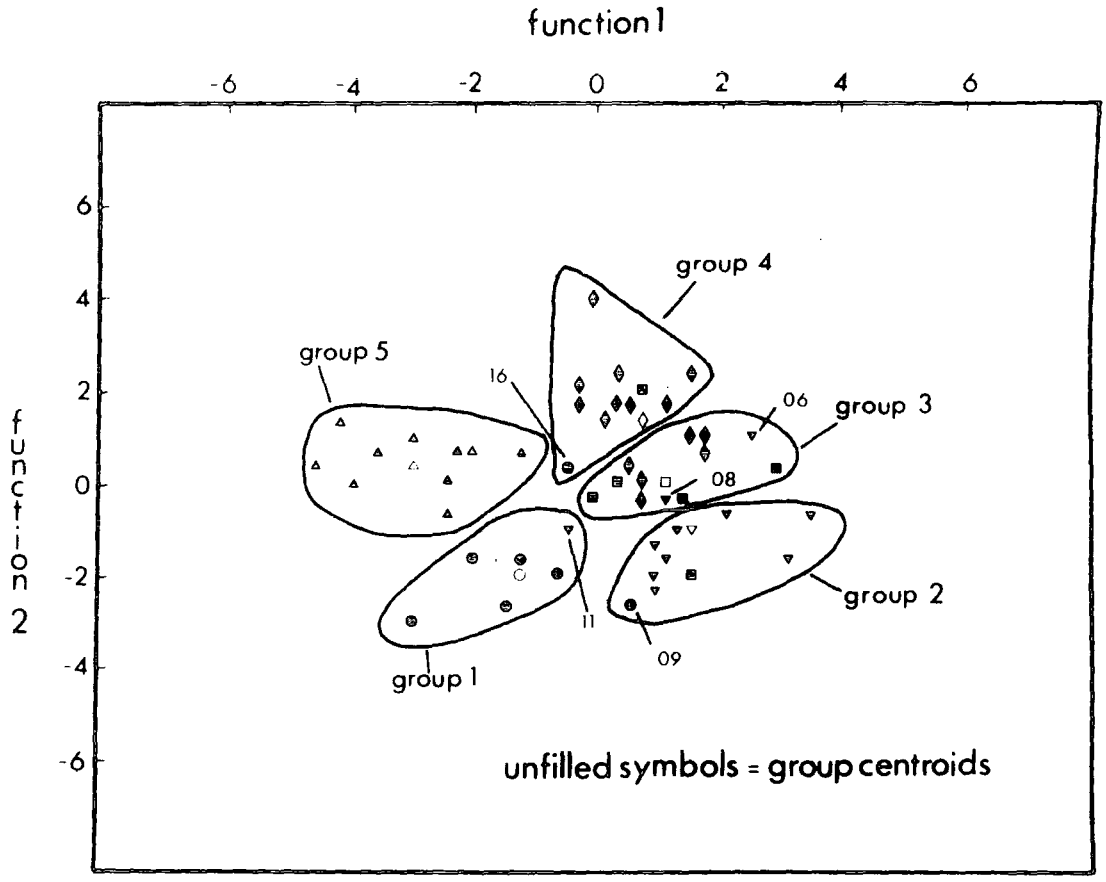
This plot considerably explicates the patterning of the data, showing, both how the groups overlap and fall in relation to one another in their responding to the semantic differential and indicating the indistinct nature of the clusters previously identified(pp 111-116)The relationship between these groups is further revealed by the t-test analysis performed (see below).

The canonical variates analysis program used, also produces group membership probability statistics, which can be used for group membership prediction. 76% of the subjects are predicted to belong to the correct group. The major confusion coming over therapeutic and non-meditator groups. On the basis of the group membership predictions Figure 7.7 is plotted. For the ordained and lay groups it is important to note only one member of each is predicted to be a member of the other group. Two lay are predicted to be members of the therapeutic group, and one ordained of the non-meditator group. These subjects are identified by their subject numbers. Although this manipulation of the data cannot be used as a method of redefining group membership for these data, (the clusters being ill bounded as demonstrated in Figures 7.4 and 7.5), it may be of use in discussing the patterning of other data collected during the Manjushri study.

t-tests and F-ratio tests

T-tests were carried out on the data using the program written for the Durham data (pp 66-68) F-ratios were also calculated for these, in the way previously described (pp 66-68). Tables of these results are presented in Appendix IV.

Figure 7.7



PREDICTED GROUP MEMBERSHIP OF THE INDIVIDUAL SUBJECTS

KEY

- ordained
- lay
- therapeutic
- mystical
- non meditators

For the comparison of lay and ordained 18% of the cells reveal significant differences of t at $\alpha = .05$. This is significant overall as a series of t tests at $\alpha = .01$ (Sakoda et al, 1954).

These results suggest that the difference between these groups is not a generalised one, but one of differences in specific meanings, as measured by the semantic differential. This contrasts with the larger numbers of significant differences found in the analysis of the data of groups in the Durham study (p. 67) Student t-tests and F-ratios were also calculated comparing the Manjushri study data with that of the Durham meditators (Appendix IV Tables .9-.14).This resulted in 32 significant t-values at $\alpha = .05$ (32% of cells) which suggests that the Manjushri meditators differ more generally from the Durham meditators than they do internally.

CHAPTER 8

RESULTS OF THE INTERVIEW: AN INFORMAL ANALYSIS

Results of the Interview

Below we will describe the general findings of the interview conducted. To this end we will describe the responses to the questions and quote from the interviews. We will not be focusing on differences between individuals or groups in this analysis, but giving an overview of the types of responses given during the interviews. We will attempt to draw out from the interviews the way that the meditators view meditation, and the background to their practice, in order to reveal the context in which the meditation is practised.

1. Meditation techniques

a. Techniques

The first question of the interview requested information about the techniques of meditation practised. This resulted in answers of two types. Some meditators were willing to describe details of their practice (a), others spoke only in abstract and general terms (b).

[1] (a) "sitting for about half an hour using the breath as a focus, being aware of the breath" (2004)

(b) "training the mind and training the thoughts, learning how to regard one's own body and how to put some kind of meaning into our lives" (1000)

This in part depended on whether the meditations practised were secret Tantric ones requiring initiation or not.

Five major types of meditation were described.

(i) Mantra recitation: which were often used in conjunction with visualisations.

(ii) Breath meditations: usually used as a preliminary technique to facilitate practice of 'deeper' meditations. However the technique is

[1] Informant numbers are given for each quotation: 1000 refers to ordained; 2000 refers to lay member; tens and digits refer to individuals.

considered to be highly effective in its own right.

> "Its a good idea to do breathing meditation to pacify the mind to bring it to a form of collectiveness, its ... a tool" (2011)

(iii) Mindfulness: watching one's actions both mental and physical; this is often a first step towards the taking of appropriate action to counter negative traits etc.

(iv) Analytic meditations: these techniques are 'contemplative' in nature, and are used for a number of purposes. They require the meditator to sit and think about certain subjects, moving through a set sequence of premises and conclusions. The technique requires the use of,

> "various types of logic; not like a logician ... not to test, but to see if the teaching is valid, to persuade your mind to practise". (1002)

This reveals two uses of the technique.

(1) to check that the Buddhist teachings are valid.

(2) to motivate the meditator in his practice.

The techniques are also used to put meaning into the meditator's life, by reflection on experiences using the framework of the Buddhist teachings encapsulated in these sequences of premises. This reveals a circularity in the use of this technique. The technique is used both as a method of confirming the veracity of the Buddhist principles by reference to every-day experiences, and as a way of viewing one's experiences by using these principles.

The technique is also used in conjunction with concentrative techniques. The meditator analyses a problem until the solution is found, which most often involves tacit knowledge, and then concentrates on this solution.

> "After a period of time ... the mind recognises or realises the truth of this matter and then ... you just focus the mind on the recognition of this truth". (2005)

(v) Visualisations: In this technique the meditator creates an image upon which to concentrate. The image created is

> " similar to the pictures and statues, these are material portrayals of the deities ... one visualises them as being of the nature of light which is apparently the essence and the nature of the mind". (2005)

These images, though imagined, can become very vivid to the meditator, such that one 'can converse with them'. The meditator need not adhere strictly to the formal representations of the deities.

> "I have my own image of Tara, which is just my own special image and it isn't something that came from any other source" (1010)

Meditators reported that they became particularly fond of meditating on specific deities which represent different aspects of the Buddhist path.

> "Each deity represents some aspect or some state of knowledge that we are aspiring to attain and so different people seem to have different feelings for deities". (1016)

The importance of the symbolic nature of the object of meditation was often stressed by the interviewees.

The deities were not just 'out there', the visualisation techniques required the meditator to imagine the deity in a variety of positions.

> "One visualises the different deities, either visualising oneself as a deity or visualises the deity as being perhaps in front of you and facing you, sitting on a Lotus at about forehead height and sending light out towards all sentient beings ... sending light into your nervous system ..." (2005)
> and
> "... sometimes one would visualise this in ones heart, sometimes on your head and sometimes in front of you". (1009)

These visualisations are extremely complex, and contain much detail, they are often practised in conjunction with mantra and sadhana recitation. The sadhanas often contain details of what the visualisation should look like.

Obviously successful visualisation of a deity is an accomplished feat requiring practice. Novices commence by visualising simple shapes, before moving on to more complex images. The process was reported to be one whereby an initially hazy image becomes more distinct with practice.

A number of other meditations were also reported by the interviewees, which span more than one of the above categories.

vi) Purification: A number of variations of these meditations were described by a number of interviewees. A major form of this practice was the 'Nine Round Breathing meditation'. In this meditation the breathing is observed, however one visualises breathing in 'black smoke' and out 'fine white light'. These are imagined to destroy desires, unhappiness etc. Variants differed in the colours of the smoke inhaled and exhaled, and the effects.

vii) Compassion: Here an analytic process is performed to investigate one's relationship to others, in order to feel compassion for them. Once this is done one can send beneficial 'vibrations to other beings' (2001)

viii) Psychic Heat: This technique is used to generate a feeling of warmth within the body, and involves imaging energy flow through 'psychic channels' in the body. Its purpose is to

> "teach you to feel pleasure within your body, without being dependent on external things". (2014)

ix) A number of interviewees reported techniques for bringing about very specific changes in themselves. The specifics of the technique differed but the following description is representative. The interviewee concerned reported uncontrollable anger which resulted in verbal abuse. To control this she would

> "try to create in the mind a situation in which anger would arise and then in meditation to deal with that situation in a dharmic way, other than in the normal way ... (abuse) ... That is to think of and visualise an anger creating situation and then deal with it in a way without anger, a calm way ... One might take a situation that had actually happened ... You can use it for not only anger, but any other type of problem". (1009)

b. Discussion of Meditation techniques

The descriptions of the meditations by interviewees reveal a number of points. We must remember that all these descriptions were in response to a request for information about the techniques only. Hence the descriptions of the effects and the importance of the symbolic meaning of the object of meditation can be regarded as a function of the importance of these for the interviewee rather than as a function of the questioning. For these meditators then, the symbolic nature of the techniques, and the specificity of the effect of each technique is an integral part of the practice of these techniques. Each meditation has a specific purpose. It will combat a specific problem or bring about a specific change in state. The symbolism involved was also stressed. Meditators responded differentially to different techniques, depending on the symbolism involved. They felt that this depended on what they were trying to get out of meditation.

Interviewees would each practise a variety of techniques. Two points are important in discussing the relationship between these techniques. Firstly there was a progression through the techniques during a single session. One might practise a preliminary technique, such as breathing, before progressing to a complex visualisation. Secondly the meditations are hierarchically structured. The meditator is initiated into progressively more 'subtle', 'complex' and 'secret' meditations, as those at lower levels are mastered. The reason for the secrecy of the techniques was explained as

> "There is a vow of not speaking about them in specific detail with people who have not received the teachings because it is thought they can be detrimental to them" (2006)

The techniques are ordered hierarchically because

> "One cannot attain Enlightenment without having done these meditations ... The meditations are arranged in step by step order, of what you need to know in order to reach Enlightenment. You don't need to do one step at a time, you can understand the whole path, but the realisations come in a particular way and that is the way that the meditations are arranged" (1016)

The ordering is strictly enforced and initiation comes only after practice of the previous techniques. These techniques are not discarded by the meditator, but enter a repertoire of techniques, which can be used as desired.

c.Practice

Meditation is generally practiced twice daily, morning and evening. The time taken differed from 10-15 minutes to more than one hour. This was a function of the level of initiation attained, as a vow of practice is taken for each technique taught. However it was reported that one could fulfill one's vows, without doing the practice 'properly',if one was in a hurry.

2.Effects of meditation

a.Experiences

Interviewees reported different amounts of experience from meditation. Those reporting little experience attributed this unanimously to their own ineptitude.

> "Well I am not very skilled at meditation ... and your meditation has to be constant in order to get any effect" (2003)

The specificity of effect from different meditations is again stressed.

> The effect "really depends on what kind of meditation one is doing" (1002)
> "partly what happens depends specifically on what kind of meditation one is doing" (1009)

There was general agreement that breathing meditations and mantra recitation had a calming, concentration enhancing effect.

> "a breathing meditation to calm the mind and to enhance the concentration ... (and so) I'd feel a certain absorption in which I am no longer distracted" (2006)
> "Generally with mantra recitation, I find I get myself a lot more centred ... I feel a lot more gentle and able to cope ... I'm not so prey to ... stupid trains of thought, which do not lead anywhere" (2001)

Some informants reported further effects from these practices.

> "I become very peaceful, kind of aware and in tune with myself. Sometimes its tremendous awakening and opening of consciousness. You really feel in tune with yourself and in tune with everyone else, you cannot describe that feeling in words ... it is blissful" (2003)

It was agreed that mystical type experiences could be induced by these techniques, but that they were more effectively induced by tantric techniques.

Some confusion can arise when refering to tantric practices, as the Puja ceremonies are tantric. The concepts of prayer, offering and meditation are inextricably intertwined for the practitioner of Tantra. The tantric practices are mainly visualisations, and concentration on feelings or ideas generated by analytic meditation. They are practised as

> "with these tantric practices you are attempting to very quickly cause transformations of the body and mind ... In tantric meditations I have had some very strong experiences indeed" (1015)

These experiences include strong emotional feelings, happiness, sadness and physical sensations. The following are typical descriptions.

rising	"I get the impression that I am considerably taller than I am ... I'm unable to distinguish if I'm simply lifted off the floor or whether I am stretched" (1010)
out of body	"I've had an experience where I almost left my body. It has been as if my body hasn't been there, not as if I floated out of my body, more as if my body has just ceased to exist" (2014)
energy	"Sometimes an incredible amount of energy, so that I can't go to sleep at night" (1010) Or in terms of an energy flow in the body "A feeling of energy rising up through the body" (2011)
impermanence	"there is a very definite experience of it (impermanence) which is not specifically conceptual.... it is a very intuitive feeling" (2012)
visions	"I saw a beautiful light pink heart chakra" (2014)

Some interviewees, as well as concrete descriptions of experiences, gave abstract accounts of their meditations, such as

> "seeing the reality of the situation"(2001)
> "it eliminated all doubt and confusion" (1002)
> "my usual experience just comes from my mind, getting things to make sense" (2008)

> "(it gives) a form of knowledge which has become your own. It will only happen through meditation. It cannot happen through intellectualisation. You have to find your own personal experience ... otherwise it is not your knowledge, its just other people's knowledge in your head" (1015)

They generally felt meditation gave them knowledge and understanding and was worthwhile, putting meaning into their lives. In fact for many this was such that it was

> "a very uplifting experience. In fact I think the most uplifting and I think one of the most exciting and important or meaningful experiences that I have ever had" (1015)

Meditation made life more meaningful, even if there was no experience one continued to 'work on oneself' because

> "Even if there is no inner kind of feeling coming at all and it is merely an exercise I am going through, I know that by repeating the exercise, then eventually some feeling is going to come" (1009)

Some informants complained that it was very difficult to describe their experiences. The most articulate about this problem put it thus

> "So much is just open for interpretation, for, if you put anything like that into a relatively concrete form, the language will just express that and just trap it. One thing is that it tells you how to use language and to be able to see the relativism. But really it is very difficult to put my experience into words" (2011)

He did however manage to do so with some success.

b. Distractions

There was a high level of agreement on the sources of distraction during meditation.

Most informants reported thoughts to be the major type of distraction. These were predominantly mundane thoughts about everyday subjects, eg. 'work', 'other people', 'what had been said', 'personal problems', or 'just random thoughts'. The opposite problem to this, 'overactive mind', that of dullness and fatigue, was also commonly reported as distracting.

Distractions from the external environment were also reported but were of lesser concern. The predominant external distraction was noise, but one informant complained about brightness of the light. Two informants

reported physical discomfort, aches, cramp, to be distracting.

c. Effects after meditation

Informants reported beneficial effects on their lives from meditation practice. This was both in terms of improvement of the day by practising in the morning and long term changes of personality.

> "A day started with meditation goes or seems to go better than a day when one misses it" (2005)
> "Over a long period of time the personality slowly changes. You become, I think, less interested in a lot of the manic pursuits which characterise most activity ... it seems to be a combination of giving up and acceptance of where one is at" (1000)

One informant reported beneficial physical effects on her health from meditation.

Some informants indicated that missing meditation made them feel bad, guilt playing a part in this. Sometimes, if meditation did not go well, the meditator would feel unhappy or agitated after meditation.

d. Success

The question about success of meditation caused initial problems because of ambiguity. Informants were thus asked to explain their terms of reference when answering. There was apparent disparity in individuals' assessment of their success, however this was reduced when the terms of reference were explicated. Some reported their success as a proportion of their practice, ranging from $^{4}/_{5}$ to $^{1}/_{7}$ of meditations being successful. However this was qualified by most in one of two ways.

1) That the successful-unsuccessful distinction was meaningless. Every meditation was successful because it had been done, since by meditating one must be progressing, whether one recognised it or not.

2) That their meditation was, even when they considered it successful, rather trivial in terms of what could be achieved through meditation.

These two appear to be similar, as both groups were measuring their success against a scale, in terms of which they had made fairly little progress.

e. Adverse effects

Nine interviewees reported they had had no adverse effects from meditation. Two of these reported they knew people who had had adverse effects. One initially reported no adverse effects, but qualified this to the effect that he had had effects that could be described as adverse, but which really represented a cleaning out of bad aspects of himself, 'a ripening of negative karma ', and which were beneficial in the long term.

Eight interviewees reported adverse effects, refering to these as 'Lung', a meditators' ailment, the symptoms of which were manifold. These symptoms included both physical and psychological components, such as tightness in the chest, general aches and pains, intestinal upsets, headaches, and feeling 'unhappy', 'dispirited','agitated' and 'negative'. However all these interviewees reported that these effects were caused by clumsy or overzealous practice of meditation rather than being due to the technique per se.

f. Discussion of meditation effects

The effects reported as induced by meditation included both therapeutic and mystical types, most informants reporting both types. The specificty of the effect of different meditations was generally stressed. Whether this specificity is a function of the technique per se. or whether it depends on the expectation of a specific effect by the meditator is not clear. However that the same sort of experience can be very differently interpreted by meditators, depending on their beliefs about the meaning of that experience was apparent. One relatively novice meditator said of

'out of body' experiences,

> "I am kind of suspicious of that kind of thing, as I feel that you can bring it upon yourself, and then you feel it is terribly meaningful, but in fact it is only because you have treated your body in a certain way" (2007)

However an experienced ordained meditator, who reported having been taught much about this subject said, that it was a question of,

> "getting a very different sense of yourself.... you can lose your usual feeling of who you are and what you are and get a strong feeling of being closer to having an enlightened body ... In other words you experiment with feeling your body can manifest in trillions of forms that fly around and things like that" (1015)

For her these effects were of importance and were useful. Her beliefs about the effect influenced the way she experienced the effects.

All the meditators felt meditation was very worthwhile. Meditation for them was especially important as a means of making their lives meaningful, a technique for self improvement. The effects of meditation were always beneficial to the meditator. When some adverse effect was identified as being connected to practice, it was either seen in terms of a therapeutic release (similar to the unstressing of T.M.) or due to some fault on the meditator's part. Never could the technique in itself cause an adverse effect. The meditators might also find themselves feeling bad if they did not practise meditation. They all felt that they were relatively unsuccessful meditators, not yet having progressed very far towards the ultimate goals of meditation.

The picture is one of people highly committedto a system of beliefs about meditation practice, and using this system in their interpretation of the effects of that practice.

3. General outlook

a) Purpose in meditation.

The informants' purpose in meditation was to reach Enlightenment, and

to help others. This was generally put in terms of learning to understand one's own mind, in order to change it and become a better person. This would lead to a state beyond suffering, so that one could be genuinely altruistic and gain 'a right view of reality'. There were thus the dual components of changing oneself and to do this for the benefit of others. This is an expression of the bodhisattva ideal (c.f. p 82).

b) Reason for taking up meditation

All interviewees reported taking up meditation because of a feeling that there was something basically wrong with the way they were. They all felt there was something wrong with society and their place in it.

> "I felt dissatisfied with life, that nothing else was worthwhile" (1000)
> "a feeling of being unfulfilled and not finding a great deal of purpose in the way people usually lead their lives"(2003)

Some felt the problem was more their own than society's.

> "I heard that meditation could do wonderful things for the mind and I had become increasingly aware that my own mind was completely out of control ... I wasn't good at making decisions and I couldn't think logically and I couldn't express what I wanted to say" (2005)
> "I was very inadequate most of my life, blaming other people, situations, and the country I lived in, when it was me myself that was the problem" (1016)

One interviewee put a very different interpretation on the nature of her state that led her to meditation.

> "I have come to the conclusion that I became interested in it only because I must have had some very strong experiences with meditation and probably Buddhism, in past lives" (1015)

c) Purpose in life.

Fourteen interviewees reported their purpose in life to be the same as their purpose in meditation; either responding nearly identically or saying they wished to be better meditators and Buddhists. Four felt their lives to be rather purposeless.

d) Belief in God.

All interviewees denied the existence of God as conceived of in the Judaï-Christian tradition. Eight were categorical denials, six believed God, as some impersonal indefinite process or entity, did exist. It was often pointed out that in Tibetan Buddhism there were deities but no supreme God. Some abstract godhead did exist, this being refered to as connected with Buddhahood.

e) Destiny Control.

Only one interviewee denied control of destiny, contending that it was impossible. Seven responded that they did control their destinies, two qualifying this by saying they were learning to do so more fully. Ten responded they did not at present control their destinies, but potentially could, meditation teaching them how to do so.

4. The Ganzfeld

The descriptions of the Ganzfeld by the interviewees differed greatly. Three groups of descriptive types are discernible, as described in the formal analysis of the interview data. (p.108)

1) Those who reported no effect

eg. "Nothing .... expected to see some pictures" (1000)
"A white made yellow by the light" (2011)

2) Those who reported the Ganzfeld effect in prosaic terms.

eg. "the light seemed to flash and pulse" (2006)
"it just stayed white, but then every now and then it would go black" (2013)

3) Those who reported the Ganzfeld effect in poetic or elaborate terms.

eg. "Your mind gets kind of drawn into it, and loses its whole sense of proportion ... its like drugs or that I am drunk" (2003)
"I started seeing clouds of light and flowers" (2008)
"It became apparent that there was less seperation between what was being observed and the thing doing the observing" (2012)

5. Questions adapted from the M.scale (Questions 10 - 16)

These questions were answered primarily by Yes/No responses. These were however qualified by respondents in the following ways.

Q10 "well contentment yes"

Q11 "No, I could probably verbalise most of the experiences I have had"

Q12 "a tiny bit"

Q13 "well timeless"

Q14 "only in a small way"

Q15 "superficially" "a glimpse"

Q16 "No,not in the Buddhist sense anyway"

The yes/no responses are analysed in the formal analysis of the data.

CHAPTER 9

RESULTS OF THE INTERVIEW: A CONTENT ANALYSIS

Results of Content Analysis of Interview data

The content analysis technique previously described was used to analyse the interviews conducted. Intercoder reliability of this technique was calculated for both the coding of the three interviews coded by all five coders and the coding of all 18 interviews by two coders.

1. Intercoder reliability

There are two tasks to be performed by the coder when coding the interview transcripts. First the coder must decide that some piece of the text should be coded, in that the interviewee is expressing an expectation, experience or aftereffect, regardless of which of these is being coded. Having decided that an expression is codeworthy, the coder must categorise that expression.

Thus we will treat in turn each of these.

(1) What is coded: The normal test of intercoder reliability is Cohen's Kappa coefficient, (Cohen, 1960). This test is however, inappropriate for the present purposes, since there is no prior way of determining the units about which the coders may agree or disagree; for part of the purpose of the coding is to determine these units. The use of some arbitrary unit for this analysis, such as words or lines of text, would produce an artificially inflated value of Kappa.

It was therefore decided that for this aspect of the analysis, the percentage agreement method was more meaningful, in spite of criticisms of

its use (Holsti, 1954, p. 660; Robinson, 1957, p. 19). This is because it will be specifically related to the areas of the coding which are more ambiguous, being based on decisions to code a piece of text, and using the unit of the content analysis.

The percentage agreement for the primary decision was calculated using Schutz's method (Schutz, 1952). For all 5 coders coding the same 3 interviews the percentage agreement (p.a.) was calculated to be 86.54%. For the 3 coders who coded only these 3 interviews p.a. = 82.54%. For the 2 coders who coded all 18 interviews p.a. = 86.20% over those 18 interviews.

There was thus high agreement between coders on which theme units of the message to code.

2) How it is coded: To ascertain the intercoder reliability in the use of the categories Cohen's Kappa statistic is the appropriate test. This was calculated as described by Leach (1979). Since we are interested in expressing the nature and position of intercoder differences, each coder was compared with every other coder. The Kappa values calculated for all coders over the 3 interviews coded by all are presented in table 9.1.

Table 9.1 Kappa values for intercoder reliability.

	coder 1	coder 2	coder 3	coder 4	coder 5
coder 1					
coder 2	0.495				
coder 3	0.535	0.717			
coder 4	0.550	0.663	0.581		
coder 5	0.515	0.663	0.690	0.588	

In addition Kappa was calculated for the intercoder reliability between coders 4 and 5 over all 18 interviews coded by these two coders to be $K = 0.616$

These levels of Kappa indicate high intercoder reliability.

Coder 1 shows consistently the lowest agreement with the other coders. These levels of agreement are impressive when considering that 36 content categories are used and that an unweighted Kappa was used, which only measures complete agreement (i.e. it is not weighted for near agreement as is a weighted Kappa (see Light 1971; Fleiss, 1971 and 1973)). When observing the content categories used by coders, it was noted that nearly all intercoder disagreements are to be found in the use of the sub-categorisation rather than major categories, (the sort of near agreement a weighted Kappa would allow for).

2. Statistical analysis of interview content

The analysis of the interview data presented below is based on the content analysis of the interviews performed by coder 4. Before presenting this analysis, however, it is necessary to describe certain features of the content analysis scheme which have bearing on the way the data will be analysed.

a) Theoretical issues

i) Hierarchical nature of the content analysis scheme:

The content analysis scheme devised is hierarchical in nature. The first level (s.o.c. change) of the scheme explicates whether the unit being coded contains any reference to a change in state of consciousness. Depending on the affirmative or negative coding at this level, the ensuing categorisation passes to levels 3 (therapeutic/mystical), or 2 (nature of change if no s.o.c. change) respectively. Level 2 distinguishes the nature of the unit when no s.o.c. change is reported and if a therapeutic change is reported this is subsequently coded in level 4 (therapeutic). Level 3 represents whether s.o.c. change is related to in therapeutic or mystical terms. It is not until levels 4 (therapeutic) and 5 (mystical) are

reached that the nature of the units are explicated.

There are thus two points to be made: a) All levels of the analysis cannot be treated simultaneously since they are not independent (there is a correlation between values in cells across certain levels). b) For the purpose of an investigation of the relationship between expressed expectation and experience and between different groups of interviewees the pertinent levels are 4 and 5, as it is here that the coded units are most fully explicated. It is on these two levels that our analysis will thus focus.

ii) Rejection of the assumption of a linear relationship between frequency of occurence and importance of content attributes:

The author rejected the assumption of a linear relationship between the frequency of occurence of expression of a recording unit and its importance as a content attribute to an interviewee (q. v. pp.87-90). What is important is whether or not a recording unit is expressed by an interviewee, and the number of times it is expressed adds relatively little information. Accordingly each unit is scored as present or absent for each interviewee, and the analysis is carried out on the data in this form. Subsequently statistical techniques applicable to nominal data are used. This transformation of the data will be described below.

iii) Specificity of content analysis categories:

The specificity of the content categories differs greatly through the levels of the content analysis scheme. There is a great difference in the meaning of units coded at different levels. This resulted in sub-categories e.g. 4iibII (understand the source of suffering and accept as inevitable because of the nature of the world) being used relatively infrequently. Because of this the analysis will be directed only tothe main categories, sub-categories being counted in their main categories. That is, in the above case, at 4ii (understand the source of suffering). This facilitates the analysis also in that it makes the content categories in levels 4 (therapeuti

and 5 (mystical) highly compatible.

iv) Infrequency of values in cells:

The initial inspection of the data revealed that there were few reports of aftereffect from meditation. Moreover we are at present interested in the relationship between expectation of effect and actual effect of meditation, be that effect an experience during meditation or a long term effect of meditation. Therefore the experience and aftereffect categories were amalgamated to present a single category, experience from meditation.

Having thus made some general points about the data and the way they are treated, we will turn to the analysis.

b) Practical Issues.

Transformation of data:

The data coded on the coding sheets for each interviewee (see p. 107 Table 6.2), were summarised on a contingency table (18 x 3 x 36), each cell of which contained the total number of items coded for that interviewee on that content category as either, an expectation, experience, or aftereffect. This was transformed to a contingency table of dimensions (16 x 2 x 18) representing the 18 interviewees on the 16 categories for expectation and experience. On this table the occurence/non occurence of a value in each cell only was represented.

For the analysis of the correlation between expectation and experience for interviewees in which the phi coefficient (Ferguson, 1959) was calculated the following method was used. The data across all interviews for each content category, was transformed into a 2 x 2 contingency table as below (table 9.2), such that cell A contains the number of interviewees

Table 9.2

		Experience 0	Experience 1
Expectation	1	A	B
	0	C	D

0 = non occurence
1 = occurence

see text above for explanation

who expressed expectation but not experience, cell B both expectation and experience etc. Thus phi coefficients for the interrelation between expectation and experience for interviewees could be calculated.

c) Analysis of data.

Expectation and experience:

A preliminary exploration of the content analysis data revealed that for 64.1% of experiences expressed, there was also expression of an expectation for that effect. This is merely a crude measure of the relationship between these two, requiring closer examination.

We will first analyse the relationship between expectation and experience over all interviews, before turning to look at differences in the expression of these by lay and ordained interviewees.

The specific hypothesis being tested in this section is: H.1. That the theme units coded as expectations are positively correlated with those coded as experiences, such that interviewees report experiences for which they also express expectation. The data upon which this analysis is based are presented in table 9.3. This table presents the data as occurence or non occurence of expression of expectation or experience on each content category for each interviewee. A"1"indicates that the expression occured at least once, a blank indicates that it did not occur for that category for that interviewee. Only levels 2 to 5 are shown here since all interviewees have occurence values in 1A, bar 1 ordained for experience and 2 lay for expectation and all have occurence values for 1B. This level thus offers very little information.

Figure 9.4 presents the relationship between the occurence of experience with and without expectation at levels 4 (therapeutic) and 5 (mystical) plotted as percentages, for each category. Phi values (Ferguson, 1959) for these categories are also presented. This figure suggests an inter-relationship between expression of expectation and experience. The phi values for these categories are presented graphically in figure 9.5. These

TABLE 9.3

Occurrence of expression of expectation and experience for each content category for each interviewee, as member of ordained or lay group. (Data on which rest of analysis is based).

Legend: 1 = occurence

blank = non-occurence

Interviewee Number	EXPECTATION														Individual Total	EXPERIENCE													Individual Total	
	2A	2B	2C	3T	3M	4i	4ii	4iii	5A	5B	5C	5D	5E	5F		2A	2B	2C	3T	3M	4i	4ii	4iii	5A	5B	5C	5D	5E	5F		
1000	1	1	1	1	1	1	1	1		1	1			1	11	1	1		1	1	1	1	1		1					8	
1002	1	1	1		1		1	1		1				1	8	1	1	1	1	1	1	1	1		1			1		10	
1009	1	1	1		1	1	1	1		1				1	9	1	1	1	1		1		1		1					7	
1010		1	1	1	1	1	1	1							7				1	1	1	1	1		1				1	7	Ordained
1015		1	1	1	1		1	1		1				1	8	1	1		1	1	1	1	1		1				1	9	
1016		1	1		1		1	1		1					6	1	1			1	1	1			1			1	1	8	
1017		1	1		1		1								4		1				1								1	3	
Category Total	3	7	7	3	7	3	7	6	0	5	1	0	0	4	53	5	6	2	5	5	7	5	5	0	6	0	0	2	4	52	
2001	1	1	1		1			1		1					6		1	1	1	1	1	1	1		1			1	1	10	
2003		1		1		1	1						1		5		1		1	1	1			1	1			1	1	8	
2004		1		1	1		1	1							5				1	1	1		1			1			1	6	
2005			1	1	1		1	1		1			1	1	8				1	1		1	1		1		1	1	1	8	
2006		1	1	1	1		1	1		1					7		1		1	1	1	1	1				1		1	8	Lay
2007		1			1			1		1					4			1			1								1	3	
2008		1	1	1			1	1							5			1	1	1	1			1						5	
2011	1	1	1	1	1	1	1	1		1		1		1	11				1	1	1	1		1	1		1	1	1	9	
2012	1	1		1	1		1	1		1					7	1	1	1		1	1		1		1					7	
2013	1	1	1	1	1		1			1			1		8		1			1	1			1	1	1	1	1	1	9	
2014		1		1	1	1	1	1						1	7		1		1	1	1						1	1	1	7	
Category Total	4	10	6	9	9	3	9	9	0	7		1	3	3	73	1	6	4	8	10	10	4	5	4	6	2	5	6	9	80	

Figure 9.4

Plot of percentage of those reporting experience who also report expectation, and percentage of those reporting experience who do not report expectation of an effect for each category of the content analysis.

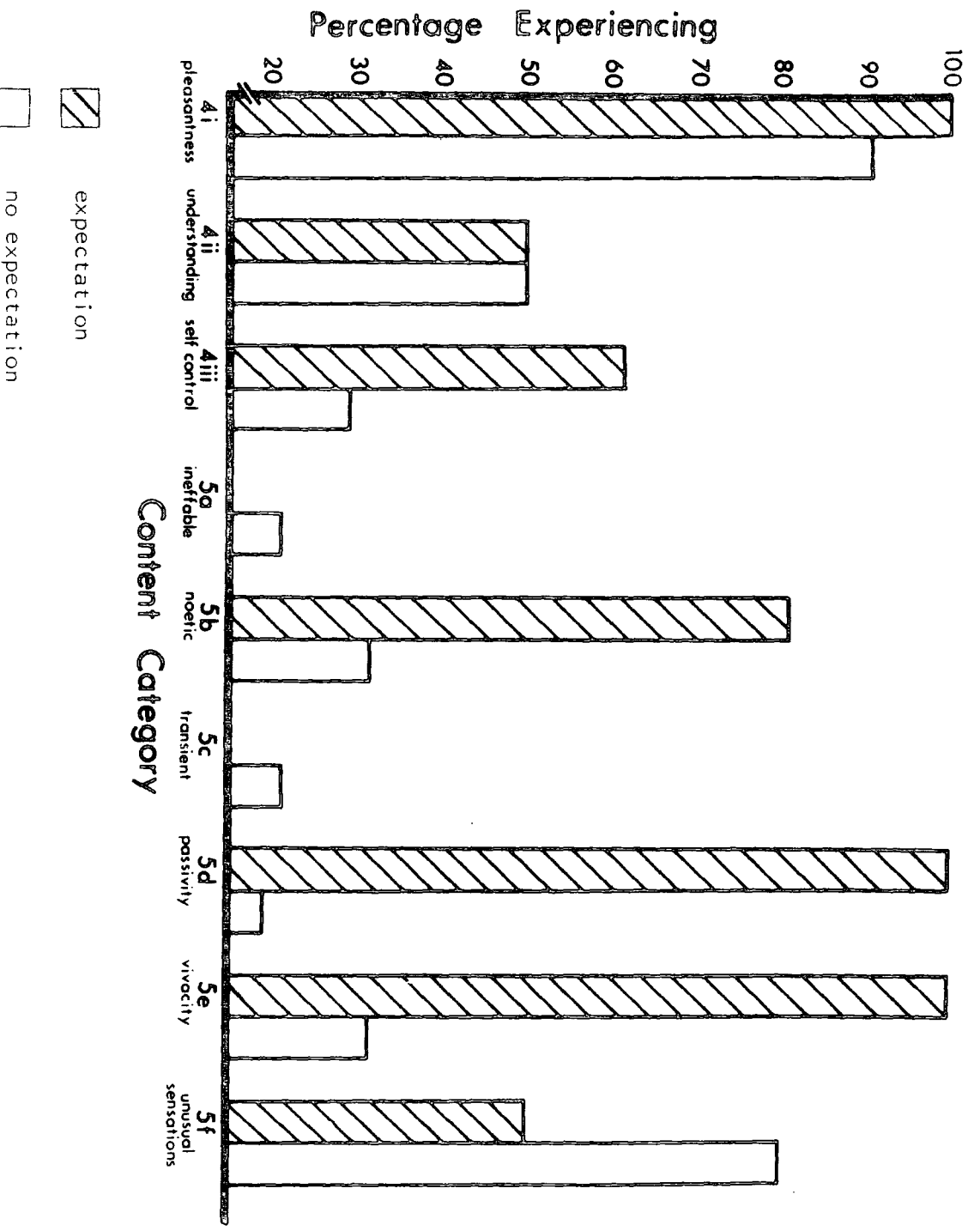
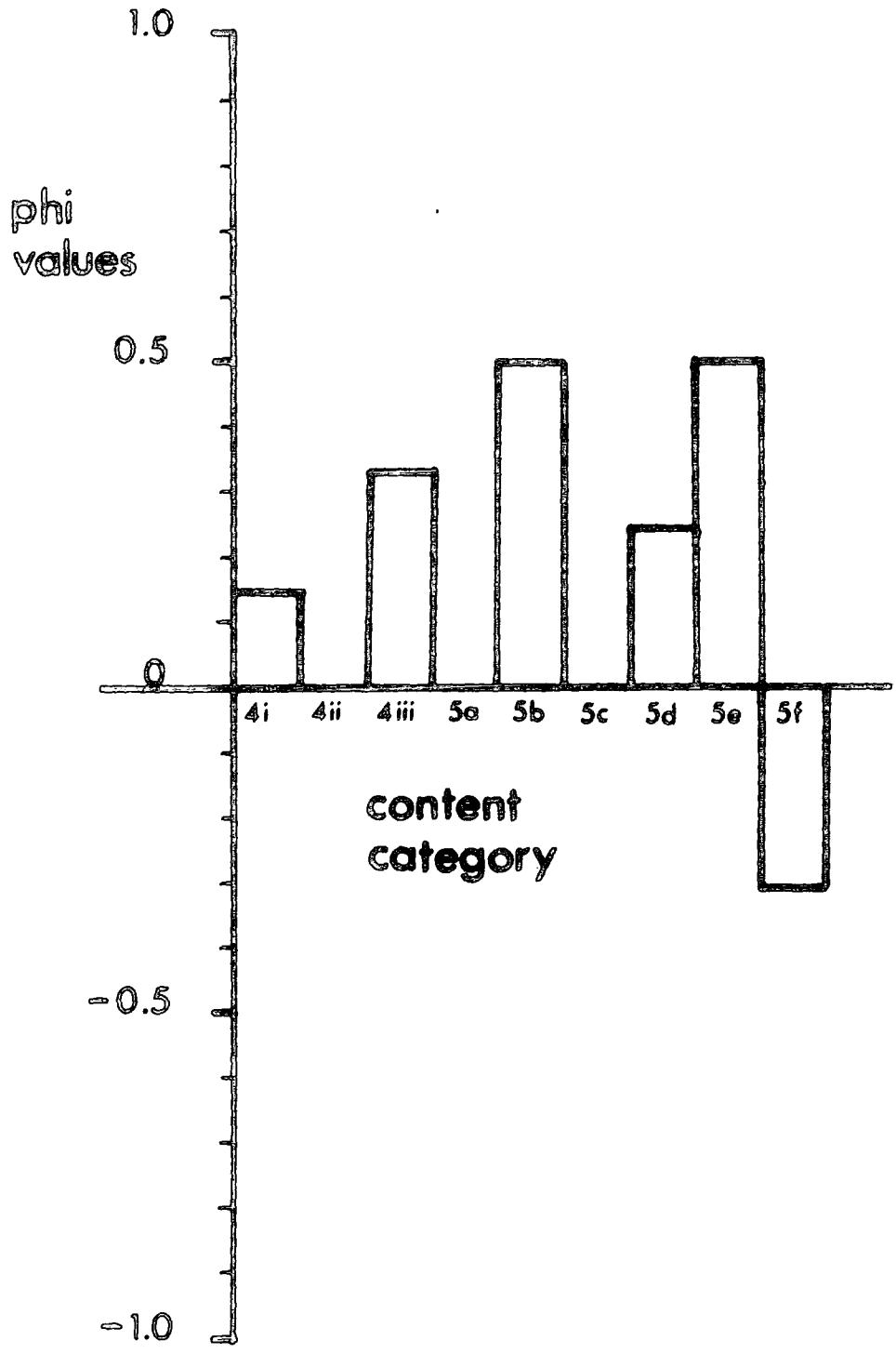


Figure 9.5

Values of phi coefficient for the correlation between expectation and experience for each content category of levels 4 and 5 for all interviewees



values of the phi coefficient reveal a positive correlation between expectation and experience for four categories, and a negative correlation for the fifth category.

Four of these categories are of particular interest having reasonably large values in all cells.

4iii (self control)

5b (noetic)

5e (vivacity)

5f (sensations)

Inspection of figure 9.4 indicates that for 3 of these (4iii, 5b, 5e) if the interviewee expresses an expectation he/she will also express an experience. However, for the fourth category (5f) the converse is true.

Differences between lay and ordained groups

Figure 9.6 presents the interrelationship between expectation and experience for the lay and ordained groups for the total number of expressions of these for each interviewee over the 14 categories in Table 9.3. This figure suggests that there is no overall difference between these two groups on these dimensions, in terms of the gross number of expectations and experiences reported. t-tests (Robson, 1973) calculated to test this, confirmed there were no significant differences between the groups at α =.05, (d.f. = 16, two tailed test, t = 2.12), for expectation (t = 0.9100) or experience (t = 0.1541). However if we plot these data so as to explicate the categories from which these overall totals are drawn up, there appears to be more difference between the groups.

Figure 9.6

Total number of expectation and experience category expressions expressed per interviewee in each group.

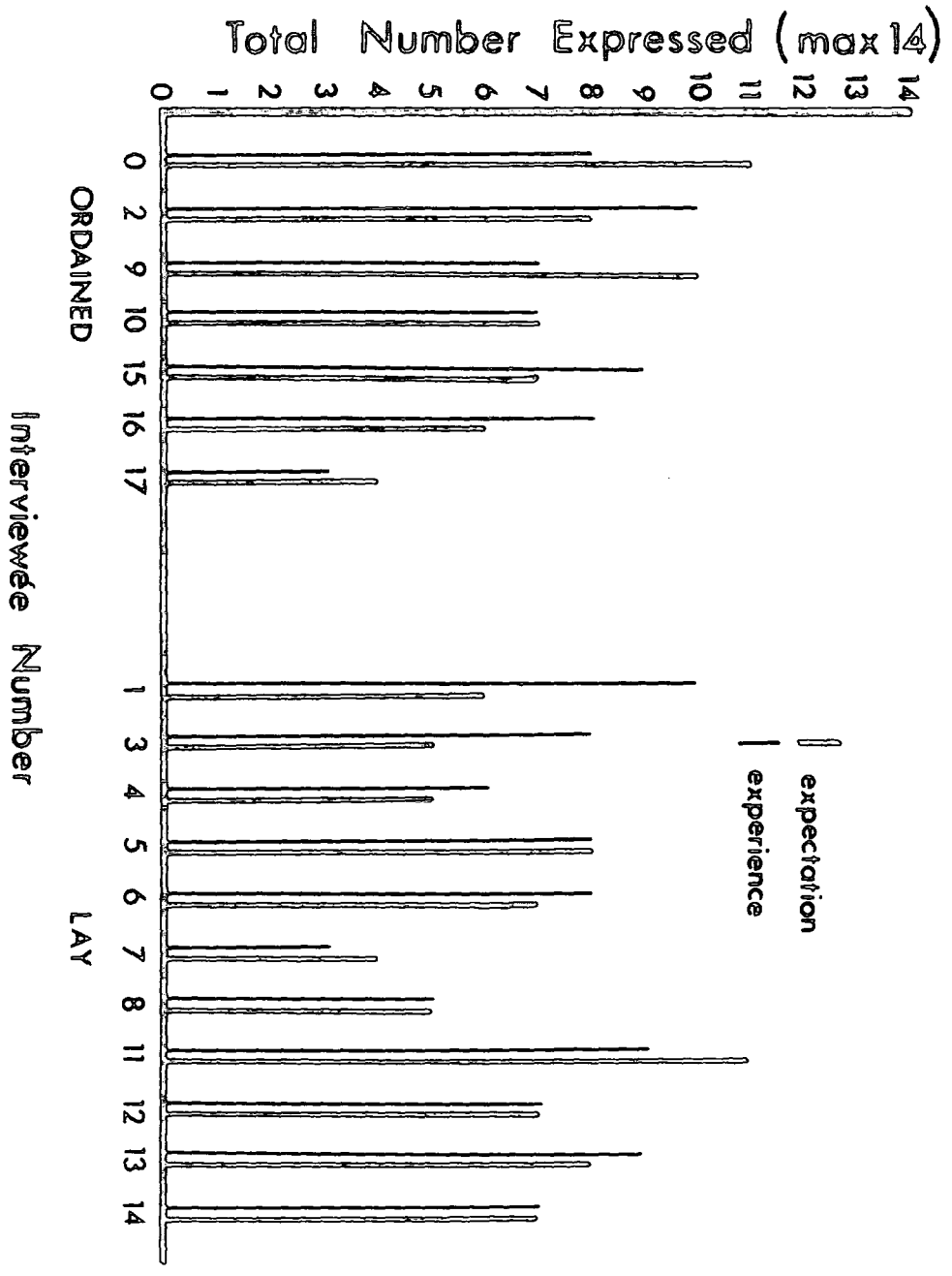
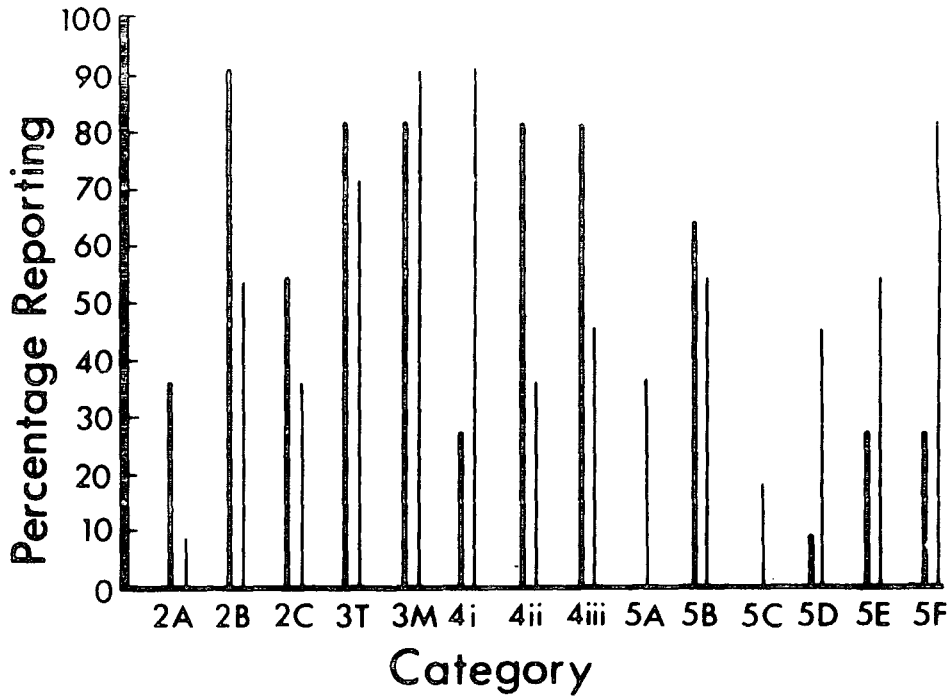
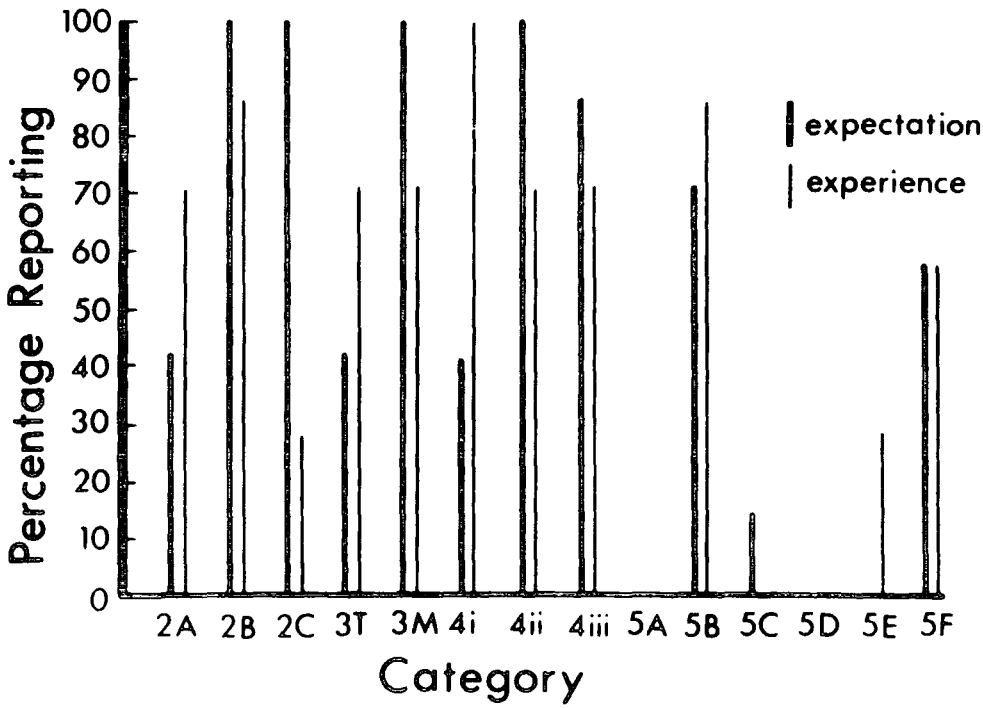


Figure 9.7

i) Percentage of lay reporting expectation and experience for each category of the content analysis.





ii) Percentage of ordained reporting expectation and experience for each category of the content analysis

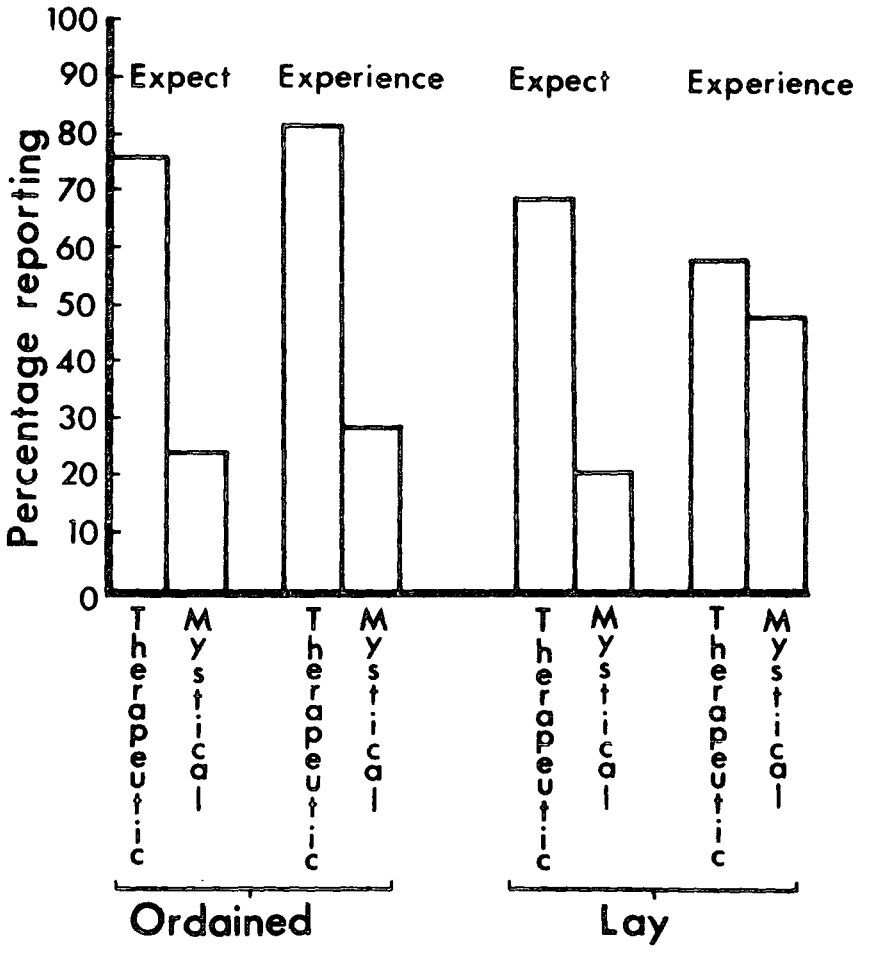
(figure 9.7). It must be noted when inspecting this figure that the interaction between expectation and experience for specific individuals is not represented. It does appear from this figure, that although the expectation and experience for the two groups are similar for levels 2 (no s.o.c. change), 3 (therapeutic/mystical) and 4 (therapeutic), there appears to be considerable difference in the patterning of the data for category 5 (mystical).

Levels 4 and 5 are considered in more detail as these are the two levels in which the core of the coding takes place. To explicate the relationship between expectation and experience for the two groups for the categories of these two levels (4 (therapeutic) and 5 (mystical)), we plotted the percentages of the number in each group expressing these effects, weighted for the different number of categories under each head (figure 9.8). This enables us to see the differences in the reporting of expectation and experience for these levels by the two groups and takes into account the probabilistic differences in the use of the two levels that one may expect because of the different number of cells in each level.

This figure suggests that although there is little difference in the expectation and experience of the two groups for the therapeutic type effects, there is a difference for the mystical type effects, such that although the lay expect these effects similarly to the ordained, they experience them considerably more than do the ordained.

Figure 9.8

Expectation and experience of lay and ordained for therapeutic and mystical effects: expressed as percentage of interviewees in each group reporting and weighted for number of categories under each heading.



To compare the differences in expression of expectation and experience between the lay and ordained groups at these two levels, (4 therapeutic and 5 mystical) a series of Mann-Whitney tests (Robson 1973) were performed. The rationale for the comparisons carried out requires some explanation. Instead of comparing directly the therapeutic and mystical expectations and experiences for the two groups we compared the difference between the expression of therapeutic and mystical descriptions for expectation and experience between the groups. This procedure was adopted as a simple comparison of the levels of expectation and experience for therapeutic and mystical effect by the two groups would not take into account the possibility that one group simply said more overall during the interviews than the other. The present procedure, by comparing the differences between expression of therapeutic and mystical effect, is comparing relative levels of expression of these effects rather than absolute levels, and is thus not confounded by the possibility that the groups differed in absolute levels of utterances. The results of these comparisons are presented below in table 9.9

Table 9.9

Results of Mann-Whitney tests on differences in expression of expectation and experience for therapeutic and mystical effects for lay and ordained groups.

Comparison	Na	Nb	Critical Value of U	Observed Value of U
lay expectation vs ordained expectation	7	11	16	36
lay experience vs ordained experience	7	11	16	14 *
lay expectation vs lay experience	11	11	30	27 *
ordained expectation vs ordained experience	7	7	8	22.5

* significant at α =.05 two tailed test

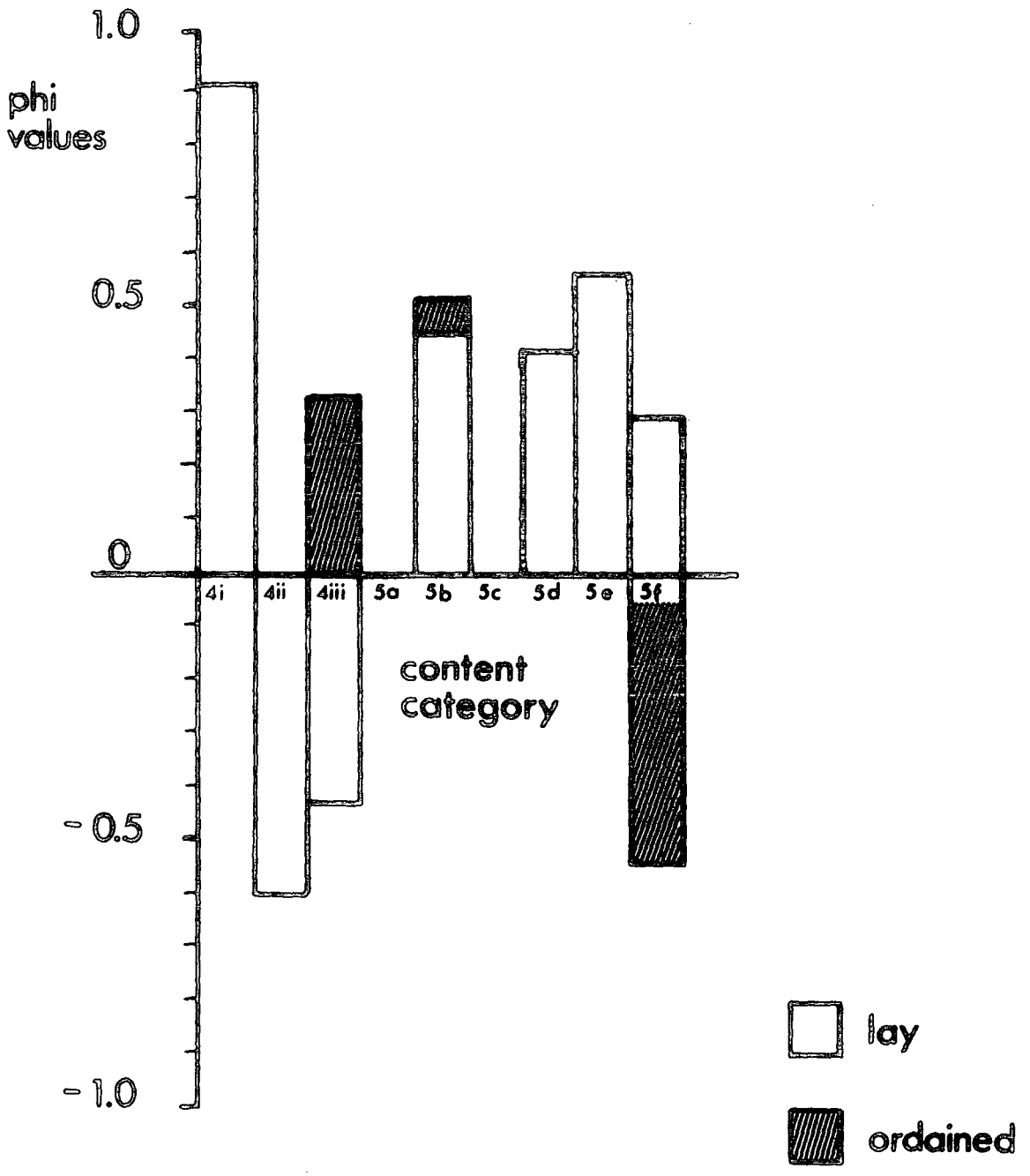
From this we can conclude that although the expression of expectation and experience is similar for the therapeutic type effects for the two groups, there is a significant difference for such expression of mystical effects. Inspection of figure 9.8 reveals that this difference is such that although lay and ordained express similar expectations and experience of therapeutic effects and also express similar expectation of mystical effect, the lay report more mystical experiences than the ordained and more mystical experiences than would be predicted from the number of expectations reported. That is the lay report disproportionately more mystical experiences, than do the ordained.

We will now examine the interaction between expectation and experience for the individuals within the two groups for levels 4 (therapeutic) and 5 (mystical). Phi coefficients (Ferguson, 1959) were calculated for the lay and ordained groups of meditators. The values of phi calculated are presented graphically in Figure 9.10. It can be seen in this figure that there are positive correlations for the lay between expectation and experience for categories 4i(pleasantness), 5b(noetic), 5d (passivity) 5e (vivacity) and 5f (sensations). These are such that the lay member reports experience for which he/she also expresses expectation. However for categories 4ii (understanding) and 4iii (self control) there are large negative correlations, such that although they express expectation they do not report many experiences for these categories. The two zero correlations result from the fact that there is no expectation of effect for these categories, even though some experience is reported.

For the ordained the relationship between expectation and experience differs somewhat. Only for categories 4iii (self control) and 5b (noetic) are there positive correlations between expectation and experience, such that the ordained report experiences for which they also express expectation. However for category 5f (sensations) there is a large negative correlation, such that some ordained report experiences for which they did not express

Figure 9.10

Values of phi coefficient for the correlation between expectation and experience for each content category of levels 4 and 5 calculated separately for the two groups of interviewees.



expectation and others express expectation but do not report experiences. For all other categories there are zero correlations. These result from respectively 4i (pleasantness): all individuals report experience, some expressing expectation of this and some not.

4ii (understanding): all individuals express expectation, only a minority report experience.

5A (ineffability): no individuals express expectation or experience.

5C (transient) and 5d (passivity): all individuals express no expectation, only a minority report experience.

It appears, thus, that the overall negative correlation for category 5f (sensations) (see above (pp145-6) is dependent on the large negative correlation between expectation and experience for the ordained group. The overall positive correlation for 4iii (self control) appears to depend on the positive factor supplied by the ordained. The zero overall correlation of 4ii (understanding) appears to depend greatly on the ordained's zero correlation based on expectation without experience. It must also be noted that all the individuals' data combine to make a different matrix of interaction which cannot be adequately described by the simple combination of the two correlations. These latter suggestions, indicate the source of the major components of the interaction matrix for the two groups.

These phi coefficients enable us to see some of the sources of the differences in expectation and experience of the therapeutic and mystical effects of the ordained and lay groups. There is a more considerable correlation between expectation and experience for the lay, whereas this does not exist for the ordained. This relationship for therapeutic effects for both groups is more ambivilent.

We will now turn to the analysis of the more general levels of the content analysis, levels 1-3.

Levels 1 to 3: These levels will be dealt with separately. However two general points can be made about these three. Firstly it must be noted that for many of the categories there is a correlation between the data on which they are based and that on which the above analysis is based. Secondly these categories are more general in nature than those which the above analysis investigates. This may result in a confounding of the results because of their generality.

Level 1 (s.o.c. change): The phi coefficients for level 1 are presented in table 9.11. All the phi values for this level are 0.0, except for 1A overall. These values of phi represent no or at most a negligible relationship between expectation and experience for this level. This is due to the inclusion of units in both expectation and experience in nearly all cells, this being a function of the generality of this level.

Level 2 (terms when no s.o.c. change): The phi coefficients overall indicate a positive correlation between expectation and experience. These, however, are for categories 2A (motivation) and 2C (knowledge) only indicative of a weak interrelationship. These two appear to be less expressed by interviewees than do the 2B (therapeutic) expressions (q.v. table 9.3). For the two groups of interviewees the lay reveal a low negative correlation for 2C, but positive correlations for 2A and 2B. The ordained reveal only a moderate correlation for 2A, zero correlation for 2B and 2C.

Level 3 (therapeutic/mystical terms if s.o.c. change): There are overall moderate positive correlations for both categories, T (therapeutic) and M (mystical). These differ for the lay and ordained groups, in such a way as to reflect the difference in the relationship between expectation and experience for the two groups over therapeutic and mystical effects. The ordained show a greater amount of expectation and experience for therapeutic effects (raw data) and the correlation between these for

Table 9.11

		overall	lay	ordained	
Level 1	A	-0.085	0.0	0.0	*
	B	0.0	0.0	0.0	*
Level 2	A	0.10	0.13	0.55	*
	B	0.34	0.35	0.0	*
	C	0.15	-0.15	0.0	
Level 3	T	0.38	0.24	0.54	*
	M	0.39	-0.12	0.0	*

Table of phi values for categories levels 1 to 3 overall and for lay and ordained groups.

* correlated with levels 4 and 5

individuals is high. However that for mystical effects is non-existent. The lay, on the other hand, show a less consistent relationship between expectation and experience for both types of effect, the therapeutic being a low positive correlation and the mystical a low negative correlation. This negative correlation is in contrast to the positive correlations for the categories of level 5 (mystical).

Summary

Intercoder reliability for the content analysis scheme is high. There is a significant overall correlation between expectation and experience, such that meditators report experience for effects for which they express expectation. The patterns of expectation and experience for the lay and ordained groups differ significantly. The lay report more mystical experiences compared to their expectations than do the ordained. For the individuals who make up the two groups the relationship between expectation and experience for specific effects differs considerably. The differences in the groups is most marked at level 4 and 5 where the effects are most explicitly described. These differences are however reflected in higher less specific levels of the analysis.

It has thus been demonstrated that there is a relationship between expectation and experiences and that these differ for lay and ordained meditators. We will consider these in more detail in the conclusions.

Statistical analysis of Questions adapted from the M.scale.

Yes/No responses by the ordained and lay groups to the questions adapted from the M. scale are summarised in Table 9.12.

Table 9.12 Responses to M.scale questions

Question Number	Experience described in question	Total Yes responses	Total No responses	Proportion of ordained responding positively	Proportion of lay responding positively
10	peaceful state	7	11	0.29	0.45
11	incommunicable in words	14	4	0.57	0.91
12	profound joy	13	5	0.43	0.91
13	beyond time and space	6	12	0.29	0.36
14	new reality	15	3	0.86	0.82
15	ultimate reality	4	14	0.14	0.27
16	unity of all things	6	12	0.14	0.45
		65	61		

Results of a t-test, performed to test the hypothesis that the lay respond more in the affirmative to these questions than the ordained, reveal a significant difference $t = 3.138$, ($\alpha = .05$ d.f. = 6, one tailed test $t \geq 1.943$).

We can thus conclude that the lay meditators respond more in the affirmative to these questions than do the ordained. That is, in so far as these questions measure occurance of mystical experiences, the lay have had more mystical experiences than the ordained.

Statistical Analysis of Ganzfeld Data

i) Intercoder reliability.

Intercoder reliability of the use of the three categories for the coding of the Ganzfeld descriptions were calculated using an unweighted Kappa statistic, (Cohen, 1960) in the same manner as previously described (pp 136-138). The results of this analysis are presented below in table 9.13.

Table 9.13 Intercoder reliability calculated by Kappa coefficient for coding of Ganzfeld descriptions

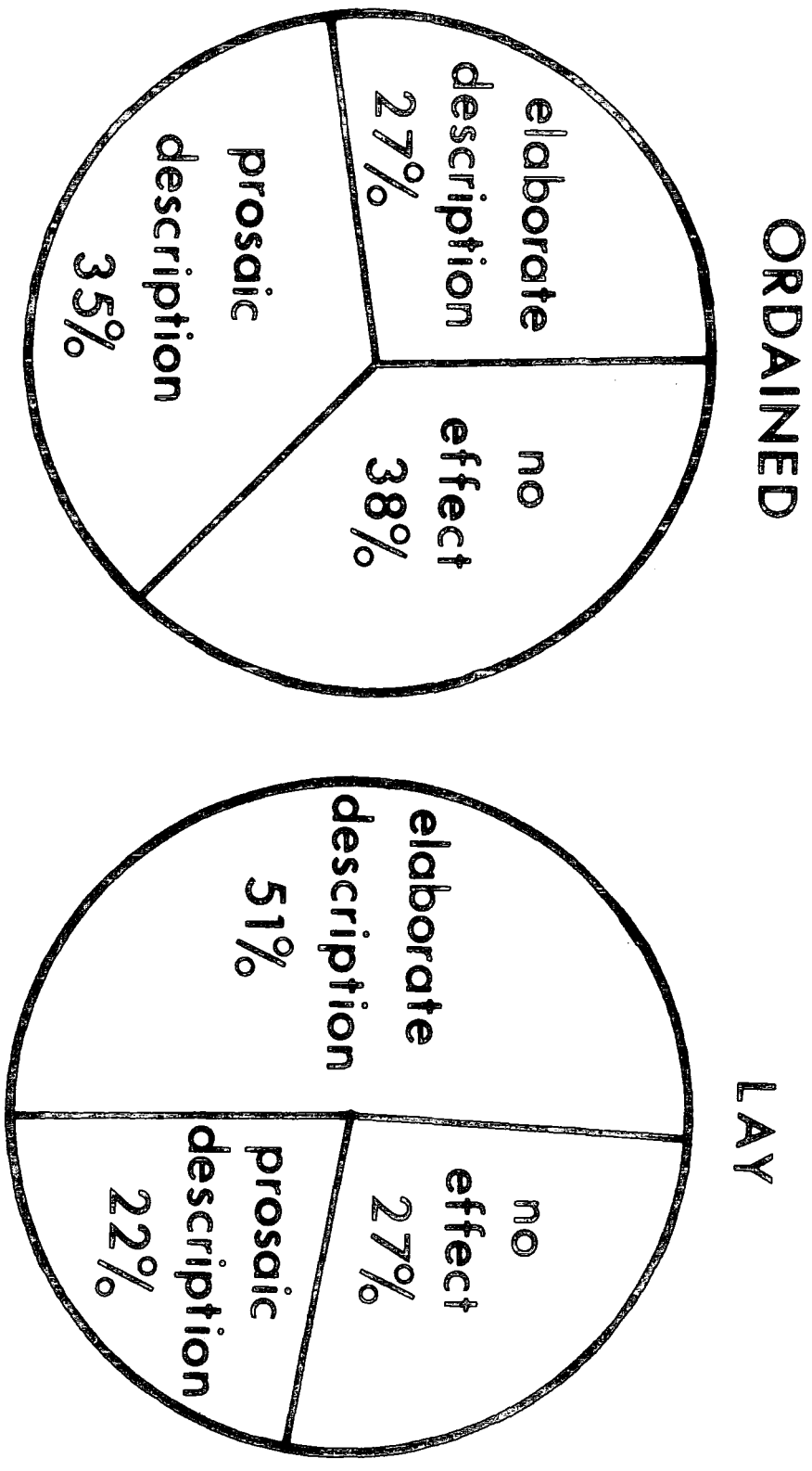
Coder	1	2	3	4	5	6
1		1.0	0.83	0.92	0.92	0.83
2			0.83	0.92	0.92	0.83
3				0.75	0.92	0.83
4					0.83	0.75
5						0.75
6						

These values of Kappa indicate a high degree of intercoder reliability.

The percentage of each group whose description of the Ganzfeld is coded by the 6 coders as being in each of the 3 categories is presented graphically in table 9.14.

Figure 9.14

Percentage of lay and ordained groups who describe Ganzfeld in terms of each of the three descriptive categories (no effect, prosaic, elaborate)



The appropriate test would be a χ^2 (Leach, 1979) however, because of the small number of values in each cell of the table upon which the figure is based (there are only 18 values in 6 cells) this cannot be calculated. The figure indicates a trend that the lay describe the Ganzfeld in more elaborate terms than do the ordained.

The relationship between the elaborateness of the description of the Ganzfeld, as indicated by the ranking of the descriptions, and the difference between the number of expectations and experiences of mystical effects reported by each subject was then analysed, for the ordained and lay groups. We wished to discover if there was any correlation between subjects' style of description of the Ganzfeld and their degree of experience beyond their expectation of mystical effects. Kendall's tau (Leach, 1979) was calculated to be $r = 0.108$ which is insignificant ($p = .264$) at $\alpha = .05$.

Summary

There is evidence that the lay report their experience of the Ganzfeld in more elaborate terms than the ordained.

The correlation between the type of Ganzfeld description given and the subject's preponderance to give mystical accounts of their meditational experience was low.

PART 4: CONCLUSIONS AND DISCUSSION

CHAPTER 10

CONCLUSIONS AND DISCUSSION

Conclusions and Discussion

The results of the Durham study demonstrate that meditation is practised in two contexts. The therapeutic context meditators more closely resemble non-meditators than the mystical context meditators in their semantic differential responses. This suggests that the therapeutic context meditators are more similar to the non-meditating normals than the mystical context meditators on the dimensions measured by the semantic differential.

The results of the Manjushri semantic differential study indicate that the meditators in this group lie between the two previously identified groups; lay meditators are closer to the Durham therapeutic context meditators than are the ordained, who are closer to the Durham mystical group.

The statistical analysis of the interview data reveals a positive correlation between expectation and experience, such that meditators report experiences for which they express expectation. The context in which meditation is practised is thus shown to be related to the effects of meditation. The nature of this relationship will be discussed below.

Lay meditators report more mystical experiences than do the ordained, or than would be predicted from their level of expectation. There are three possible explanations of why the lay report this level of mystical experience:

(i) That the lay meditators actually have more mystical experiences than do the ordained.

(ii) That the ordained meditators, in order to keep the precepts of Buddhism more thoroughly, take greater care to avoid lying in their descriptions.

(iii) That the lay mistake the feelings and sensations that occur during meditation for mystical experiences and report them as such.

The first explanation is unlikely from other reports (Deikman, 1966b). Explanations (ii) and (iii) are similar, but put the onus on different groups. Explanation (ii) requires that both groups have mystical experiences, but that

the ordained inhibit reporting these for fear of 'spiritual pride'. Explanation (iii) suggests that the lay do not have mystical experience, but report profane effects of meditation as if they were mystical experiences. The results of the Ganzfeld experiment allow us to distinguish between these explanations. The ordained groups'reporting of the Ganzfeld experience is characterised by a prosaic reporting style, whereas that of the lay is characterised by an elaborate style. An explanation of this finding contending that the ordained inhibited their reports, would fail to explain why the lay reported the effect in elaborate terms, most of which were more elaborate than the descriptions of normal subjects, (e.g. Cohen, 1957).

To argue that the result depended on the ordained under-reporting a mystical experience induced by the Ganzfeld would necessitate that we consider the perceptual effect induced by the Ganzfeld to be ipso facto mystical. It would be inappropriate to consider this effect to be mystical and hence it is more reasonable to consider the alternative explanation that the lay are mislabelling the effects produced by the Ganzfeld as 'mystical'.

This explanation can thus be extended to the groups' reporting of mystical experiences from meditation practice.

The results of the work of Fenwick et al (1977; q.v.pp.18-19) indicate that meditation induces a hypnagogic state. This hypnagogic state is thus interpreted by the less experienced meditator as a mystical state, especially as the meditator will wish to interpret his experience in a meaningful way concordant with the context in which he practises. With continued practice the meditator comes to recognise these effects as 'quasi-mystical'. The reasons for this recognition are hard to ascertain. It would be reasonable to suppose that an habituation to the mild change in state takes place, so that the mild effects are no longer noted and/or there is a learning of the context so that the meditator comes to understand that these effects are not truly mystical in nature. Thus the inexperienced meditator is mislabelling an hypnagogic state

induced by meditation as a mystical state.

Another important finding of the study is the positive overall correlation between expectation and experience, such that meditators described experiences for which they expressed expectation. Four categories were picked out because of their high phi correlation coefficient values (vis. 4(iii) self control; 5b, noetic; 5c vivacity and 5f, sensations), the last of these being negative. That these were the highest values of phi is of interest when we consider the Tibetan Buddhist context in which these meditators were practising, as the context puts particular stress on these aspects of meditational experience. The meditator must gain self control, which enables him to pierce the present illusory existence (samsara) to attain a greater reality. However, self control alone is not sufficient for the attainment of the greater reality. Knowledge, understanding and wisdom - but not necessarily intellectual - must also be gained. Unusual sensations are generally devalued in the Tibetan school. Such sensations, although perhaps pleasant, are of no importance, not being of any assistance in attaining the ultimate goal, Nirvana. The negative correlation for sensations depends on little expectation of this effect being reported - as one may expect for a negatively valued experience - but reporting of experiences of such sensations.

The two contexts initially identified are not mutually exclusive. In this study we have reported both mystical and therapeutic effects being both expected and experienced by the same subjects. The correlation between expectation and experience for therapeutic effects were overall lower than for mystical effects. This would suggest that expectation does not play such a major role in influencing the experience of therapeutic effect as it may in the case of the mystical. Previous research indicates meditation to be associated with the induction of a relaxed state and psycho-therapeutic benefit. The types of processes involved in this psycho-therapeutic benefit have been reviewed and discussed by previous authors (Smith 1975, Shapiro

and Giber 1978, West 1979). The explanations of the processes involved are particularly frustrated by the lack of agreement about the importance of processes involved in more accepted clinical techniques (eg Breger and McGaugh 1965, 1966; Rachman and Eysenck 1966). It appears from the present study, as well as that of Smith (1976), that expectation as a contributory factor to the psycho-therapeutic effect cannot be ruled out.

The context in which meditation is practised not only gives credence to the technique, perhaps engendering the psycho-therapeutic effect, but also gives a philosophical system and life-style which may help the meditators to deal with their problems in their day to day lives; a point that is seen to be of major importance in the success of any psycho-therapeutic regime (eg Melges and Bowlby, 1969). This aspect of meditation practice is of major importance. When a clinical technique is used to alleviate a psychological or behavioural disorder it is often very specific in its effect, and may prove difficult to generalise to new instances. However, with meditation the technique is used not just to counter one problem, but as part of a whole new way of going about life. As such its clinical application may be considerable, within the bounds of the sorts of disorders and individuals to which it is applicable (see Lazarus 1976). However, as indicated by previous research, and confirmed in this study, meditation cannot be considered to be a simple panacea. Adverse effects from meditation are reported. It is interesting to note the tenacity of the meditators to their context of practice in the face of such potentially disconfirming experiences. The meditators reporting adverse effects in this study either denied that the practice per se caused these effects, or gave another explanation of the effects denying their long term adversity.

It appears that Goleman's (1971) concept of meditation as 'meta-therapy' is appropriate in terms of the way in which meditation is conceived by the meditators. Meditation is practised to attain 'Nirvana', and as one

moves towards this goal certain psycho-therapeutic benefits are received. Whether this is a conventional sanity or some 'supra-sane' state is unclear. However, many of the interviewees rejected normal sanity as delusional. A major caveat for this point is that the present study considered Buddhists. Goleman's ideas were also based on Buddhist ones. Buddhist doctrine is based on the existence, cause and method of overcoming suffering. For Buddhists suffering is fundamentally an ontological statement, differing from the suffering of a headache etc, but not totally disparate. It is thus possible that Buddhism offers a unique amalgamation of meditation as both a mystical and therapeutic exercise. Study of further groups is thus required to distinguish the relationship between the contexts.

The informal analysis of the interviews reveals a number of points. The meditators all took up meditation because of a desire to make their lives more meaningful. Meditation is not a peripheral interest for these practitioners, but a control in a philosophical system by which they lead their lives. Not only is it central in their beliefs and attitudes, it is also central in the way they organise their daily routine.

The effects of different meditation exercises were reported to be specific. How these effects were interpreted by different individuals was related to their knowledge of the techniques and the beliefs they held about their effects. The informal analysis generally demonstrated the importance of the symbolic meanings of their practices to these meditators, and demonstrates their need to attribute meaning to their meditational experiences. In relation to this analysis the hypothesis that a less experienced meditator would attribute 'mystical' status to the more profane effects of meditation practice is highly plausible. They are actively searching for meaning, and an hypnagogic state would have to be given meaning within their context of practice.

In overview, the present study has demonstrated that meditation is practised in two major contexts; therapeutic and mystical. These are associated

with different sorts of outcome for that practice. There is a relationship between what is expected from meditation and what is experienced. One may suspect that what is expected is influential in the production of the effect. However, because of the methods used in this study this cannot be confirmed: expectation may be a function of what was previously experienced, or both may be concomitants of some other factor. Also the mystical experiences reported by a number of interviewees are probably quasi-mystical in nature; representing interpretations as mystical of sensations, feeling etc, experienced during a hynagogic type state. What has been clearly demonstrated in this study is that meditation should not be studied in isolation from its supporting context.

The results we have reported, have implications for previously published studies of meditation. Deikman's studies (1963, 1966b) indicated that mystical experiences were induced relatively quickly and increased in intensity by continued practice of meditation. However, from our results it appears that these experiences were probably not true mystical experiences, but quasi-mystical experiences not dissimilar to the sort reported here. Our explanation is also congruent with the views of Staal (1975), that the mystical experience has to be learned by the mystic. The initial effects are later recognised to be profane products of the meditational exercises. Classical esoteric schools also warn against the mislabelling of this type of effect. Goleman (1972a) describes this stage of 'pseudo-nirvana' in which the meditator has strong experiences, but which are antithetical to the goals of the exercises and pass away with continued practice. This period of numerous strong experiences may continue for some time before abating.

The present study has not identified individual differences between meditators that may exist before taking up meditation, and influence the type of context in which they practise. Also a number of other factors may be of great importance in the production of meditation effects. These may

include group membership, the effects of group membership pressures, vows of secrecy and practice and other aspects of initiation such as the effects of the need to pass a test or demonstrate commitment to a group on the individual's attitudes and cognitions (cf. Aronson and Mills, 1959). Conversion to a religion can also have major effects (James, 1960), religious beliefs being held with greater conviction than non-religious beliefs (Brown, 1966). All these factors coupled together, with, potentially, others that have not been noted, may exert great influence on meditational experience, especially as meditation practice is central to the way the meditator organises his life, both cognitively and behaviourally.

A number of future studies are suggested from our results. Firstly, comparative studies of different types of meditation exercises, and different groups, using a similar approach would be fruitful, indicating the differences between groups and the experience gained from practice. Secondly, longitudinal studies of meditators over a number of years are required. Such a study could follow a sample of meditators from their first contact with a meditational group, thus evaluating individual differences in response to meditation as a function of individual differences before taking up meditation, the context and type of exercise practised. These two approaches would give us a clearer idea of the mechanisms involved in the production of the meditational effect.

Studies of the therapeutic effects of meditation are also required. The efficacity of meditation, and different types of meditation exercise, as therapeutic techniques needs to be evaluated both internally and in comparison to other clinical psycho-therapeutic techniques.

We also need to know more about the adverse effects which are associated with meditation. On what factors do these adverse effects depend; is meditation a control factor; are they transitory in nature, do they exacerbate the problems the meditator is consciously attempting to solve?

Some of these may be answered by studies investigating other factors; others will require different techniques.

More care, in future, must be taken when investigating meditation to define the sort of meditation being studied. Meditations differ greatly and their results must also differ. The school in which it is practised must also play a major part in influencing the outcome.

BIBLIOGRAPHY

Allison, J. Respiratory changes during the practice of transcendental meditation, 1970, Lancet, 7651, 833-834

Allport, G., Vernon, P. and Shevenell, R. Vos tendencies personnelles, 1962, University of Ottawa Press, Ottawa.

Anand, B.K., Chhina, G.S. and Singh, B. Some aspects of electroencephalographic studies in Yogis, 1961(a), Electroencephalography and Clinical Neurophysiology, 13, 452-456 (reprinted in Tart, C. (ed) 1972, 515-518)

Anon (ed) 1975, Scientific research on the Transcendental Meditation Program (a collection of the scientific research papers about T.M. the editor of which is not named. M.I.U. Press: Los Angeles

Anon, 1979, The Way of a pilgrim (trans. R.M. French) quoted in Cohen, J.M. and Phipps, 1979, p.23.

Avant, L.L. Vision in the Ganzfeld, 1965, Psychological Bulletin, 64, N.4 246-258.

Bagchi, B. and Wenger, M. Electro-physiological correlates of some yogi exercises, 1957, Electroencephalography and Clinical Neurophysiology, Sup. 7 132-149.

Bailey, D. The Development of a semantic differential instrument for measurement of principle semantic dimensions of meaning which adults ascribe to religious and theological concept terminology, 1973, Dissertation Abstracts International, 34 (2-A) 630-631. (Ph.D., Wisconsin University)

Ballou, D. Transcendental Meditation Research: Minnesota State Prison, 1973, in Kanellakos D.P. and Ferguson, P.C.

Banquet, J.P. Spectral Analysis of the EEG in Meditation, 1973, Electroencephalography and Clinical Neurophysiology, 35, 143-151.

Benson, H., Rosner, B.A., Marzetta, B.R. and Klemchuk, H.M. Decreased blood-pressure in pharacologically treated hypertensive patients who regularly elicited the relaxation response. Lancet, Feb. 23, 289-291.(197

Benson, H. and Wallace, R. Decreased drug abuse with transcendental meditation: a study of 1,862 subjects, 1970, Paper delivered to Drug abuse international symposium for Physicians. Ann Arbor Michigan.

Benson, H. and Wallace, R. Decreased blood pressure in hypertensive subjects who practised meditation, 1972, Circulation, 46 suppl.2, 130, abstract

Berger, P.L., Berger, B. and Kellner, H., The Homeless Mind: Modernization and Consciousness, 1977, Penguin Books, Harmondsworth.

Bexton, W.H., Heron, W. and Scott, T.H. Effects of decreased variation in the sensory environment. Canadian Journal of Psychology, 1954, 8, 70-76.

Beyer, S. The Cult of Tara: Magic and ritual in Tibet (Hermeneutics: studies in the history of religions, 1) 1973, University of California Press: Berkeley.

Boneau, C.A. The effects of violations of assumptions underlying the t-test, 1960, Psychological Bulletin 57, N.1 49-64. Reprinted in Lieberman, B. 1971, 357-369.

Boneau, C.A. A comparison of the Power of U and t-tests. Psychological Review 1962, 69, No.3 246-256. Reprinted in Lieberman, B. (ed) 1971 175-185.

Brautigam, E. The effect of transcendental meditation on drug abusers. 1971, Unpublished manuscript, City Hospital of Malmö, Sweden. cited in Smith, J.C., 1975.

Breger, L. and McGaugh, J.L. Critique and reformulation of 'Learning Theory'. Approaches to psychotherapy and neurosis., 1965, Psychological Bulletin, 63, 338-358

Breger, L. and McGaugh, J.L. Learning theory and behaviour therapy: a reply to Rachmann and Eysenck, 1966, Psychological Bulletin, 65, 170-173

Brenner, M. Interviewing: the Social Phenomenology of a research instrument. in Brenner, M., Marsh, P. and Brenner, M. (eds), 1978, pp 122-140.

Brenner, M., Marsh, P. and Brenner, M. (eds) The Social Contexts of Methods, 1978, Croom Helm: London.

Brent, P. Godmen of India, 1972, Penguin Books: Harmondsworth.

Brown, L.B. The structure of religious belief, 1966, Journal for the scientific study of religion, 5, 259-272.

Brunton, P. A search in Secret India, 1970, Rider & Co.: London.

Cannell, C.F. and Kahn, R.L. Interviewing (Chap.15) in Volume 2., 1968 Lindzey, G. and Aronson, E. (eds).

Carrington, P. and Ephron, H.S. Meditation as an adjunct to Psychotherapy, 1975(a) in: New Dimensions in Psychiatry: A world view. Arieti, S. (ed) John Wiley and Sons.

Carrington, P. and Ephron, H.S. Meditation and Psychoanalysis, 1975(b) Journal American Acad. Psychoanalysis, 3, No.1, 43-57.

Caycedo, A. India of Yogis, 1966, National Publishing House: Delhi,(179-207)

Chen-Chi Chang, Yogic Commentary, 1958, in: Evans-Wentz(ed),xxvii-xlii

Clance, H. New Machine Monitors Effects of Meditation, 1974, The San Diego Union, July 28.(reprint supplied by T.M. organisation on request for information about the T.M. technique.)

Cohen, J. A coefficient of agreement for nominal scales, 1960, Educational and Psychological Measurement, 20, 37-46.

Cohen, J.M. and Phipps, J.F., 1979, The Common Experience, Rider and Co.: London.

Cohen, W. Comparisons of homogeneous Ganzfelds with Ganzfelds containing simple figures, 1956, Dissertation Abstracts, 16, 1510-1511

Cohen, W. Spatial and textural characteristics of the Ganzfeld, 1957, Perceptual and Motor Skills, 8, 32.

Cohen, W. Form recognition, spatial orientation, perception of movement in the uniform visual field, 1960, in Morris, A. and Horne, E.P. (1960) 119-123.

Cohen, W. and Cadwallader, T.C. Cessation of visual experience under prolonged uniform visual stimulation, 1958, American Psychologist, 13, 410 (abstract).

Cook, T.D. and Campbell, D.T. Quasi-Experimentation: Design and Analysis. Issues for Field Settings, 1979, Rand McNally College Publishing Co.: Chicago.

Cormack, R.M. A review of classification, 1971, Journal of the Royal Statistical Society, Series A., 134, 3, 321-367.

Crowne, D.P. and Marlowe, D. The approval motive, 1964, Wiley: New York.

Das, N. and Gestaut, H. Variations de l'activité électrique du cerveau, de coeur et des muscles squelettiaues au cours de la meditation et de "l'extase" yoguique, 1955, EEG and Clinical Neurophysiology suppl. 6. 211-219

Davidson, J.M. The Physiology of Meditation and Mystical states of Consciousness, 1976, Perspectives in Biology and Medicine, 19, 3, 345-377.

De Grâce, G. Effects of meditation on personality and values, 1976, Journal of Clinical Psychology, 32, 4, 809-813.

Deikman, A. Experimental Meditation, 1963, Journal of nervous and mental disease 136, 329-372. (reprinted in Tart, C. 1972 pp 202-223).

Deikman, A. Deautomatization and the Mystic Experience, 1966(a) Psychiatry, 29, 324-338 (reprinted in Tart, C. 1972 pp 25-46).

Deikman, A. Implication of experimentally induced contemplative meditation, 1966(b) Journal of nervous and mental disease, 142, 101-116.

Deikman, A. Bimodal Consciousness, 1971, Archives of General Psychiatry, 25, 481-488.

Dixon, W.J. (ed) B.M.D.P.: Biomedical Computer Programs Manual, 1975 University of California Press: Los Angeles.

Eagle, M., Bowling, L. and Klein, G.S. Fragmentation phenomena in luminous designs, 1966, Perceptual and Motor Skills, 23, 1, 143-152.

Edwards, A.L. Statistical Methods for the Behavioural Sciences, 1954 Holt Rinehart and Winston: New York.

Elson, B.D., Hauri, P. and Cunis, D. Physiological Changes in Yoga Mediation, 1977, Psychophysiology, 14, 1, 52-57.

Ekvall, R.B. Religious observances in Tibet: Patterns and Functions, 1964, University of Chicago Press: Chicago and London.

Evans-Wentz, W.Y. Tibetan Yoga and Secret Doctrines, 1958, Oxford University Press: Oxford.

Everitt, B.S. Cluster Analysis, 1974, S.S.R.C./Heinemann: London

Everitt, B.S. Graphical Techniques for Multivariate Data, 1978, Heinemann: London.

Fehr, T., Nerstheimer, U. and Törber, S. Untersuchung von 49 praktizierenden der Transcendentalen Meditation mit dem Freiburger Personlich Keitsivantar, 1973, in Kanellos, D.P. and Ferguson, P.C. (eds) (abstract).

Fenwick, P.B.C., Donaldson, S., Gillis, L., Bushman, J., Fenton, G.W., Perry, I., Tilsley, C. and Serafinowicz, H. Metabolic and EEG changes during Transcendental Meditation:an explanation, 1977, Biological Psychology, 5, 101-118.

Ferguson, G.A. Statistical Analysis in Psychology and Education, 1959, McGraw Hill: London.

Ferguson, P. The psychobiology of Transcendental meditation: a brief review, 1975, Journal of altered states of consciousness, 2, 1, 15-36.

Ferguson, P. and Gowan, J. Psychological findings on Transcendental Meditation, 1973, Journal of Humanistic Psychology, (in press) (reprint supplied by T.M. organisation. Also reprinted in Scientific research on the Transcendental Meditation Program, 1975.)

Ferguson, P. and Gowan, J. The influence of Transcendental Meditation on anxiety, depression, aggression, neuroticism and self-actualisation. 1973, In Kanellos, A.P. and Ferguson, P. (eds) (abstract).

Ferguson, P. and Gowan, J. T.M. : Some preliminary findings, 1976, Journal of Humanistic Psychology, 16, 3, 51-60.

Fleiss, J.L. Measuring Nominal Scale Agreement among many raters, 1971, Psychological Bulletin, 76, 378-382.

Fleiss, J.L. Statistical Methods for Rates and Proportions, 1973, Wiley and Sons: London.

French, A.P., Schmid, A.C. and Ingalls, E. Transcendental Meditation, altered reality testing, and behavioral change: a case report, 1975, Journal of Nervous and Mental Disease, 161, 55-58.

Freuchen, P. The book of the eskimos, 1959, Fawcett: New York.

Gattozi, A.A. and Luce, G. Physiological effects of a meditation technique and a suggestion for curbing drug abuse. in: J. Segal (ed) Mental Health Program Reports, 5, (DHEW Publication No. (HSM) 72-9042) Washington D.C. U.S. Govt Printing Office, 1971.

Geller, A.M., Kaplan, D. and Lasswell, H.D., An experimental comparison of four ways of coding editorial content: 1943 Journalism Quart, 19, 362-370.

Gibson, J.J. and Waddell, D. Homogeneous retinal stimulation and visual perceptio 1952, American Journal of Psychology, 62, 263-270.

Gill, M. and Brenman, M. Hypnosis and related states: psychoanalytic studies in regression, 1959, International Universities Press: New York.

Glueck, B.C. and Stroebel, C.F. Biofeedback and meditation in the treatment of psychiatric illnesses, 1975, Comprehensive Psychiatry, 16, 4, 303-32.

Goffman, E. The presentation of self in everyday life, 1969, Penguin Books: Harmondsworth.

Goleman, D. Meditation as meta-therapy: Hypotheses toward a proposed fifth state of consciousness, 1971, Journal of Transpersonal Psychology, 3, No. 1, 1-25.

Goleman, D. The Buddha on Meditation and States of Consciousness I: The Teachings, 1972(a), Journal of Transpersonal Psychology, 4, 1, 1-44.

Goleman, D. The Buddha on Meditation and States of Consciousness II: A typology of meditation techniques, 1972(b), Journal of Transpersonal Psychology, 4, 2, 151-210.

Gough, H. California Psychological Inventory: French version, 1957, Palto Alto: Consulting Psychologists Press.

Harré, R. and Secord, P.F. The explanation of social behaviour, Basil Blackwell: Oxford, 1976.

Hartmann, H. Ego Psychology and the problem of adaptation, 1958, International Universities Press: New York.

Heidegger, M. What is metaphysics? trans. D.F. Krell, 1977, in Basic writings: Nine key essays plus the introduction to Being and Time, edited by Krell, D.F. Routledge and Kegan Paul: London.

Heise, D.R. Some Methodological Issues in Semantic Differential Research, 1969, Psychological Bulletin, 72, 6, 406-422.

Herbert, R. and Lehmann, D., Theta Bursts: An EEG pattern in normal subjects practising the transcendental meditation technique, 1977, Electroencephalography and Clinical Neurophysiology, 42, 397-405.

Hjelle, L.A., Transcendental Meditation and Psychological Health, 1974, Perceptual and Motor Skills, 39, 623-628.

Hochberg, J.E. Perception, Prentice-Hall, New Jersey, 1964.

Holsti,O.R. Content Analysis, 1968, chapter 16, 596-692, in Linzey, G. and Aronson, E., 1968.

Hood, R. The Construction and preliminary validation of a measure of reported mystical experience, 1975, Journal for the Scientific Study of Religion 4, 1, 29-41.

Hood, R. Mystical Experience as related to present and anticipated church participation, 1976, Psychological Reports, 39, 2, 1127-1136.

Humphreys, C. Buddhism, 1951, Pelican Books: Harmondsworth.

Huxley, A. Heaven and Hell, 1959, in The Doors of Perception and Heaven and Hell Penguin Books: Harmondsworth.

Huxley, A. The Perennial Philosophy, 1968, Chatto and Windus: London.

James, W., The Varieties of Religious Experience, 1960, Penguin, Harmondsworth.

Jevning, R., Wilson, A.F., Vanderlaan, E. and Levine, S. Plasma cortisol and prolactin during transcendental meditation, 1975, Proceedings of the Endocrine Society, May, 1975 (Abstract).

Jevning, R., Pirkle, H.D. and Wilson, A.F. Behavioral alteration of plasma phenylalanine concentration, 1977, Physiology and Behaviour, 19, 611-614.

Jevning, R., Wilson, A.F. and Davidson, J.M., Adrenocortical Activity during meditation, 1978, Hormones and Behavior, 10, 54-60.

Jevning, R., Wilson, A.F., Smith, W.R. and Morton, M.E. Redistribution of blood flow in acute hypometabolic behavior,1978, American Journal of Physiology, 235, 1,R89-R92

Kanellakos, D.P. and Ferguson, P.C., The psychobiology of Transcendental Meditation, 1973, M.I.U. Press: Los Angeles.

Kapleau, P. (ed) The Three Pillars of Zen: Teaching Practice and Enlightenment, 1965, Beacon Press: Boston.

Kasamatsu, A. and Hirai, T. An Electroencephalographic Study on the Zen Meditation (Zazen), 1966, Folio Psychiat. and Neurolog. Japonica, 20, Reprinted in Tart, J., 1969, 501-514.

Kibrick, 1973, cited by Otis, L.S., 1974.

Klein, G., Gardner, R. and Schlesinger, H. Tolerance for unrealistic experience: a study in generality of a cognitive control, 1962, British Journal of Psychology, 53, 41-55.

Koffka, K. Principles of gestalt psychology, 1935, Harcourt Brace: New York.

Laing, R.D. The Politics of experience, 1967, Penguin Books: Harmondsworth.

Lazarus, A.A. Psychiatric problems precipitated by Transcendental Meditation, 1976, Psychological Reports, 39, 601-602.

Leach, C. Introduction to statistics: a nonparametric approach for the social sciences, 1979, Wiley and Sons: Chichester.

Lesh, T.V. Zen meditation and the development of empathy in counselors, 1970, Journal of Humanistic Psychology, 10, 1, 39-74.

Lieberman, B. (ed) Contemporary problems in statistics: a book of readings for the behavioral sciences, 1971, Oxford University Press, New York.

Light, R.J. Measures of response agreement for qualitative data: some generalisations and alternatives, 1971, Psychological Bulletin, 76, 365-377.

Linden, W. Practicing of meditation by school children and their levels of field dependence-independence, test anxiety and reading achievement, 1973, Journal of Consulting and Clinical Psychology, 41, 139-143.

Lindzey, G. and Aronson, E. (eds) The Handbook of Social Psychology, 1968 Second edition. Addison-Wesley Publishing: London.

Long, B. Meditation and Beyond, From Actuality to Reality, 1969, Privately published by A. White: London.

Luthe, W.L. and Schultz, J. Autogenic therapy II; Medical Applications, 1969 Grune and Stratton: New York.

Maharishi Mahesh Yogi. The science of being and art of living, 1966. International S.R.M. Pub: London.

Maharishi Mahesh Yogi. Transcendental Meditation, 1968, Signet: London.

Maharishi Mahesh Yogi. Maharishi Mahesh Yogi on the Bhagavad Gita: A new translation and commentary. 1969, Penguin: Harmondsworth.

Marcuse, H. The obsolescence of the Freudian Concept of Man, 1970 in Five Lectures, Marcuse, H. trans Shapiro, J.J. and Weber, S.M. Beacon Press: Boston.

Marris, A. and Horne, E.P. Visual Search Techniques, 1960, National Academy of Science - National Research Council: Washington.

Marsh, P., Rosser, E. and Harré, R. The Rules of Disorder, 1978, Routledge and Kegan Paul: London.

Fr. Matthew. Contemplative Meditation: (a) techniques, (b) positive and negative thoughts, 1979. Tape distributed by Order of Discalced Carmelites: London.

Maupin, E.W. Individual Differences in response to a Zen meditation exercise, 1965, Journal of consulting psychology, 29, 139-145. Reprinted in Tart, C., 1972, 191-202.

Melges, F.T. and Bowlby, J. Types of hopelessness in psychopathological process, 1969, Archives of General Psychiatry, 20, 690-699.

Metzger, W. Optische Untersuchungan am Ganzfeld: II Zur phänomenologie des homogenen Ganzfelds, 1930, Psycholgische Forschung, 13, 6-29.

Michaels, R.R., Huber, M.J. and McCann, D.S. Evaluation of Transcendental Meditation as a method of reducing stress, 1976, Science, 192, 1242-1244.

Miller, J.W. and Ludvigh, E. Time required for detection of stationary and moving objects as a function of size in homogeneous and partially structured visual fields, 1960, in Morris, A. and Home, E.P. (Eds). pp 170-180.

Mosteller, F. and Wallace, D.L. Inference and disputed authorship: the Federalist 1964, Addison-Wesley: Reading.

McReynolds, W.T., Barnes, A.R., Brooks, S. and Rehagen, N.J. The role of attention-placebo influences in the efficacy of systematic desensitization, 1973, Journal of Consulting and Clinical Psychology, 41, 86-92.

Naranjo, C. Meditation: Its spirit and techniques, 1971, in Naranjo, C. and Ornstein, R.E.

Naranjo, C. and Ornstein, R.E. On the psychology of meditation, 1971, Allen and Unwin: London.

Nid ich, S., Seeman, W. and Seibert, M. Influence of transcendental meditation on state anxiety, 1972, Journal of Consulting and Clinical Psychology (in press). Reproduced in Scientific Research on the Transcendental Meditation Program. Anon (ed) 1975 .

Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K. and Bent, D.H., Statistical Package for the Social Sciences Manual, 1975, McGraw Hill: London.

Orme-Johnson, D.W. Autonomic Stability and Transcendental Meditation, 1973, Psychosomatic Medicine, 35, 4, 341-349.

Orme-Johnson, D, Arthur, G., Franklin, L., O'Connell, J. and Zold, T. Transcendental meditation and drug abuse counselors, 1973, in Kanellakos, D.P. and Ferguson, P.C.

Orme-Johnson, D.W., Kielbauch, J., Moore, R. and Bristol, J. Personality and Autonomic Changes in Meditating Prisoners, 1973(b) Abstract) In Kanellakos, D.P. and Ferguson, eds, 1973.

Orne, M.T. On the social psychology of the psychological experiment: with particular reference to demand characteristics and their implications, 1962, American Psychologist, 17, 776-783.

Orne, M.T. and Scheibe, K.E. The contribution of non-deprivation factors in the production of sensory deprivation effects: the psychology of the panic button, 1964, Journal of Abnormal and Social Psychology, 68, 1, 3-12.

Ornstein, R.E. The psychology of consciousness, 1972, Pelican Books: Harmondsworth

Osgood, C.E., Sugi, G.J. and Tannenbaum, P.H. The measurement of meaning, 1957, University of Illinois Press: Urbana.

Otis, L. T.M. and Sleep, 1974, Manuscript of paper presented at the American Psychological Association Convention, New Orleans.

Otis, L. Adverse effects of Transcendental Meditation, 1979, in Meditation: a review of the clinical literature. Shapiro, D. and Walsh, R. (eds) Aldino: Chicago (manuscript supplied by author, unpublished at present time.)

Ottens, A.J. The effect of Transcendental Meditation upon modifying the cigarette smoking habit. 1975 Journal of School Health, 45, 10, 577-583.

Pagano, R.P., Rose, R.M. Stivers, R.M. and Warrenburg, S., Sleep during Transcendental Meditation, 1976, Science, 191, 308-310.

Rachman, S. and Eysenck, H.J. Reply to Critique and reformulation of behaviour therapy, 1966, Psychological Bulletin, 65, 165-169.

Robinson, W.S. The statistical measurement of agreement, 1957, American Sociological Review, 22, 17-25.

Robson, C. Experiment, design and statistics in psychology, 1973, Penguin Education: Harmondsworth.

Rosenberg, M.J. The conditions and consequences of evaluation apprehension, 1969, in Rosenthal, R. and Rosnow, R. (Eds) pp 280-349.

Rosenthal, R. Experimenter attributes as determinants of subjects' responses. 1963(a) J. proj. tech. pers. Assess, 27, 324-331.

Rosenthal, R. On the social psychology of the psychological experiment: the experimenter's hypothesis as unintended determinant of experimental results, 1963(b) American Scientist, 51, 268-283.

Rosenthal, R. Experimenter effects in behavioral research, 1966, Appleton Century Crofts: New York.

Rosenthal, R. and Rosnow, (eds) Artifact in behavioral research, 1969, Academic Press: New York.

St. John of the Cross. The complete works of Saint John of the Cross, 1953, Newman Press, Westminster.

Sakoda, J.M., Cohen, B.H. and Beall, G. Test of significance for a series of statistical test 1954, Psychological Bulletin, 51, 2, 172-175.

Seeman, W., Nidich, S. and Banta, T. Influence of transcendental mediation on a measure of self-actualization, 1972, Journal of Counseling Psychology 19, 184-187

Schutz, W.C. Reliability, Ambiguity and Content Analysis, 1952, Psychological Review, 59, 119-129.

Shapiro, D.H. and Giber, D. Meditation and psychotherapeutic effects, 1978 Archives of General Psychiatry, 35, 294-302.

Shapiro, D. Behavioural and attitudinal changes resulting from a Zen Experience, workshop and Zen meditation. Journal of Humanistic Psychology, 1979, 18, 3, 21-30

Siegal, S. Nonparametric statistics for the behavioral sciences, 1956, McGraw Hill: New York.

Silverman, D. Interview talk: Bringing off a research instrument. Sociology 7, (1973 No. 1, 31-48.

Smith, J.C. Meditation as Psychotherapy: a review of the literature, 1975, Psychological Bulletin, 82, 4, 558-564.

Smith, J.C. Psychotherapeutic effects of transcendental meditation with controls for expectation of relief and daily sitting, 1976, Journal of Consulting and Clinical Psychology, 44, No. 4, 630-637.

Smith, M. An introduction to mysticism, 1977, Sheldon Press: London.

Sneider, J.G. and Osgood, C.E. (ed) Semantic differentiation technique: a sourcebook, 1969, Aldine: Chicago.

Staal, F. Exploring Mysticism, 1975, Penguin Books: Harmondsworth.

Stace, W.T. Mysticism and Philosophy, 1961, Macmillan: London.

Stek, R.J. and Bass, B.A. Personal adjustment and perceived locus of control among students interested in meditation, 1973, Psychological Reports, 32, 1019-1022.

Still, A. Statistics and Superstition in Psychology, 1979, Research seminar given in the Department of Psychology, Durham, 1/2/79.

Sugi, Y. and Akusu, K. Science of Zazen - energy metabolism, 1964, Tokyo.

Tart, C. Scientific foundations for the study of altered states of consciousness, 1971, Journal of Transpersonal Psychology, 3, 2, 93-124.

Tart, C. Altered States of Consciousness, 1972, Anchor books: New York.

Tart, C. States of Consciousness and State specific sciences, 1972, Science, 176, 1203-1210.

Tart, C. Transpersonal Psychologies, 1975, Routledge and Kegan Paul: London.

Thinès, G. Phenomenology and the Science of Behaviour, 1977, George Allen and Unwin: London.

Todd, C.J. The influence of context and superstructure on meditation, 1978, Unpublished thesis in fulfil-ment of B.A. degree, Durham.

Treichell, M., Clinch, N. and Cran, M. The metabolic effects of transcendental meditation, 1973, Physiologist, 16, 472.

Underhill, E. Mysticism, 1949, Methuen and Co.: London.

Vahia, N.S. Doongaji, D.R., Jeste, D.V., Kapoor, S.N., Ardhapurkar, J. and Ravindranath, S. Further experiments with the therapy based upon concepts of Patanjali in the treatment of psychiatric disorders. 1973, Indian Journal of Psychiatry, 15, 32-37.

Wallace, R.K. Physiological effects of transcendental meditation, 1970, Science, 167, 1751-1754.

Wallace, R.K., Benson, H. and Wilson, A.F. (1971) A wakeful hypometabolic physiological state, American Journal of Physiology, 221, 795-799.

Wallace, R.K. and Benson, H. The physiology of meditation, 1972, Scientific American, 226, 84-90.

Walpola Rahula, What the Buddha taught, 1959, Grove Press: New York.(p.70).

Warrack, G. Julian of Norwich, revelations of divine love, 1952, Methuen: London.

Weiner, A.J. Attention and Expectations: their contribution to the meditation effect. 1972, Unpublished Ph.D. thesis at New York University. Abstracted in Dissertation abstracts international, 33, series B (1973) pp 5528-B.

Wenger, M.A., Bagchi, B.K. and Anand, M.D. Experiments in India on 'Voluntary' Control of the heart and pulse, 1961, Circulation, 24, 1319-1325.

West, M. Meditation: a review, 1979, British Journal of Psychiatry, 135, 457-467.

Wolpe, J. Psychotherapy by Reciprocal Inhibition, 1958, Stanford University Press: Stanford.

Yasutani Roshi , 1965, quoted in Kapleau, P. (1965).

Younger, J. Sleep during Transcendental Meditation, 1973, unpublished manuscript: U.C.S.F.

Zaehner, R.C. Mysticism: sacred and profane, 1957, Oxford University Press: Oxford.

Thubten Zopa. The wish fulfilling golden sun of the Mahayana thought training: directing in the short cut path to Enlightenment, 1973, Commando Printing Services: North Melbourne.

ADDENDA:

Conze, E.O. Buddhist Meditation, 1972, Unwin Books: London

ARONSON E. and MILLS S. THE EFFECT OF SEVERITY OF INITIATION ON LIKING FOR A GROUP, 1959, JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, 59, pp 177-181

GOLDFRIED M. and MERBAUM M. BEHAVIOR CHANGE THROUGH SELF CONTROL. 1973, HOLT RINEHART AND WINSTON : NEW YORK

MEYER B.J.F. THE ORGANISATION OF PROSE AND ITS EFFECTS ON MEMORY 1975 NORTH HOLLAND PUBLISHING CO : AMSTERDAM

ORME-JOHNSON D.W. and FARROW S.T. SCIENTIFIC RESEARCH ON THE TRANSCENDENTAL MEDITATION PROGRAM : COLLECTED PAPERS (2nd ED) 1977 MAHARISHI EUROPEAN RESEARCH UNIVERSITY PRESS : LIVINGSTON MANOR N.Y.

SALTER A THREE TECHNIQUES OF AUTOHYPNOSIS IN GOLDFRIED M. AND MERBAUM M. 1973 pp 235-247

APPENDICES

APPENDIX I: Table presenting results of physiological studies of meditation

Legend for Table

Control:

NO: Studies so marked did not use independent control groups. The typical design of such a study is first to record the subject during a premeditation rest period, then have a period of meditation, then signal to cease meditation but continue to rest with eyes closed.

YES: Studies so marked used independent control groups, matched for age and sex. The precision of the matching of controls to subjects has differed between studies (see note).

Type of finding:

In this column the type of finding about meditation reported is grossly represented.

\+ If the conclusions drawn from the study are such that a claim is made that some positive effect of meditation has been identified.

\- If the conclusions drawn from the study are such that no claim is made that a meditational effect has been identified, or a claim made elsewhere has not been replicated or falsified.

Table summarising major findings of physiological research into effects of meditation

Variable	Meditation	Control	Type of Result	Researchers	Findings
Cardio-vascular variables	Yoga	No	+	Wenger, Bagchi and Anand (1961)	Heartrate can be slowed but not stopped by yogis This is mediated by a striated muscle action, subjects having no direct control over heart muscles.
	TM	No	+	Wallace(1970)	Heartrate decrease of 5 beats/minute
	TM	No	+	Wallace, Benson and Wilson (1971)	Heartrate decrease of 3 beats/minute. Systolic diastolic and mean arterial blood pressure remain constant.
	TM	No	+	Wallace and Benson (1972)	Heartrate decrease of 3 beats/minute. Arterial blood pressure dropped during premeditation relaxation period remining low. Systolic blood pressure (106 mm.Hg.) diastolic 57 mm.Hg.) and mean (75 mm.Hg.) remained constant.
	TM	No	+	Benson, Rosner, Marzetta and Klemchuk (1974)	Significant reductions in systolic (-10.6mm.Hg. and diastolic (-4.85 mm.Hg.) blood pressure in subjects after taking up regular practice of meditation.
	TM	Yes	+	Jevning, Wilson, Smith and Morton (1978)	Significant decreases were observed in renal blood flow during meditation but also in a resting control group. A significant decrease hepatic blood flow observed in meditation only. Significant increase in cardiac output and non renal-nonhepatic blood flow observed in meditat only. Heartrate remained unchanged in meditati and control groups.

(contd)

Variable	Meditation	Control	Type of Result	Researchers	Findings
Cardio vascular variables	Yoga	*Yes	+	Elson, Hauri & Cunis (1977)	Heartrate decreases 1 beat/minute during meditation
Respiratory Variables	Yoga	No	+	Wenger and Bagchi (1961)	Reduction in O_2 consumption by 40-50% during meditation.
	Zen	No	+	Sugi and Akusu (1964)	Meditators reduce O_2 consumption by 20% during meditation.
	TM	No	+	Wallace, (1970)	TM practicers reduce O_2 consumption by 17-20% during meditation.
	TM	No	+	Wallace, Benson and Wilson (1971)	TM practicers reduce CO_2 output by 17-20% during meditation
	TM	No	+	Wallace & Benson (1972)	Minute ventilation down 1 litre/minute, down 2-3 breaths/minute. Respiration quotient unchanged.
	TM	Yes	-	Treichell et al (1973)	Minute volume decreased. Respiration rate unchanged - but not significantly different for TM from controls sitting quietly.
	TM	Yes	+	Jevning, Wilson Smith & Morton (1978)	A significant decrease in minute volume during meditation, not observed in resting controls.
	TM	Yes	-	Fenwick, Donaldson Gillis, Bushman, Fenton, Perry, Tilsley & Serafinowicz (1977)	CO_2 output decreased for meditators and controls as session progressed significantly, but there were no inter-group differences. O_2 consumption similarly decreased significantly.

* From the report there is evidence to suggest that the controls differed considerably from the experimental group both in physical fitness and seated position during recording

(contd)

Variable	Meditation	Control	Type of Result	Researchers	Findings
Galvanic Skin Responses	TM	No	+	Wallace (1970)	Increase at onset of meditation returning to resting level after session.
	TM	No	+	Wallace, Benson & Wilson (1971)	Mean of 140 kilohms
	TM	No	+	Wallace & Benson (1972)	Some subjects increase by a factor of 4.
	TM	No	+	Orme-Johnson (1973)	Outside TM meditators show fewer spontaneous GSR and faster habituation to stressful stimuli. Indicative of autonomic stability and greater tolerence of stress.
	Yoga	Yes	+	Elson Hauri & Cunis (1977)	BSR increased during meditation slightly but decreased significantly for resting controls.
Haematological Variables	TM	No	+	Wallace (1971) Wallace, Benson & Wilson (1971) Wallace & Benson (1972)	Slight decrease in arterial pH PCO_2 and PO_2 showed no significant changes. Blood lactate concentration decreased from 11.4 mg/100cc at outset to 8.0 mg/100cc during meditation to 6.85 mg/100cc* at 10 minutes into post meditation relaxation period before beginning to increase again. This decrease (10.26 mg/100cc/hr) 4 times normal decrease at rest.
	TM	Yes	-	Jevning, Wilson & Davidson (1978)	Cortisol concentration remained stable in contro appeared to decline (insignificantly) during meditation in neophytic meditators and decreased significantly during meditation in long term meditations. The latter inferring a comple inhibition of pituitary-adrenal activity.

*6.85 Wallace et al (1971) but 7.3 Wallace & Benson (1972)

(contd)

Variable	Meditation	Control	Type of Result	Researchers	Findings
Haematological Variables	TM	Yes	+	Jevning, Pirkle & Wilson (1977)	Of 13 plasma amino acids monitored, only phenylalanine level increased significantly during meditation, in long term meditators. No significa changes were observed in controls or short-term meditation, although the phenylalanine level of the latter paralleled that of the long term meditators.
	TM	Yes	-	Michaels, Huber & McCann (1976)	Plasma epinephrine,norepinephrine and lactate changes during meditation did not differ from resting controls.
	TM	Yes	+	Jevning, Wilson, Smith and Morton (1978)	Blood lactate concentrate decreased during meditation significnatly, not observed in control
	TM	Yes	+	Jevning, Wilson, Vanderlaan & Levine (1975)	Plasma prolactin concentration begins to increase during meditation continuing to rise after sessions. Growth hormones remain unchanged.
Temperature	TM	No	-	Wallace, Benson & Wilson (1971)	Rectal temperature remains constant.
	Yoga	Yes	+	Elson, Hauri & Cunis (1977)	Forehead-finger temperature decreased for meditators but increased for controls. This difference was insignificant.
EEG	Yoga	No	+	Das and Gastaut (1955)	Acceleration of alpha rhythm (1-3 c/s), decrease in amplitude and appearance of faster components Beta rhythm 18/20 c/s in rolandic areas. Low amplitude fast activity 25/30 c/s up to 40-45 c/s Increases in fast wave aplitude 30-50 uV. Alpha reappears at end of meditation. EMG records revea no muscular activity during meditation.ECG record paralleled EEG with increase in heartrate during periods of fast wave activity.

(contd)

Variable	Meditation	Control	Type of Result	Researchers	Findings
EEG (contd)	TM	Yes	+	Banquet (1973)	Alpha activity increased in amplitude up to 70 uV slowed down in frequency by 1-2 c/s and extended to anterior channels. This develope in some cases into theta waves 5-7 c/s up to 100 uV bursts or into long theta trains of 60-8(uV. This in turn became generalised beta rhythm of 20 c/s with bursts of activity of 30-60 uV, in 'advanced' meditation. Controls showed norma EEG records for relaxation, becoming drowsy and napping. Meditators showed (1) no alpha blocking to auditory stimulus: (2) theta blocking to auditory stimulus.
	TM	Yes	-	Otis (1974)	Blind scoring of EEG records of meditator and resting controls for sleep resulted in signifi-cantly more sleep stage 1 for meditators during meditation. No difference in EEG records observed before commencement of meditation.
	TM	No	-	Pagano, Rose, Stivers & Warrenburg (1976)	Subjects' meditation and napping was recorded. 40% of meditation time was identified as sleep (23% stage 2, 17% stage 3 or 4), 19% stage 1 and 39% awake). Only for one subject was there a significant difference from the napping patter
	TM	Yes	+	Herbert & Lehmann (1977)	30% of meditators exhibited short duration high amplitude (300 uV) theta bursts significant more than relaxing controls.

(contd)

Variable	Meditation	Control	Type of Result	Researchers	Findings
EEG (contd)	Yoga	No	+	Anand,Chhina & Singh (1961b)	Alpha activity during rest which increased in amplitude during meditation. Outside meditation period alpha blocked by external stimuli (photic and auditory) this did not habituate to repetition. During meditation no alpha blocking produced
	Zen	Yes	+	Kasamatsu and Hirai (1966)	Four stages of EEG change during meditation. (1) appearance of alpha in spite of eyes open condition. 40-50 uV 11-12/sec in all regions. (2) increase in alpha amplitude in frontal and central regions. 60-70 uV. (3) decrease in alpha activity. (4) appearance of rhythmic theta train 6-7/sec 70-100 uV. The degree of EEG change attained was parallel t the years of Zen practice judged meditational ability of the meditators. During meditation no alpha blocking habituation to auditory stimulus.
	TM	No	+	Wallace (1970)	Alpha before meditation with eyes closed.
	TM	No	+	Wallace, Benson & Wilson (1971)	Alpha regularity and amplitude increases during meditation 8-9 c/s in central and frontal regions (arbitrary relative amplitude units used no values given) giving way occasionally to theta trains 5-7 c/s. No changes in electro-oculograms reported. Alpha blocking to photic/auditory stimuli during meditation showed no habituation.
	TM	No	+	Wallace & Benson, (1972)	

(contd)

Variable	Meditation	Control	Type of Result	Researchers	Findings
EEG (contd)	TM	Yes	-	Jevning, Pirkle & Wilson, (1977)	70% of meditation time spent awake.
	TM	Yes	-	Jevning, Wilson & Davidson (1978)	22% in sleep stage 1: 8% in sleep stages 2 and 3.
	TM	Yes	-	Jevning, Wilson, Smith & Morton (1978)	Similar to that of resting controls.
	Yoga	Yes	+	Elson, Hauri & Cunis (1977)	Meditators showed more non-descending alpha th than controls throughout meditation. Meditator alpha-theta level (75%) remained constant during meditation. No meditator entered sleep stage 2.
	TM	Yes	-	Fenwick et al (1977)	Blind rating of EEG records as those of meditators or controls revealed that meditator EEG records did not significantly differ from resting controls. The EEG records of meditator consistent with subjects passing to a hypnagogic state and maintaining this state during meditation session

APPENDIX II:

Test materials used in Durham Study

Front Page

NAME: College or Address

DATE:

AGE:

SEX:

Have you ever, or do you presently practice meditation - if so please give brief details on reverse of sheet.

If you have ever experienced any of the experiences described,will you please write briefly on the reverse of this sheet about your experience; how it came about, when, where, explanation and description of what happened etc.

All answers will be treated with the strictest of confidence.

M. Scale

The attached booklet contains brief descriptions of a number of experiences. Some descriptions refer to phenomenon* that you may have experienced while others refer to phenomenon that you may not have experienced. In each case note the description carefully and then place a mark in the right margin according to how much the description applied to your own experience. Write +1, +2, or -1, -2, or ? depending on how you feel in each case.

+1: This description is probably true of my own experience or experiences.

-1: This description is probably not true of my own experience or experiences.

+2: This description is definitely true of my own experience or experiences.

-2: This description is definitely not true of my own experience or experiences.

?: I cannot decide

Please mark each item trying to avoid if at all possible marking any item with a ?. In responding to each item, please understand that the items may be considered as applying to one experience or as applying to several different experiences. After completing the booklet, please be sure that all items have been marked ,leave no items unanswered.

* These instructions were reproduced verbatim from Hood (1975)

M. Scale

(1) I have had an experience which was both timeless and spaceless.

_____

(2) I have never had an experience which was incapable of being expressed in words.

_____

(3) I have had an experience in which something greater than myself seemed to absorb me.

_____

(4) I have had an experience in which everything seemed to disappear from my mind until I was conscious only of a void.

_____

(5) I have experienced profound joy. _____

(6) I have never had an experience in which I felt myself to be absorbed as one with all things.

_____

(7) I have never experienced a perfectly peaceful state _____

(8) I have never had an experience in which I felt as if all things were alive

_____

(9) I have never had an experience which seemed holy to me. _____

(10) I have never had an experience in which all things seemed to be aware.

_____

(11) I have had an experience in which I had no sense of time or space.

_____

(12) I have had an experience in which I realized the oneness of myself with all things.

_____

(13) I have had an experience in which a new view of reality was revealed to me.

_____

(14) I have never experienced anything to be divine. _____

(15) I have never had an experience in which time and space are non-existent.

_____

(16) I have never experienced anything I could call ultimate reality.

_____

M. Scale

(17) I have had an experience in which ultimate reality was revealed to me. _____

(18) I have had an experience in which I felt that all was perfection at that time. _____

(19) I have had an experience in which I felt everything in the world to be part of the same whole. _____

(20) I have had an experience which I knew to be sacred. _____

(21) I have never had an experience which I was unable to express adequately through language. _____

(22) I have had an experience which left me with a feeling of awe. _____

(23) I have had an experience that is impossible to communicate. _____

(24) I have never had an experience in which my own self seemed to merge into something greater. _____

(25) I have never had an experience which left me with a feeling of wonder. _____

(26) I have never had an experience in which deeper aspects of reality were revealed to me. _____

(27) I have never had an experience in which time, place and distance were meaningless. _____

(28) I have never had an experience in which I became aware of a unity of all things. _____

(29) I have had an experience in which all things seemed to be conscious. _____

(30) I have never had an experience in which all things seemed to be unified into a single whole. _____

(31) I have had an experience in which I felt nothing is ever really dead. _____

(32) I have had an experience that cannot be expressed in words. _____

Instructions for Semantic Differential

The purpose of this study is to measure the meanings of certain things to various people by having them judge them against a series of descriptive scales. In taking this test, please make your judgements on the basis of what these things mean to YOU. At the top of each page you will find a different word to be judged and beneath it a set of scales. You are to rate the concept on each of these scales in order. At the top of the scales are these numbers:
-3 -2 -1 0 1 2 3
these should not be taken as numerical values of your rating merely as guidelines

If you feel that the concept at the top of the page is very closely related to one end of the scale put your cross in the 3 or -3 i.e.

	-3						3	
good	X	___	___	___	___	___	___	bad

or

good	___	___	___	___	___	___	X	bad

If you feel the concept is quite closely related to one or other of the ends of the scale put your cross in the 2 or -2 i.e.

		-2				2		
good	___	X	___	___	___	___	___	bad

or

good	___	___	___	___	___	X	___	bad

If you feel the concept is only slightly related to one side as opposed to the other (but is not really neutral) then put your cross in the 1 or -1 i.e.

			-1		1			
good	___	___	X	___	___	___	___	bad

or

good	___	___	___	___	X	___	___	bad

If you feel the concept to be neutral on the scale or both sides are equally associated or that the scale is completely irrelevant and unrelated to the concept place your cross in the 0, i.e.

				0				
good	___	___	___	X	___	___	___	bad

IMPORTANT
(1) Place your cross in the middle of the spaces not on the boundaries.
(2) Never put more than one cross on a single scale.
(3) Be sure to check every scale for every concept, please do not omit any.

Sometimes you may feel as though you've had the same item before, on the test. This will not be the case, although some items are similar: please do not look back and forth through the items. Make each item a separate and independent judgement, do not try to remember how you answered earlier items to answer the one in hand. Remember there are no 'right' or 'wrong' answers on this test, we are merely collecting your impressions on the meanings of words, so work fairly rapidly, do not worry or puzzle over indidivual items, but please do not be careless, for we want your true impressions

The following example was printed on the reverse of the instruction page

AN EXAMPLE

philosophy

	-3	-2	-1	0	1	2	3	
subjective							X	objective
stable						X		changeable
colourless						X		colourful
passive					X			active
mental	X							physical
intangible	X							tangible
timeless					X			temporal
hard			X					soft
meaningless								meaningful
public				X				private
angular			X					rounded
aimless		X						purposeful
fast						X		slow
bad				X				good
spacious								constricted
egotistical						X		altruistic

Please continue with the test if you feel happy with what to do.

A typical test book page

AN EXAMPLE

mind

	-3	-2	-1	0	1	2	3	
subjective	___	___	___	___	___	___	___	objective
stable	___	___	___	___	___	___	___	changeable
colourless	___	___	___	___	___	___	___	colourful
passive	___	___	___	___	___	___	___	active
mental	___	___	___	___	___	___	___	physical
intangible	___	___	___	___	___	___	___	tangible
timeless	___	___	___	___	___	___	___	temporal
hard	___	___	___	___	___	___	___	soft
meaningless	___	___	___	___	___	___	___	meaningful
public	___	___	___	___	___	___	___	private
angular	___	___	___	___	___	___	___	rounded
aimless	___	___	___	___	___	___	___	purposeful
fast	___	___	___	___	___	___	___	slow
bad	___	___	___	___	___	___	___	good
spacious	___	___	___	___	___	___	___	constricted
egotistical	___	___	___	___	___	___	___	altruistic

APPENDIX III:

Tables and Figures of results of Durham Study

In the following diagrams the following abbreviations are used for concepts

FTH	faith	SLF	self
MND	mind	SCI	science
TRU	truth	ENY	energy
GOD	god	UNY	unity
SOL	soul	BDY	body
LIF	life	SAL	salvation
DTH	death	MED	meditation
KNO	knowledge	CON	concentration
HUN	heaven	MNY	money
HEL	hell	PAN	pain
THO	thought	PLS	pleasure
EFF	effort	CSC	consciousness
SEX	sex	TIM	time
INF	infinity		
ZRO	zero		
LOV	love		

The scale numbers are

1	subjective/objective
2	stable/changeable
3	colourless/colourful
4	passive/active
5	mental/physical
6	intangible/tangible
7	timeless/temporal
8	hard/soft
9	meaningless/meaningful
10	public/private
11	angular/rounded
12	aimless/purposeful
13	fast/slow
14	bad/good
15	spacious/constricted
16	egotistical/altruistic

TABLE III:1 Table of Meditator Means

Concept	Scale No. 1	2	3	4	5	6	6	8	9	10	11	12	13	14	15	16
FTH	1.6	3.9	4.9	4.9	2.4	2.8	3.3	3.7	5.8	2.6	3.3	5.7	3.6	5.8	2.8	3.9
MND	3.3	2.4	4.5	5.5	1.5	2.1	4.3	4.1	4.9	2.6	3.9	4.8	4.6	4.6	3.3	3.1
TRU	4.4	6.3	4.8	4.3	3.0	4.4	2.3	4.1	6.3	4.6	3.3	6.2	3.7	6.3	2.9	4.6
GOD	3.4	5.9	5.3	4.9	2.7	2.4	2.3	3.5	5.4	3.9	3.2	5.8	3.6	5.2	2.8	4.7
SOL	2.3	5.5	4.4	4.1	2.6	1.8	1.5	3.2	5.6	1.7	2.8	5.8	3.4	5.6	2.4	4.6
LIF	3.5	2.6	5.9	5.6	3.9	5.0	3.9	3.9	5.9	3.4	3.5	6.0	4.1	5.4	3.1	4.1
DTH	4.4	4.9	3.3	3.6	4.6	4.3	4.8	4.8	5.4	2.6	4.0	5.1	4.3	4.1	4.3	3.6
KNO	3.3	4.0	5.1	4.3	2.8	3.2	2.9	3.8	6.4	3.3	3.9	5.9	3.6	6.3	2.6	4.6
REL	3.7	4.8	5.6	4.0	3.4	3.9	2.3	4.0	5.7	3.8	3.6	5.4	3.9	5.5	2.6	4.8
HVN	3.0	4.7	5.9	3.9	2.6	3.6	2.3	3.0	5.7	3.8	3.3	5.2	3.6	5.8	2.3	4.6
HEL	2.4	3.6	4.2	4.4	2.4	3.8	4.0	5.9	4.1	2.6	5.4	3.2	3.8	1.9	5.8	1.8
THO	3.0	2.0	4.6	6.1	1.5	2.6	4.9	4.3	5.4	1.8	4.3	5.2	4.6	4.7	3.8	3.1
EFF	2.3	2.9	4.3	6.4	3.3	4.0	5.8	4.8	5.6	2.4	4.3	6.4	4.0	5.3	4.1	4.3
SEX	3.1	2.7	5.4	6.0	4.9	5.2	5.6	3.2	5.7	2.4	3.3	5.2	3.4	5.3	4.4	3.1
INF	4.6	6.3	3.8	3.6	3.5	2.1	1.6	3.7	5.6	4.0	3.8	4.6	3.6	5.0	1.9	4.9
ZRO	4.9	6.2	2.5	2.8	2.9	2.7	2.8	4.5	4.6	4.3	3.5	4.0	4.1	4.3	3.6	4.4
LOV	1.9	4.1	5.9	4.8	3.1	3.6	2.5	3.0	6.7	3.8	2.8	5.7	3.8	6.5	2.5	5.6
SLF	2.8	4.6	4.8	4.5	3.0	3.3	3.1	3.6	5.9	3.0	3.4	5.6	3.4	4.9	3.2	3.6
SCI	5.6	3.4	4.2	5.5	3.7	4.7	5.4	4.8	5.4	5.2	4.6	5.8	4.3	4.7	4.4	4.0
ENY	3.4	3.0	4.8	6.0	3.9	4.3	3.6	4.1	5.5	3.9	3.4	5.8	4.9	5.8	3.3	4.1
UNY	3.8	5.8	4.3	3.8	3.6	4.2	2.3	3.4	6.5	3.3	2.6	5.6	3.8	6.1	2.3	4.5
BDY	4.1	2.2	6.1	5.3	6.3	6.5	6.3	2.5	5.8	3.8	2.4	5.5	3.4	5.4	5.3	2.7
SAL	2.6	4.9	4.6	4.3	3.3	3.8	2.6	3.3	5.3	3.6	3.3	5.6	3.8	5.9	2.5	4.9
MED	2.3	3.5	4.8	4.1	2.3	2.8	3.2	2.8	6.1	1.5	2.6	6.4	3.1	6.8	2.3	4.1
CON	2.3	3.2	3.4	4.8	2.2	3.8	5.0	4.8	5.5	2.1	4.3	6.5	3.3	5.8	4.3	3.9
MNY	5.6	1.9	3.7	4.0	5.4	6.5	6.5	5.9	3.7	4.8	4.6	4.1	4.9	3.8	5.1	3.4
PAN	2.4	2.1	4.3	4.8	3.1	4.6	6.3	5.5	5.1	2.3	5.1	5.1	4.2	3.3	5.4	3.6
PLS	1.9	1.5	5.6	5.5	4.2	4.5	5.3	2.7	5.3	2.8	3.1	4.8	4.3	5.6	3.3	2.9
CSC	2.1	2.9	3.9	4.6	2.2	3.5	2.9	3.5	6.1	2.6	3.1	5.6	3.7	5.4	2.4	4.3
TIM	3.1	2.3	2.5	4.3	3.1	3.1	5.7	4.3	4.9	4.1	4.3	4.3	4.6	4.5	3.8	4.1

TABLE III:2 Table of Non-Meditator Means

Concepts	Scale No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FTH	2.5	3.4	4.8	4.6	1.6	1.9	2.9	4.3	5.5	2.3	3.9	5.7	3.6	5.1	3.9	4.3
MND	2.3	3.3	5.0	6.1	1.9	2.9	3.5	3.8	5.3	1.7	3.6	5.3	3.8	4.7	3.7	3.3
TRU	4.4	4.7	3.9	4.6	2.8	3.1	2.4	4.6	5.5	4.2	3.9	5.6	3.9	5.7	3.5	5.1
GOD	3.3	4.5	4.8	5.1	2.7	2.4	1.8	3.8	4.9	3.4	3.8	5.7	4.0	5.6	2.7	4.2
SOL	2.6	4.7	4.3	5.1	2.1	1.6	2.1	3.7	5.3	1.8	3.4	5.1	3.8	4.9	3.5	3.7
LIF	4.3	2.4	5.8	6.4	4.0	4.1	5.5	4.1	5.7	3.3	3.8	4.9	4.6	4.7	3.4	3.4
DTH	4.5	5.9	2.4	2.8	5.3	2.5	3.5	5.1	3.9	2.6	4.4	3.9	3.9	4.1	3.8	3.6
KNO	4.4	2.9	4.9	4.3	2.3	3.5	3.5	4.5	5.9	4.4	4.1	5.6	3.9	4.9	3.6	3.9
REL	3.8	4.2	5.3	4.9	4.6	4.1	3.6	4.8	4.6	4.5	4.5	4.5	4.2	4.0	4.3	3.9
HVN	2.3	4.5	5.8	4.8	2.4	1.9	2.0	2.3	5.5	3.6	3.0	5.3	3.4	6.2	1.9	4.4
HEL	2.4	4.0	3.9	4.8	3.4	2.3	1.9	5.9	4.3	3.4	5.3	3.7	3.6	1.9	4.5	2.9
THO	2.4	2.5	4.6	4.9	1.6	2.3	3.1	3.9	5.5	2.1	3.4	5.4	3.9	4.6	3.8	3.5
EFF	4.3	3.3	3.7	6.4	4.6	4.3	5.1	5.6	5.3	3.9	4.8	6.4	4.1	4.8	4.9	3.9
SEX	3.2	2.4	6.0	6.3	4.9	4.9	4.2	2.4	5.9	1.7	2.9	5.8	3.8	5.6	4.3	3.5
INF	2.9	5.2	2.9	3.1	2.7	1.4	1.5	3.9	3.4	4.1	3.7	3.5	3.2	4.2	2.1	4.3
ZRO	5.0	5.8	2.2	2.7	2.9	3.1	2.8	4.8	4.4	4.5	3.1	4.2	3.9	3.9	4.2	4.0
LOV	2.2	2.2	6.2	5.4	3.3	2.4	3.4	2.8	5.9	1.8	3.0	5.6	3.6	6.1	3.5	4.7
SLF	2.5	3.1	4.6	5.6	3.4	4.5	5.1	3.6	5.2	1.8	3.8	5.1	3.9	4.3	4.4	3.2
SCI	6.2	2.4	4.8	6.1	4.3	5.6	5.5	5.1	6.1	6.0	4.9	6.4	4.5	5.0	4.0	4.7
ENY	4.5	2.5	4.3	6.6	5.5	3.7	4.8	4.8	5.0	4.3	4.5	5.1	5.2	4.7	3.9	3.9
UNY	4.1	5.1	3.6	4.4	3.7	4.1	3.9	4.2	5.1	4.6	3.6	5.4	4.0	4.8	4.4	4.7
BDY	5.3	3.7	5.6	6.3	6.5	6.3	6.2	3.4	5.1	2.8	3.1	5.6	4.4	5.0	4.6	3.4
SAL	3.2	4.3	4.4	4.6	2.7	2.6	3.3	3.7	4.9	3.3	3.8	5.4	3.9	5.4	3.3	4.1
MED	2.4	3.9	4.2	3.6	1.4	2.0	2.1	3.5	4.6	1.7	3.3	5.4	2.9	4.9	2.6	3.5
CON	4.4	2.8	3.6	5.5	1.8	2.7	5.3	5.3	5.2	2.4	4.6	6.4	3.9	5.2	5.3	3.3
MNY	6.1	2.5	3.9	5.0	6.1	6.4	5.9	5.3	3.6	5.3	4.8	4.8	4.3	3.1	5.2	3.1
PAN	3.3	1.9	4.3	4.9	4.0	4.6	5.0	5.9	5.1	2.1	5.3	4.4	3.6	2.8	4.9	3.0
PLS	1.3	1.6	6.5	5.6	3.6	3.3	4.4	2.7	5.6	3.0	2.6	4.9	4.1	6.3	3.4	2.7
CSC	3.4	2.4	4.8	5.1	2.2	3.1	4.4	3.6	5.0	1.8	3.4	4.6	3.6	5.1	3.1	3.7
TIM	2.7	3.5	3.0	4.1	3.3	1.9	3.3	4.3	4.0	4.1	4.3	3.5	4.3	3.8	2.9	4.2

Table III:3 Table of Meditator Standard Deviations

Concepts	Scale No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17
FTH	0.93	2.33	1.48	1.62	1.86	1.84	1.99	1.26	1.52	1.45	1.36	1.69	0.99	1.63	2.07	1.65
MND	2.14	1.62	1.90	1.27	0.79	1.56	2.38	1.32	2.14	1.66	1.49	2.19	1.22	2.09	2.02	1.17
TRU	2.15	1.68	2.28	1.72	1.70	2.26	1.76	1.34	1.49	1.62	1.31	1.07	1.53	1.30	1.54	1.87
GOD	2.39	1.89	1.96	2.00	1.76	1.87	1.93	1.37	1.96	1.62	1.55	1.38	1.66	1.70	1.91	1.61
SOL	1.69	1.77	2.18	1.85	1.06	1.07	0.94	1.13	1.62	1.16	1.25	1.24	1.45	1.32	1.46	1.54
LIF	2.03	1.69	1.68	1.27	0.86	1.17	2.28	0.93	1.34	1.76	0.79	1.06	0.83	1.32	1.65	1.34
DTH	1.76	2.14	1.53	1.90	1.49	1.99	2.40	1.60	1.66	1.46	1.62	1.65	1.31	1.65	1.69	0.93
KNO	2.02	2.37	2.05	1.99	1.67	2.24	1.93	1.55	0.70	1.71	1.54	1.27	1.41	1.09	1.54	1.46
REL	2.20	2.07	1.73	1.94	1.11	1.62	1.52	1.00	1.69	1.38	1.41	1.73	0.83	1.41	1.50	1.33
HVN	2.18	2.26	1.27	1.71	1.17	1.73	1.86	1.50	1.69	1.42	1.35	1.63	1.17	1.67	1.53	1.87
HEL	2.00	2.52	2.21	2.09	1.22	1.79	2.09	1.36	2.09	1.22	1.27	2.10	1.89	1.11	1.74	1.15
THO	2.00	1.32	2.09	0.83	1.06	1.83	2.14	1.35	1.90	1.03	1.15	2.01	1.06	1.79	1.75	1.11
EFF	1.64	1.82	1.45	0.86	0.92	1.87	1.94	1.74	1.27	1.41	1.45	0.79	1.27	1.36	1.65	1.10
SEX	1.62	1.69	1.62	1.00	1.48	1.78	1.62	1.24	1.53	1.58	1.49	1.84	1.17	1.61	1.41	1.14
INF	2.47	1.16	2.54	1.84	1.22	1.65	1.00	1.10	1.46	1.41	1.15	1.69	1.12	1.37	1.27	1.43
ZRO	1.73	1.29	2.12	1.44	1.34	1.83	2.08	1.22	1.80	1.36	1.58	1.77	1.34	1.16	1.62	1.12
LOV	1.30	2.49	1.27	1.47	1.25	2.29	1.66	1.17	0.46	1.81	1.38	1.79	1.38	0.87	1.54	1.49
SLF	2.02	2.52	1.89	1.50	1.12	2.26	2.06	1.37	1.68	1.66	1.32	1.54	1.17	1.65	1.78	1.58
SCI	1.27	1.97	2.01	1.90	1.96	1.89	1.69	1.51	1.50	1.59	1.36	1.68	1.53	1.65	1.65	1.54
ENY	1.62	2.00	1.85	1.12	0.60	2.05	2.26	0.93	1.37	0.75	1.32	1.25	1.48	1.20	1.16	1.54
UNY	1.98	1.64	2.05	1.70	1.37	1.84	1.40	1.45	1.00	1.10	1.37	1.69	1.29	1.27	1.49	1.62
BEY	2.01	1.42	0.90	1.60	1.20	1.00	1.20	1.27	1.48	1.20	1.00	1.62	1.12	1.37	1.56	1.21
SAL	2.03	2.29	2.09	1.95	1.40	2.22	1.84	1.21	2.00	1.76	1.04	1.37	1.15	1.64	1.62	1.89
MED	1.96	2.06	1.82	1.90	1.26	2.27	1.55	1.42	1.64	0.87	1.37	1.06	1.52	0.73	1.25	1.58
CON	1.98	2.16	1.97	2.05	1.18	2.02	1.77	1.48	1.46	1.14	1.45	0.71	1.30	1.20	1.89	1.32
MNY	2.15	1.52	2.05	2.26	1.90	0.71	1.00	1.22	1.21	1.13	1.45	1.14	1.11	1.09	1.03	1.46
PAN	1.58	1.20	1.89	1.98	1.25	2.12	1.09	1.32	1.45	1.39	1.17	1.58	1.01	1.26	1.36	1.17
PLS	1.14	0.71	1.69	1.46	1.29	1.77	1.72	1.16	1.93	1.42	1.30	1.88	0.83	1.41	1.72	1.58
CSC	1.65	1.71	2.25	2.06	1.38	2.47	1.96	1.12	1.20	1.54	1.27	1.83	1.40	1.46	1.17	0.97
TIM	2.18	1.52	1.77	1.98	1.36	1.82	1.83	0.68	1.76	1.56	1.44	2.17	1.17	1.27	1.64	0.97

Table III:4 Table of Non-Meditator Standard-Deviations

Concept	Scale No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FTH	2.03	2.06	0.88	1.80	0.93	1.52	1.89	1.10	2.12	1.95	0.97	1.49	0.86	1.58	1.54	1.82
MND	1.82	2.05	1.50	0.99	1.32	2.00	2.03	1.07	1.09	0.92	0.86	1.26	1.03	0.98	1.40	1.45
TRU	2.15	2.17	0.86	1.54	1.56	1.92	1.27	0.86	1.70	1.78	0.66	1.22	0.48	1.26	1.41	1.11
GOD	2.44	2.29	1.51	1.71	1.76	1.58	1.20	0.63	1.87	1.80	0.39	1.21	0.35	1.32	1.31	1.70
SOL	1.65	1.83	1.52	1.68	1.14	1.05	1.27	1.26	1.45	1.01	1.05	1.52	0.53	1.17	1.32	0.68
LIF	2.28	1.93	1.30	0.86	1.50	2.20	2.06	1.34	1.21	1.52	1.13	1.78	0.86	1.36	1.41	1.62
DTH	2.40	1.54	1.54	2.08	1.96	1.84	2.29	1.17	2.16	1.96	0.99	1.69	0.78	1.27	1.59	1.50
KND	2.26	1.98	1.05	1.57	1.04	2.09	1.62	1.00	0.97	1.37	0.56	1.05	0.56	1.03	1.46	0.86
REL	2.51	2.01	1.36	1.48	2.00	2.12	2.09	1.42	1.49	1.27	0.94	1.06	1.01	0.38	1.65	1.32
HVN	1.76	2.55	1.29	1.70	1.83	1.68	1.41	1.31	1.62	2.06	1.12	1.44	1.41	0.95	1.03	2.03
HEL	1.80	2.03	2.06	2.08	2.00	1.65	1.32	1.14	2.36	1.84	1.36	1.72	1.32	1.20	1.90	1.27
THO	1.76	1.84	1.54	1.78	0.93	1.36	1.85	1.25	1.27	1.14	0.79	0.93	0.97	0.78	1.63	0.61
EFF	1.92	1.89	1.16	0.60	1.41	1.82	1.32	1.00	1.44	1.56	1.18	0.86	1.30	1.35	1.27	1.34
SEX	2.19	1.11	1.17	0.97	1.82	1.92	1.47	1.17	1.45	0.85	1.32	0.95	1.13	1.22	1.53	1.73
INF	1.90	1.67	1.39	1.71	1.26	1.00	1.06	1.34	2.09	1.30	1.21	1.06	1.18	0.53	1.34	0.92
ZRO	1.58	1.79	1.42	1.61	1.30	1.73	1.35	1.13	1.58	1.06	1.36	1.24	0.24	0.78	1.01	0.00
LOV	2.01	1.67	1.07	1.73	1.60	1.69	1.54	1.52	1.25	0.97	1.17	1.27	0.78	1.03	1.22	1.57
SLF	1.97	2.09	1.54	1.34	1.49	1.77	1.95	1.17	1.70	0.97	1.24	1.58	0.83	1.53	1.83	1.74
SCI	1.47	1.94	1.82	1.17	2.02	1.49	1.54	1.27	1.48	1.17	1.27	0.78	1.27	1.58	1.50	1.49
ENY	1.32	1.62	1.30	0.70	1.41	2.08	1.48	1.07	1.32	0.77	0.94	0.97	1.18	0.92	1.36	0.70
UNY	1.58	1.56	1.11	1.49	1.21	1.52	1.30	1.07	1.36	1.05	1.00	1.00	0.35	0.95	1.05	1.10
BDY	2.08	2.05	0.86	0.83	0.71	0.92	1.07	0.93	1.09	1.92	1.52	1.22	1.06	1.06	1.87	1.45
SAL	2.16	1.30	1.32	1.73	1.36	1.77	1.71	1.49	1.93	1.26	0.81	1.41	0.66	1.17	1.40	2.03
MED	1.41	1.60	1.42	1.97	0.61	1.17	1.25	1.66	1.76	1.49	1.21	1.32	1.17	1.27	1.54	1.77
CON	2.18	1.68	1.05	1.62	1.03	1.72	1.60	1.25	1.42	1.17	1.11	0.70	1.17	1.47	1.15	1.10
MNY	1.05	1.50	2.06	1.46	1.11	0.70	1.25	1.61	1.76	1.79	1.47	1.79	1.36	1.17	1.33	1.17
PAN	2.17	0.90	2.11	1.95	1.77	1.83	1.73	1.20	1.39	1.22	1.16	1.45	0.78	1.33	1.27	1.22
PLS	0.77	0.61	0.71	1.41	1.58	1.79	2.12	1.53	1.22	1.37	1.17	1.52	1.36	0.77	1.65	1.31
CSC	2.03	1.41	1.63	1.98	1.18	2.01	1.87	0.93	1.06	1.25	1.11	1.27	0.99	1.30	1.39	1.10
TIM	1.93	2.40	2.09	2.00	1.25	1.22	2.23	1.04	1.90	1.11	0.90	1.46	0.85	0.73	1.68	0.53

TABLE III:5 Table of t values for comparison of meditators and non-meditators

Concept	Scale No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FTH	-2.37	1.02	0.41	0.59	3.27	2.07	).77	-2.11	0.54	0.87	-2.12	0.00	0.27	1.72	-2.33	-0.86
MND	2.02	-1.98	-1.17	-2.19	-1.38	-1.81	1.35	1.04	-0.74	2.61	0.82	-1.26	3.10	-0.15	-1.01	-0.57
TRU	0.00	3.22	2.03	-0.77	0.61	2.62	-0.33	-2.00	2.04	1.03	-2.41	2.17	-0.66	1.76	-1.69	-1.30
GOD	0.21	2.74	1.14	-0.40	0.00	0.14	1.40	-1.17	1.04	1.02	-2.21	0.39	-1.46	-0.98	0.31	1.21
SOL	-0.75	1.81	0.27	-2.26	1.81	0.71	-2.24	-1.67	0.82	-0.46	-2.16	2.17	-1.60	2.41	-3.05	3.16
LIF	-1.50	0.41	0.51	-2.99	-0.41	1.98	-2.88	-0.65	0.78	0.30	-1.28	2.90	-2.37	2.06	-0.81	1.68
DTH	-0.24	-2.02	2.28	1.76	-1.58	3.78	2.24	-1.07	3.11	-0.14	-1.12	2.99	1.62	0.00	1.22	0.20
KNO	-2.10	1.94	0.46	0.00	1.44	-0.58	-1.40	-2.11	2.08	-3.06	-0.65	0.86	-1.17	4.95	-2.67	2.30
REL	-0.11	1.23	0.80	-2.18	-3.10	-0.53	-3.01	-2.64	2.67	-2.07	-2.93	2.61	-1.08	5.82	-4.44	2.83
HVN	1.39	0.31	0.28	-2.05	0.65	3.97	0.76	1.95	0.45	0.42	0.81	-0.16	0.39	-1.11	1.15	0.26
HEL	0.13	-0.66	0.58	-0.72	-2.27	3.35	4.86	-0.20	-0.22	-2.09	0.19	-1.04	0.46	-0.22	2.88	-3.72
THO	1.33	-1.25	-0.14	3.24	-0.50	0.78	3.75	0.96	-0.15	-1.15	3.31	-0.48	2.47	0.18	-0.15	-1.67
EFF	-4.48	-0.81	1.91	0.00	-4.42	-0.54	-0.30	-2.12	0.92	-4.21	-1.51	0.30	-0.19	1.66	-2.04	1.22
SEX	-0.13	0.88	-1.77	-1.02	0.00	0.54	3.56	2.71	-0.50	2.17	1.25	-1.70	-1.30	-0.70	0.17	-1.19
INF	3.18	3.14	1.59	1.13	2.61	2.01	0.24	-0.81	4.86	-0.18	0.21	3.01	1.30	3.13	0.57	2.08
ZRO	-0.30	1.12	0.69	0.16	0.00	-0.98	0.00	-1.06	0.44	-0.62	1.02	-0.49	0.52	1.77	-1.67	2.22
LOV	-0.59	3.54	-1.06	-1.56	-0.52	2.36	-2.34	0.74	3.19	5.68	-0.59	0.32	0.67	1.84	-2.87	2.45
SLF	0.50	2.48	0.29	-2.96	-1.14	-2.34	-3.86	-0.20	1.78	3.68	1.17	1.29	-2.23	1.41	-2.63	1.05
SCI	-1.82	2.05	-1.17	-1.58	-1.13	-2.20	-0.15	-0.90	-1.68	-2.33	-0.76	-1.91	-0.53	-0.77	0.95	-1.82
ENY	-2.87	1.10	1.25	-2.68	-5.98	1.09	-2.36	-2.74	1.49	-1.98	-3.71	2.46	-0.75	3.98	-1.78	0.84
UNY	-0.84	1.72	1.67	-1.40	-0.39	0.30	-4.81	-2.54	4.60	-4.87	-3.34	0.36	-0.80	4.68	-6.40	-0.54
BDY	-2.32	-3.40	2.27	-3.14	-1.02	0.78	0.22	-3.36	2.12	2.50	-1.94	-0.17	-3.68	1.43	1.45	-2.06
SAL	-1.19	1.34	0.57	-0.68	1.81	2.37	-1.55	-1.11	0.87	0.82	-2.14	0.36	-0.80	1.58	-2.15	1.66
MED	-0.29	-0.95	1.38	1.16	3.53	1.80	3.20	-1.78	3.38	-0.62	-2.32	3.56	0.55	7.50	-1.07	1.49
CON	-4.08	0.91	-0.48	-1.63	1.58	2.27	-0.59	-1.46	0.87	-1.30	-0.97	0.71	-2.03	1.68	-2.56	1.85
MNY	-1.33	-1.49	-0.36	-2.10	-1.76	0.33	1.99	1.58	0.17	-1.17	-0.51	-1.83	1.81	2.22	-0.42	0.95
PAN	-1.84	0.47	0.00	-0.38	-2.45	0.00	3.46	-1.39	0.18	0.38	-0.65	1.98	2.49	1.54	1.52	1.88
PLS	2.57	-0.38	-2.89	-0.35	1.74	2.81	1.81	0.00	-0.78	-0.54	1.62	-0.29	0.44	-2.64	-0.15	0.52
CSC	-2.70	1.43	-1.78	-0.87	0.00	0.78	-3.13	-0.24	3.76	2.50	-0.84	2.54	0.21	1.09	-2.14	2.17
TIM	0.85	-2.49	-1.03	0.25	-0.38	3.07	4.66	0.00	1.91	-0.18	0.00	1.76	1.23	2.65	1.96	-0.65

____ significant at $\alpha = .05$ ($t \geq 2.042$ or $t \leq -2.042$)

---- significant at $\alpha = .01$ ($t \geq 2.750$ or $t \leq -2.75$)

df = 30, 2 tailed test

TABLE III:6 F ratios for the comparison of meditators and non-meditators

Concept	Scale 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FTH	0.21	1.28	2.83	0.81	1.30	1.47	1.11	1.31	0.51	0.55	1.97	1.29	1.33	1.06	1.81	0.82
MND	1.38	0.62	1.60	1.65	0.36	0.61	1.37	1.52	3.85	3.26	3.00	3.02	1.40	4.55	2.08	0.65
TRU	1.00	0.60	7.03	1.25	1.19	1.39	1.92	2.43	0.77	0.83	3.94	0.77	10.16	1.06	1.19	2.84
GOD	0.96	0.68	1.68	1.37	1.00	1.40	2.59	4.73	1.10	0.81	15.80	1.30	22.49	1.66	2.13	0.90
SOL	1.05	0.94	2.06	1.21	0.86	1.04	0.55	0.80	1.25	1.32	1.42	0.67	7.48	1.27	1.22	5.13
LIF	0.79	0.77	1.51	2.18	0.33	0.28	1.22	0.48	1.23	1.34	0.49	0.35	0.93	0.94	1.37	0.68
DTH	0.54	1.93	0.99	0.83	0.58	1.17	1.10	1.87	0.59	0.55	2.68	0.95	2.82	1.69	1.13	0.38
KNO	0.80	1.43	3.81	1.61	2.58	1.15	1.42	2.40	0.52	1.56	7.56	1.46	6.34	1.12	1.11	2.88
REL	0.77	1.06	1.62	1.72	0.31	0.58	0.53	0.50	1.29	1.18	2.25	2.66	0.68	16.23	0.83	1.02
HVN	1.53	0.79	0.97	1.01	0.41	1.06	1.74	1.31	1.09	0.48	1.45	1.28	0.69	3.09	2.21	0.85
HEL	1.23	1.54	1.15	1.01	0.37	1.18	2.51	1.42	0.78	0.44	0.87	1.49	2.05	0.86	0.84	0.82
THO	1.29	0.51	1.84	0.22	1.30	1.81	1.34	1.17	2.24	0.82	2.12	4.67	1.19	5.27	1.15	3.31
EFF	0.73	0.93	1.56	2.05	0.43	1.06	2.16	3.03	0.78	0.82	1.51	0.84	0.95	1.01	1.69	0.67
SEX	0.55	2.32	1.92	1.06	0.66	0.86	1.21	1.12	1.11	3.46	1.27	3.75	1.07	1.74	0.85	0.43
INF	1.69	0.48	3.34	1.16	0.94	2.72	0.89	0.67	0.49	1.18	0.90	2.54	0.90	6.68	0.90	2.42
ZRO	1.20	0.52	2.23	0.80	1.06	1.12	2.37	1.17	1.30	1.65	1.35	2.04	31.17	2.21	2.57	0.00
LOV	0.42	2.22	1.41	0.72	0.61	1.84	1.16	0.59	0.14	3.48	1.39	1.99	3.13	0.71	1.59	0.90
SLF	1.05	1.45	1.51	1.20	0.57	1.63	1.12	1.37	0.98	2.93	1.13	0.95	1.99	1.16	0.95	0.82
SCI	0.75	1.03	1.22	2.64	0.94	1.61	1.20	1.41	1.03	1.85	1.15	4.64	1.45	1.09	1.21	1.07
ENY	1.51	1.52	2.03	2.56	0.18	0.97	2.33	0.76	1.08	0.95	1.97	1.66	1.57	1.70	0.73	4.84
UNY	1.57	1.11	3.41	1.30	1.28	1.47	1.16	1.84	0.54	1.10	1.88	2.86	3.58	1.79	2.01	2.17
BDY	0.93	0.48	1.10	3.72	2.86	1.18	1.26	1.86	1.84	0.39	0.43	1.76	1.12	1.67	0.70	0.79
SAL	0.88	3.10	2.51	1.27	1.06	1.57	1.16	0.66	1.16	1.95	1.65	0.94	3.04	1.96	1.34	0.87
MED	1.93	1.66	1.64	0.93	4.27	3.76	1.54	0.73	0.87	0.34	1.28	0.64	1.69	0.33	0.66	0.80
CON	0.82	1.65	3.52	1.60	1.31	1.38	1.22	1.40	1.06	0.94	1.71	1.03	1.23	0.67	2.70	1.44
MNY	4.19	1.03	0.99	2.40	2.93	0.81	0.64	0.57	0.47	0.40	0.97	0.41	0.67	0.87	0.60	1.56
PLS	2.19	1.35	5.67	1.07	0.67	0.98	0.66	0.57	2.50	1.07	1.23	1.53	0.37	3.35	1.09	1.46
PAN	0.53	1.78	0.80	1.03	0.50	1.34	0.40	1.21	1.09	1.30	1.02	1.19	1.68	0.90	1.15	0.92
CSC	0.66	1.47	1.91	1.08	1.37	1.51	1.10	1.45	1.28	1.52	1.31	2.08	2.00	1.26	0.71	0.78
TIM	1.28	0.40	0.72	0.98	1.18	2.23	0.67	0.43	0.86	1.98	2.56	2.21	1.89	3.03	0.95	3.35

___ significant at α =.05 df =15,15 $F \geq 2.4$ or $F \leq 0.42$

--- significant at α =.01 df =15,15 $F \geq 3.5$ or $F \leq 0.28$

TABLE III:7 Table of therapeutic context meditator means

Concept	Scale 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FTH	1.5	3.8	4.7	5.0	2.2	2.5	4.3	3.8	5.3	2.3	3.3	5.0	3.7	5.2	4.0	3.5
MND	2.2	2.5	4.8	5.3	1.5	2.2	4.2	3.8	5.3	3.2	3.3	5.3	4.5	4.8	3.2	3.7
TRU	3.8	6.5	5.0	4.5	3.2	4.0	2.5	4.3	6.5	4.2	3.5	5.8	3.5	5.7	3.5	4.7
GOD	3.3	6.3	4.2	4.3	2.8	2.5	1.8	3.8	5.5	3.8	3.5	5.5	4.7	4.5	3.5	4.5
SOL	2.0	5.7	3.5	4.3	2.8	1.7	1.5	3.2	4.7	1.5	3.0	4.8	3.8	4.5	3.5	4.5
LIF	3.2	2.3	5.8	5.3	4.2	5.0	4.8	4.0	5.7	3.7	3.8	6.0	4.5	5.0	3.3	3.7
DTH	4.5	5.0	3.5	3.2	5.2	4.2	5.7	4.8	5.0	2.2	3.8	5.3	4.2	4.2	4.3	3.3
KNO	2.8	3.3	4.5	4.7	2.8	3.3	3.8	4.2	6.2	3.3	3.8	5.5	3.8	5.7	3.7	4.7
REL	2.8	3.5	6.0	3.5	3.2	4.2	3.2	4.2	5.8	3.3	3.7	5.7	4.2	4.5	3.2	3.8
HVN	2.0	6.0	5.7	4.5	2.2	2.8	1.7	3.2	5.7	3.0	3.5	5.0	4.0	5.7	2.3	4.8
HEL	1.0	3.0	4.0	4.8	2.2	3.2	4.7	5.0	4.0	2.0	4.7	4.0	3.2	1.8	5.8	2.2
THO	1.8	2.5	4.7	6.2	1.3	2.7	5.5	3.8	6.0	2.2	4.2	5.8	4.3	5.0	4.0	4.0
EFF	3.2	2.2	3.3	6.7	3.7	3.5	6.2	5.2	4.3	2.8	4.7	6.2	4.2	4.2	5.2	3.7
SEX	3.3	3.2	5.0	6.0	5.2	5.0	4.5	3.8	6.3	1.5	3.3	6.2	3.5	5.2	4.0	3.3
INF	3.8	6.0	2.7	3.2	3.7	1.8	2.2	3.8	4.8	3.8	4.0	3.8	4.2	4.0	2.7	4.5
ZRO	5.2	6.3	1.7	2.3	3.7	2.7	2.8	4.3	4.7	4.0	3.3	3.8	3.8	4.0	3.7	4.0
LOV	1.7	2.7	5.0	5.3	3.2	3.0	2.7	3.3	6.5	2.8	3.3	4.7	4.0	6.0	3.0	5.3
SLF	2.5	5.5	4.0	4.2	2.8	2.8	3.3	3.8	6.2	2.3	2.8	4.8	3.8	4.5	3.2	3.2
SCI	5.5	3.7	3.3	6.0	4.3	3.8	5.5	5.0	5.3	4.8	5.0	5.8	4.5	4.7	4.8	4.0
ENY	4.0	3.0	4.5	6.0	4.0	4.3	4.3	4.3	5.0	3.8	3.7	5.2	5.3	5.0	3.5	4.3
UNY	3.5	5.5	4.3	4.7	3.0	3.0	2.5	3.7	5.8	2.8	2.8	5.2	4.0	5.3	3.0	3.8
BDY	4.3	3.2	6.0	5.5	6.5	6.5	6.2	2.8	4.8	3.5	2.7	4.8	3.8	4.5	4.3	3.2
SAL	2.2	5.2	4.2	4.5	3.0	3.0	2.8	3.7	5.0	3.5	3.7	4.5	3.8	5.7	3.0	3.5
MED	2.8	2.8	4.0	3.7	2.3	2.7	3.2	3.3	5.5	1.7	3.0	6.8	3.8	6.5	2.5	3.2
CON	3.2	2.8	2.7	6.5	1.8	3.7	6.3	5.0	5.2	2.2	4.8	6.3	4.0	5.0	5.8	2.8
MNY	4.8	1.7	4.3	4.3	6.5	6.7	6.8	6.2	4.7	4.3	4.2	4.5	4.8	3.7	4.7	3.0
PAN	2.8	2.0	4.8	5.8	3.8	4.2	6.3	4.7	5.3	2.0	4.7	5.0	4.3	3.2	5.7	3.0
PLS	1.8	1.7	4.7	5.7	3.7	4.0	5.3	3.3	5.7	2.8	3.3	4.8	4.0	5.7	3.2	2.2
CSC	2.0	2.5	3.8	4.5	2.2	3.0	2.8	3.8	6.2	3.3	2.8	5.3	4.2	4.5	2.3	4.2
TIM	2.5	2.3	3.2	4.8	3.3	3.5	6.5	4.2	4.3	3.8	4.2	4.2	4.3	3.8	4.0	3.8

TABLE III:8 Table of mystical context meditator means

Concept	Scale 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FTH	1.6	4.0	5.1	4.8	2.6	3.0	2.7	3.6	6.0	2.8	3.3	6.1	3.6	6.2	2.1	4.1
MND	3.9	2.3	4.3	5.6	1.5	2.0	4.3	4.3	4.7	2.2	4.2	4.4	4.7	4.5	3.3	2.8
TRU	4.8	6.1	4.6	4.2	2.9	4.7	2.2	3.9	6.2	4.9	3.2	6.4	3.8	6.6	2.5	4.6
GOD	3.4	5.7	6.0	5.2	2.6	2.4	2.6	3.3	5.3	3.9	3.0	6.0	2.9	5.6	2.4	4.8
SOL	2.5	5.4	4.9	3.9	2.4	1.9	1.5	3.2	6.2	1.8	2.6	6.4	3.1	6.3	1.8	4.7
LIF	3.7	2.7	6.0	5.7	3.7	5.0	3.4	3.8	6.1	3.2	3.3	6.0	3.8	5.6	3.0	4.3
DTH	4.3	4.9	3.2	3.9	4.3	4.4	4.3	4.7	5.7	2.8	4.1	5.0	4.4	4.1	4.3	3.8
KND	3.5	4.4	5.4	4.1	2.8	3.1	2.3	3.6	6.5	3.2	3.9	6.1	3.5	6.6	1.9	4.5
REL	4.2	5.6	5.4	4.3	3.5	3.7	1.7	3.9	5.6	4.1	3.6	5.3	3.8	6.1	2.2	5.4
HVN	3.6	3.9	6.0	3.6	2.9	4.1	2.7	2.9	5.7	4.3	3.1	5.3	3.3	5.9	2.3	4.4
HEL	3.3	4.0	4.3	4.1	2.6	4.1	3.6	6.4	4.2	3.0	5.8	2.7	4.1	1.9	5.8	1.5
THO	3.7	1.7	4.5	6.0	1.6	2.6	4.6	4.5	5.1	1.5	4.3	4.8	4.7	4.5	3.6	2.6
EFF	1.7	3.4	4.9	6.2	3.1	4.3	4.3	4.6	6.3	2.1	4.1	6.6	3.9	6.0	3.5	4.7
SEX	3.0	2.4	5.6	6.0	4.8	5.3	6.2	2.8	5.3	2.9	3.3	4.6	3.4	5.4	4.6	2.9
INF	5.1	6.5	4.4	3.8	3.4	2.3	1.2	3.6	6.0	4.1	3.6	5.0	3.2	5.6	1.4	5.2
ZRO	4.7	6.1	3.0	3.0	2.5	2.7	2.7	4.6	4.6	4.5	3.6	4.1	4.2	4.5	3.6	4.7
LOV	2.1	4.9	6.4	4.5	3.0	4.0	2.4	2.8	6.8	4.4	2.5	6.3	3.7	6.8	2.2	5.8
SLF	2.9	4.0	5.2	4.7	3.1	3.6	3.0	3.4	5.8	3.4	3.8	6.1	3.1	5.1	3.2	3.9
SCI	5.6	3.3	4.7	5.2	3.3	5.2	5.4	4.7	5.5	5.4	4.4	5.7	4.2	4.7	4.1	4.0
ENY	3.1	3.0	4.9	6.0	3.8	4.2	3.2	4.0	5.8	4.0	3.3	6.1	4.7	6.2	3.2	4.0
UNY	3.9	5.9	4.3	3.3	3.9	4.9	2.2	3.2	6.9	3.6	2.4	5.8	3.7	6.6	1.9	4.9
BDY	3.9	1.6	6.1	5.1	6.1	6.5	6.3	2.3	6.3	3.9	2.3	5.9	3.2	6.0	5.8	2.4
SAL	2.8	4.7	4.9	4.1	3.5	4.2	2.4	3.1	5.5	3.7	3.1	6.2	3.7	6.1	2.2	5.8
MED	2.0	3.9	5.2	4.4	2.3	2.9	3.2	2.5	6.4	1.4	2.3	6.2	2.6	7.0	2.1	4.6
CON	1.7	3.4	3.9	3.7	2.4	3.8	4.2	4.6	5.7	2.0	4.0	6.6	2.8	6.2	3.3	4.5
MNY	6.0	2.1	3.3	3.8	4.8	6.4	6.3	5.7	3.1	5.1	4.9	3.8	4.9	3.8	5.3	3.7
PAN	2.2	2.1	3.9	4.1	2.6	4.9	6.2	6.0	5.0	2.4	5.4	5.2	4.1	3.4	5.2	3.9
PLS	2.0	1.4	6.1	5.4	4.5	4.8	5.3	2.3	5.1	2.8	2.9	4.8	4.4	5.5	3.4	3.3
CSC	2.2	3.2	4.0	4.7	2.2	3.8	2.9	3.3	6.0	2.2	3.3	5.8	3.4	6.0	2.4	4.3
TIM	3.5	2.2	2.1	3.9	3.0	2.8	5.2	4.4	5.2	4.2	4.3	4.4	4.8	4.9	3.6	4.2

TABLE III:9 Table of therapeutic context meditator standard deviations

Context	Scale 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FTH	1.12	2.34	0.75	1.53	0.37	0.76	1.11	0.37	0.47	0.94	0.94	1.15	0.75	1.07	1.53	1.26
MND	1.07	1.71	1.21	0.94	0.50	0.90	2.27	0.37	1.25	0.90	0.94	1.11	0.76	1.21	0.90	0.47
TRU	0.37	1.12	1.53	1.12	1.21	2.24	1.26	0.47	0.76	0.37	0.76	1.07	1.12	1.25	0.76	0.94
GOD	0.94	1.11	1.46	1.89	1.34	1.50	1.21	0.37	1.26	0.37	0.76	1.26	1.11	0.76	1.12	1.12
SOL	1.41	1.80	2.06	1.89	0.69	0.75	1.12	1.07	1.25	0.50	1.15	1.07	1.46	0.76	1.38	0.76
LIF	1.57	1.11	1.34	1.37	0.69	1.15	1.95	0.58	1.11	0.47	0.37	0.58	0.76	1.00	1.60	0.47
DTH	0.76	2.08	1.26	2.27	1.21	2.11	2.13	1.21	0.58	1.34	0.37	0.94	0.37	0.37	1.25	1.11
KNO	1.21	2.13	1.89	1.11	1.21	1.89	1.21	0.37	0.69	1.11	0.90	1.50	0.37	1.37	0.75	1.11
REL	1.21	1.89	1.41	2.06	1.21	0.37	1.21	0.90	1.07	0.94	1.49	1.25	0.37	1.12	1.21	0.37
HVN	1.00	1.41	1.37	1.89	0.90	1.57	1.49	1.21	1.37	0.82	0.76	1.15	0.58	1.37	1.37	1.21
HEL	0.00	2.08	1.83	1.67	1.07	1.46	1.25	1.15	1.29	1.00	0.94	1.53	1.21	0.90	1.21	1.34
THO	0.37	1.71	1.60	0.69	0.47	1.70	1.89	0.37	1.00	1.34	0.69	1.07	0.47	1.15	1.15	0.00
EFF	1.46	0.69	0.75	0.47	0.75	1.80	0.90	1.07	1.11	0.69	0.75	0.90	1.21	0.69	1.07	0.47
SEX	1.80	1.57	2.24	1.15	1.07	1.63	1.80	0.90	0.75	0.50	1.11	0.69	0.76	1.34	1.00	0.94
INF	1.77	1.41	1.37	1.07	1.25	0.90	1.34	0.37	1.57	0.37	0.58	0.37	0.37	0.00	1.37	1.12
ZRO	1.34	1.11	1.11	1.25	0.94	1.70	1.95	0.47	1.60	0.58	0.94	0.90	0.37	0.00	0.75	0.00
LOV	0.75	1.37	1.15	1.11	1.34	2.16	1.25	0.75	0.50	1.34	0.94	2.13	0.58	1.15	1.00	1.49
SLF	1.26	2.14	1.83	0.90	0.90	1.46	1.80	0.90	0.90	1.37	0.90	1.57	0.90	0.76	1.57	1.34
SCI	1.26	1.60	1.60	0.58	1.80	2.03	0.76	1.15	0.75	1.46	1.15	1.07	1.38	0.94	1.07	1.63
ENY	1.15	1.63	0.50	1.15	0.00	1.70	1.89	0.47	1.15	0.37	0.75	1.07	1.11	1.15	0.76	0.94
UNY	0.76	1.26	1.25	1.11	1.41	1.53	1.50	0.75	1.34	1.21	1.34	1.21	0.00	1.37	1.41	0.37
BDY	1.80	1.77	0.82	1.26	1.12	1.12	1.21	1.07	0.90	0.76	0.94	0.90	0.69	0.76	1.70	1.07
SAL	1.07	1.34	1.67	0.96	1.00	0.58	1.34	0.47	1.29	1.26	0.47	0.76	0.37	0.94	0.82	1.50
MED	2.19	1.77	1.73	1.97	1.37	2.36	0.90	0.94	1.12	0.75	1.15	0.37	1.46	1.12	0.96	1.11
CON	1.95	1.95	1.11	0.50	1.07	1.97	1.11	1.15	0.90	1.07	0.90	0.75	1.00	1.15	1.07	1.07
MNY	2.48	0.75	2.56	2.43	0.76	0.47	0.37	1.07	0.47	0.94	1.67	0.96	0.90	0.47	0.75	0.82
PAN	2.03	0.82	0.90	1.07	1.07	2.03	0.75	0.75	0.47	1.00	0.75	0.58	0.47	0.90	0.94	0.82
PLS	1.07	0.75	1.97	1.37	0.75	1.63	1.49	0.94	1.11	1.07	0.94	1.46	0.58	1.25	0.90	1.21
CSC	1.15	1.38	2.27	2.06	1.46	2.52	1.95	0.37	1.07	1.60	1.34	1.37	0.37	1.12	1.25	0.90
TIM	1.12	1.11	1.21	0.90	0.94	1.61	1.12	0.37	1.25	1.21	0.37	0.90	0.75	0.37	1.00	0.37

TABLE III:10 Table of mystical context meditator standard deviations

Context	Scale 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FTH	0.80	2.32	1.76	1.66	1.28	2.24	2.15	1.56	1.84	1.66	1.55	1.81	1.11	1.78	2.02	1.81
MND	2.34	1.55	2.19	1.43	0.92	1.84	2.45	1.62	2.49	1.89	1.66	2.58	1.42	2.46	2.45	1.33
TRU	2.64	1.92	2.62	1.99	1.92	2.24	1.99	1.64	1.78	1.97	1.54	1.02	1.72	1.20	1.75	2.24
GOD	2.94	2.19	1.90	1.99	1.96	2.06	2.20	1.68	2.28	2.02	1.84	1.41	1.58	1.96	2.15	1.83
SOL	1.80	1.74	2.07	1.81	1.20	1.22	0.81	1.17	1.54	1.40	1.28	0.92	1.37	1.10	1.08	1.85
LIF	2.24	1.95	1.73	1.19	0.90	1.18	2.29	1.08	1.45	2.18	0.90	1.26	0.75	1.43	1.67	1.62
DTH	2.15	2.17	1.66	1.58	1.55	1.91	2.41	1.79	2.00	1.47	2.02	1.95	1.62	2.07	1.90	0.75
KNO	2.33	2.42	2.06	2.34	1.89	2.43	2.05	1.91	0.67	1.99	1.81	1.04	1.75	0.66	1.51	1.63
REL	2.48	1.74	1.85	1.79	1.02	2.00	1.42	1.04	1.96	1.51	1.36	1.95	0.98	1.22	1.54	1.36
HVN	2.46	2.30	1.18	1.50	1.22	1.64	1.95	1.64	1.85	1.49	1.58	1.85	1.35	1.81	1.62	2.15
HEL	2.10	2.68	2.41	2.26	1.28	1.87	2.37	1.20	2.44	1.18	1.25	2.24	2.12	1.22	1.99	0.92
THO	2.24	0.90	2.33	0.89	1.28	1.91	2.20	1.63	2.21	0.67	1.35	2.32	1.27	2.06	2.01	1.11
EFF	1.49	2.11	1.45	0.98	0.94	1.85	2.05	2.01	0.64	1.64	1.70	0.66	1.30	1.18	1.63	1.19
SEX	1.48	1.69	1.02	0.89	1.66	1.85	1.08	1.25	1.73	1.76	1.68	2.06	1.36	1.74	1.56	1.22
INF	2.70	0.92	2.84	2.14	1.20	1.95	0.40	1.36	1.18	1.76	1.36	2.00	1.25	1.43	0.92	1.54
ZRO	1.90	1.37	2.41	1.48	1.36	1.90	2.15	1.50	1.91	1.63	1.85	2.12	1.66	1.43	1.96	1.35
LOV	1.51	2.62	1.02	1.57	1.18	2.28	1.85	1.33	0.40	1.80	1.50	1.19	1.68	0.40	1.72	1.47
SLF	2.34	2.57	1.78	1.73	1.22	2.58	2.19	1.56	1.99	1.69	1.40	1.30	1.22	1.97	1.89	1.64
SCI	1.28	2.15	2.05	2.32	1.95	1.60	2.06	1.68	1.80	1.62	1.43	1.95	1.60	1.95	1.87	1.48
ENY	1.76	2.19	2.30	1.10	0.75	2.23	2.36	1.10	1.40	0.89	1.55	1.22	1.62	0.98	1.33	1.79
UNY	2.43	1.81	2.41	1.79	1.22	1.64	1.33	1.72	0.30	0.92	1.36	1.89	1.62	0.92	1.37	1.92
BDY	2.12	0.66	0.94	1.76	1.22	0.92	1.19	1.35	1.49	1.37	1.00	1.81	1.25	1.34	1.17	1.20
SAL	2.40	2.69	2.26	2.34	1.57	2.68	2.06	1.45	2.42	2.00	1.22	1.25	1.42	1.92	1.89	1.54
MED	1.73	2.12	1.72	1.80	1.19	2.21	1.83	1.57	1.80	0.92	1.42	1.25	1.36	0.00	1.37	1.62
CON	1.79	2.24	2.21	1.90	1.20	2.04	1.60	1.62	1.68	1.18	1.61	0.66	1.25	0.98	1.62	1.02
MNY	1.79	1.81	1.55	2.14	2.09	0.80	1.19	1.27	1.14	1.14	1.22	1.17	1.22	1.33	1.10	1.68
PAN	1.17	1.37	2.21	2.12	1.11	2.12	1.25	1.34	1.79	1.56	1.28	1.94	1.22	1.43	1.54	1.22
PLS	1.18	0.66	1.22	1.50	1.43	1.78	1.85	1.10	2.26	1.60	1.45	2.09	0.92	1.50	2.06	1.62
CSC	1.89	1.83	2.24	2.05	1.33	2.40	1.97	1.35	1.26	1.33	1.19	2.04	1.69	1.34	1.11	1.00
TIM	2.54	1.72	1.92	2.34	1.55	1.89	1.99	0.80	1.94	1.72	1.79	2.65	1.33	1.45	1.91	1.17

TABLE III:11 Table of t-values for comparison of therapeutic and mystical context indicators

Concept	Scale 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FTH	-0.29	-0.20	-0.91	0.35	-1.30	-0.85	2.71	0.58	-1.40	-0.98	0.07	-2.05	0.20	-1.99	3.00	-1.09
MND	-2.69	0.35	0.85	-0.62	0.00	0.33	-0.16	-1.13	0.91	1.85	-1.81	1.33	-0.50	0.49	-0.20	2.46
TRU	-1.45	0.72	0.53	0.53	0.47	-0.88	0.51	1.02	0.62	-1.46	0.70	-1.54	-0.58	-2.16	2.10	0.11
GOD	-0.09	1.03	-3.06	-1.26	0.39	0.16	-1.22	1.24	0.31	-0.13	1.00	-1.06	3.67	2.09	1.81	-0.56
SOL	-0.87	0.43	-1.92	0.66	1.25	-0.65	0.00	-0.08	-3.10	-0.81	0.93	-4.45	1.46	-5.38	3.88	-0.40
LIF	-0.78	-0.65	-0.30	-0.81	1.65	0.00	1.91	0.65	-0.95	0.84	2.19	0.00	2.62	-1.38	0.58	-1.51
DTH	0.35	0.13	0.58	-1.06	1.76	-0.33	1.70	0.25	-1.34	-1.27	-0.52	0.62	-0.56	0.13	0.06	-1.40
KNO	-1.01	-1.32	-1.29	0.87	0.06	0.30	2.57	1.17	-1.39	0.23	-0.13	-1.31	0.75	-2.45	4.19	0.34
REL	-1.98	-3.26	1.03	-1.17	-0.84	0.92	3.14	0.77	0.42	-1.72	0.13	0.63	1.40	-3.87	1.98	-4.45
HVN	-2.41	3.11	-0.74	1.49	-1.94	-2.23	-1.68	0.52	-0.06	-3.07	0.91	-0.55	1.91	-0.41	0.06	0.70
HEL	-4.38	-1.18	-0.40	1.04	-1.04	-1.57	1.59	-3.36	-0.29	-2.58	-2.90	1.92	-1.53	-0.18	0.06	1.64
THO	-3.29	1.66	0.24	0.59	-0.78	0.10	1.24	-1.60	1.48	-1.78	-0.35	1.62	-1.08	0.85	0.69	5.03
EFF	2.81	-2.23	-3.85	1.72	1.89	-1.24	3.33	1.00	-6.16	1.65	1.22	-1.55	0.60	-5.36	3.42	-3.24
SEX	0.57	1.33	-0.98	0.00	0.74	-0.49	-3.24	2.69	2.19	-3.06	0.07	2.89	0.26	-0.42	-1.29	1.12
INF	-1.57	-1.18	-2.20	-1.06	0.62	-0.87	2.76	0.66	-2.37	-0.59	1.09	-2.29	2.97	-4.48	3.07	-1.47
ZRO	0.80	0.53	-2.01	-1.38	2.82	-0.05	0.18	-0.68	0.11	-1.16	-0.51	-0.46	-0.86	-1.40	0.13	-2.08
LOV	-1.03	-3.02	-3.64	1.74	0.37	-1.27	0.48	1.40	-1.87	-2.79	1.88	-2.67	0.68	-2.62	1.61	-0.89
SLF	-0.60	1.79	-1.88	-1.09	-0.70	-1.04	0.47	0.96	0.67	-1.96	-2.33	-2.48	1.94	-1.13	-0.05	-1.38
SCI	-0.22	0.55	-2.10	1.34	1.56	-2.11	0.18	0.59	-0.34	-1.04	1.31	0.24	0.57	-0.06	1.36	0.00
ENY	1.71	0.00	-0.68	0.00	1.07	0.19	1.50	1.12	-1.76	-0.69	0.85	-2.30	1.29	-3.17	0.78	0.66
UNY	-0.63	-0.72	0.05	2.60	-1.93	-3.39	0.60	1.00	-3.10	-2.02	0.91	-1.13	0.74	-3.07	2.23	-2.18
BDY	0.62	3.31	-0.32	0.74	0.97	0.00	-0.31	1.24	-3.38	-1.02	1.06	-2.11	1.78	-3.89	-2.85	1.91
SAL	-0.96	0.62	-1.04	0.63	-1.08	-1.75	0.70	1.49	-0.73	-0.34	1.73	-4.64	0.36	-0.81	1.56	-4.28
MED	1.19	-1.54	-1.97	-1.10	0.07	-0.29	-0.07	1.82	-1.70	0.90	1.53	1.94	2.47	-1.79	0.96	-2.58
CON	2.21	-0.76	-2.00	5.70	-1.41	-0.19	4.39	0.80	-1.12	0.42	1.81	-1.07	3.00	-3.17	5.23	-4.51
MNY	-1.53	-0.88	1.38	0.66	3.06	1.15	1.71	1.13	5.10	-2.08	-1.42	1.86	-0.18	-0.38	-1.91	-1.50
PAN	1.08	-0.25	1.56	2.92	3.20	-1.00	0.37	-3.47	0.72	-0.86	-1.98	-0.40	0.71	-0.55	1.04	-2.45
PLS	-0.42	1.07	-2.47	0.52	-2.07	-1.33	0.06	2.85	0.90	0.07	1.00	0.05	-1.48	0.34	-0.42	-2.24
CSC	-0.36	-1.22	-0.21	-0.28	-0.07	-0.92	-0.10	1.53	0.40	2.18	-1.04	-0.76	1.78	-3.44	-0.16	-0.40
TIM	-1.44	0.26	1.88	1.49	0.74	1.13	2.28	-1.06	-1.50	-0.70	-0.29	-0.33	-1.23	-2.86	0.74	-1.20

___ significant at α = .05 $t \geq 2.145$ (or $t \leq -2.145$)

--- significant at α = .01 $t \geq 2.977$ (or $t \leq -2977$)

for df = 14, 2 tailed test

TABLE III:12 Table of F ratios for comparison of therapeutic and mystical context meditators

Concept	Scale 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FTH	1.96	1.02	0.18	0.85	0.08	0.12	0.27	0.06	0.07	0.32	0.37	0.40	0.46	0.36	0.57	0.48
MND	0.21	1.22	0.31	0.43	0.30	0.24	0.86	0.05	0.25	0.23	0.32	0.19	0.29	0.24	0.13	0.12
TRU	0.02	0.34	0.34	0.32	0.40	1.00	0.40	0.08	0.18	0.04	0.24	1.10	0.42	1.09	0.19	0.18
GOD	0.10	0.26	0.59	0.90	0.47	0.53	0.30	0.05	0.31	0.03	0.17	0.80	0.49	0.15	0.27	0.37
SOL	0.61	1.07	0.99	1.09	0.33	0.38	1.91	0.84	0.66	0.13	0.81	1.35	1.14	0.48	1.63	0.17
LIF	0.49	0.32	0.60	1.33	0.59	0.95	0.73	0.29	0.59	0.05	0.17	0.21	1.03	0.49	0.92	0.08
DTH	0.12	0.92	0.58	2.06	0.61	1.22	0.78	0.46	0.08	0.83	0.03	0.23	0.05	0.03	0.43	2.19
KNO	0.27	0.77	0.84	0.23	0.41	0.60	0.35	0.04	1.06	0.31	0.25	2.08	0.04	4.31	0.25	0.46
REL	0.24	1.18	0.58	1.32	1.41	0.03	0.73	0.75	0.30	0.39	1.20	0.41	0.14	0.84	0.62	0.07
HVN	0.17	0.38	1.35	1.59	0.54	0.92	0.58	0.54	0.55	0.30	0.23	0.39	0.18	0.57	0.72	0.32
HEL	0.00	0.60	0.58	0.55	0.70	0.61	0.28	0.92	0.28	0.72	0.57	0.47	0.33	0.54	0.37	2.12
THO	0.03	3.61	0.47	0.60	0.13	0.79	0.74	0.05	0.20	4.00	0.26	0.21	0.14	0.31	0.33	0.00
EFF	0.96	0.11	0.27	0.23	0.64	0.95	0.19	0.28	3.01	0.18	0.19	1.86	0.87	0.34	0.43	0.16
SEX	1.48	0.86	4.82	1.67	0.42	0.78	2.78	0.52	0.19	0.08	0.44	0.11	0.31	0.59	0.41	0.59
INF	0.43	2.35	0.23	0.25	1.09	0.21	11.22	0.07	1.77	0.04	0.18	0.03	0.09	0.00	2.22	0.53
ZRO	0.50	0.66	0.21	0.71	0.48	0.80	0.82	0.10	0.70	0.13	0.26	0.18	0.05	0.00	0.15	0.00
LOV	0.25	0.27	1.27	0.50	1.29	0.90	0.46	0.32	1.56	0.55	0.39	3.20	0.12	8.27	0.34	1.03
SLF	0.29	0.69	1.06	0.27	0.54	0.32	0.68	0.33	0.20	0.66	0.41	1.46	0.54	0.15	0.69	0.67
SCI	0.97	0.55	0.61	0.06	0.85	1.61	0.14	0.47	0.17	0.81	0.65	0.30	0.74	0.23	0.33	1.21
ENY	0.43	0.55	0.05	1.09	0.00	0.58	0.64	0.18	0.67	0.17	0.23	0.77	0.47	1.38	0.33	0.28
UNY	0.10	0.48	0.27	0.38	1.34	0.87	1.27	0.19	9.95	1.73	0.97	0.41	0.00	2.22	1.06	0.04
BDY	0.72	7.19	0.76	0.51	0.84	1.48	1.03	0.63	0.36	0.31	0.88	0.25	0.30	0.32	2.11	0.80
SAL	0.20	0.25	0.55	0.17	0.41	0.05	0.42	0.11	0.28	0.40	0.15	0.37	0.07	0.24	0.19	0.95
MED	1.60	0.70	1.01	1.20	1.33	1.14	0.24	0.36	0.39	0.66	0.66	0.09	1.15	0.00	0.49	0.47
CON	1.19	0.76	0.25	0.07	0.80	0.93	0.48	0.50	0.29	0.82	0.31	1.29	0.64	1.38	0.44	1.10
MNY	1.92	0.17	2.73	1.29	0.13	0.35	0.10	0.71	0.17	0.68	1.87	0.67	0.54	0.12	0.46	0.24
PAN	3.01	0.36	0.17	0.25	0.93	0.92	0.36	0.31	0.07	0.41	0.34	0.09	0.15	0.40	0.37	0.46
PLS	0.82	1.29	2.61	0.83	0.28	0.84	0.65	0.73	0.24	0.45	0.42	0.49	0.40	0.69	0.19	0.56
CSC	0.37	0.57	1.03	1.01	1.21	1.10	0.98	0.08	0.72	1.45	1.27	0.45	0.05	0.70	1.27	0.81
TIM	0.19	0.42	0.40	0.15	0.37	0.73	0.32	0.21	0.42	0.49	0.04	0.12	0.32	0.07	0.27	0.10

df =5,9 df =9,5

___ significant at α =.05 $F \geq 3.48$ or $F \leq 0.21$

--- significant at α =.01 $f \geq 6.06$ or $F \leq 0.10$

Figure III:13

Number of significant t values at α =.01 for each concept in comparison of meditators and non-meditators. Number of significant values expected by chance and critical level for a significant number of significant values as derived from the binomial distribution at α =.01 for each concept are also marked.

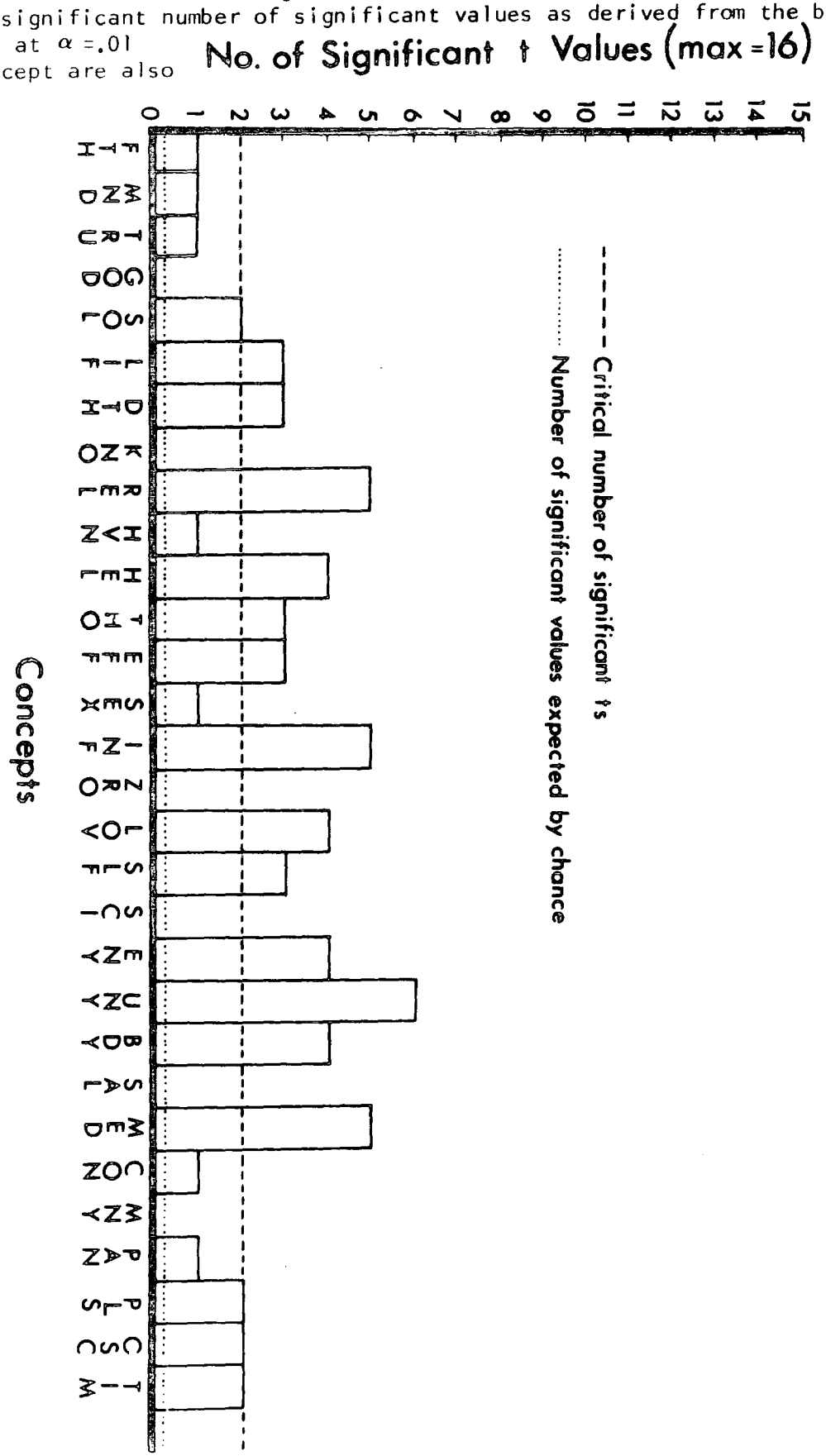


Figure III:14

Number of significant F values at $\alpha = .01$ for each concept in comparison of meditators and non-meditators. Number of significant values expected by chance and critical level for a significant number of significant values, as derived from the binomial distribution at $\alpha = .01$, for each concept are also marked.

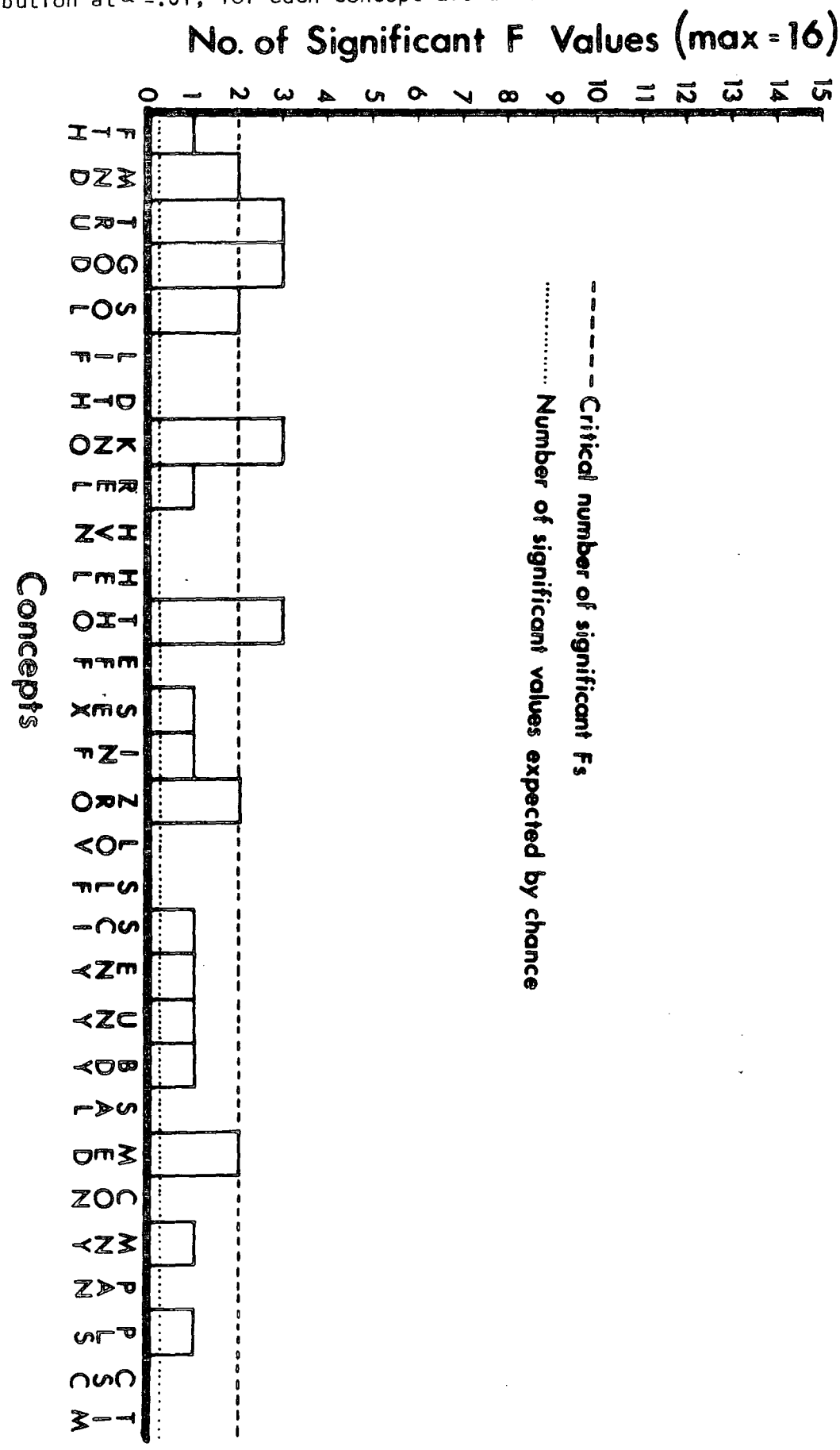


Figure III·15

Number of significant t values at α =.01 for each scale in comparison of meditators and non-meditators. Number of significant values expected by chance and critical level for a significant number of significant values as derived from the binomial distribution at α =.01 for each scale are also marked. Scales attaining significance are named.

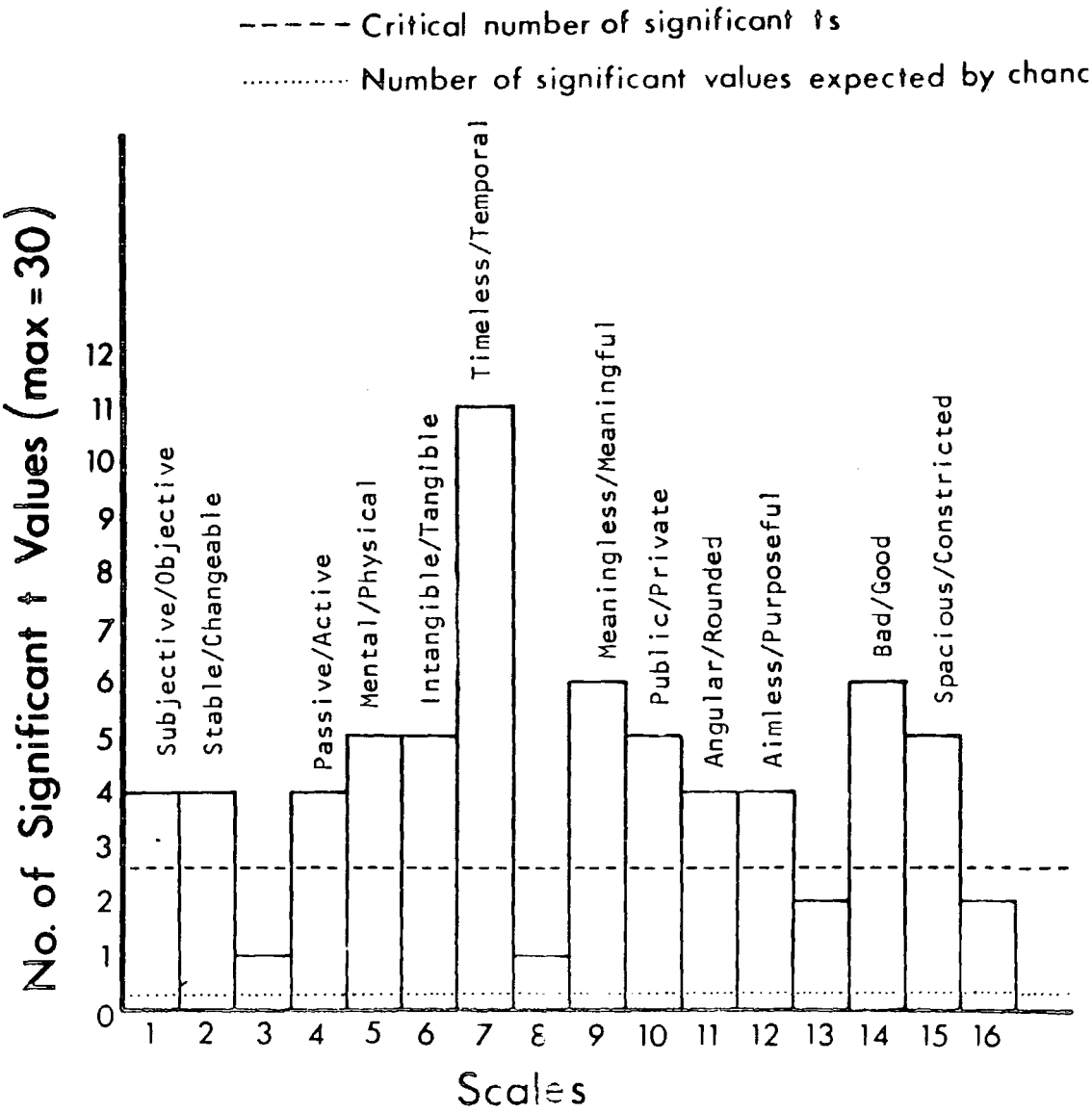


Figure III:16

Number of significant F values at α =.01 for each scale in comparison of meditators and non-meditators. Number of significant values expected by chance and critical level for a significant number of significant values as derived from the binomial distribution at α =.01 for each scale are also marked. Scales attaining significance are named.

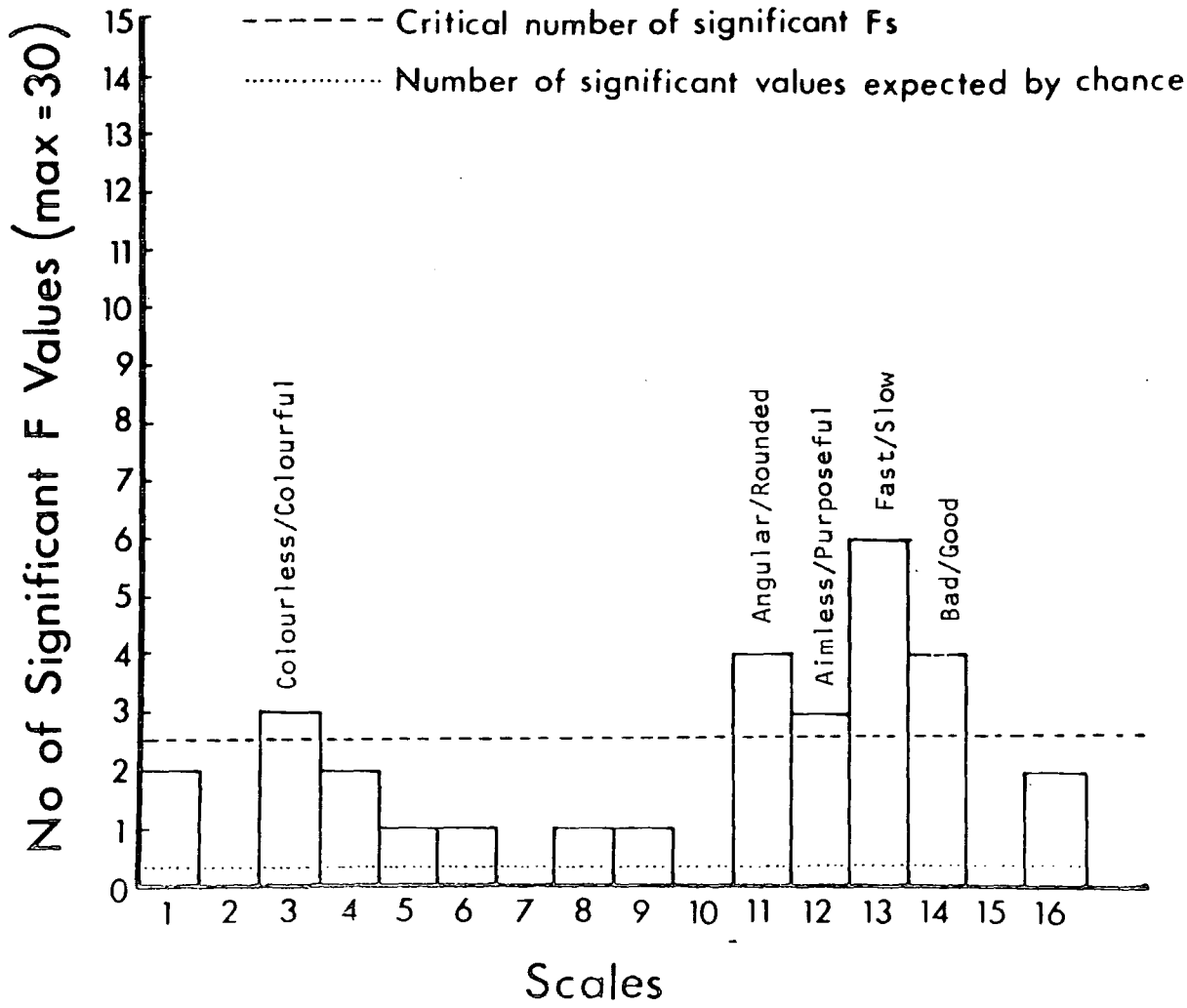


Figure III:17

Number of significant t values at $\alpha = .01$ for each concept in comparison of therapeutic and mystical context meditators. Number of significant values expected by chance and critical level for a significant number of significant values as derived from the binomial distribution at $\alpha = .01$ for each concept are also marked.

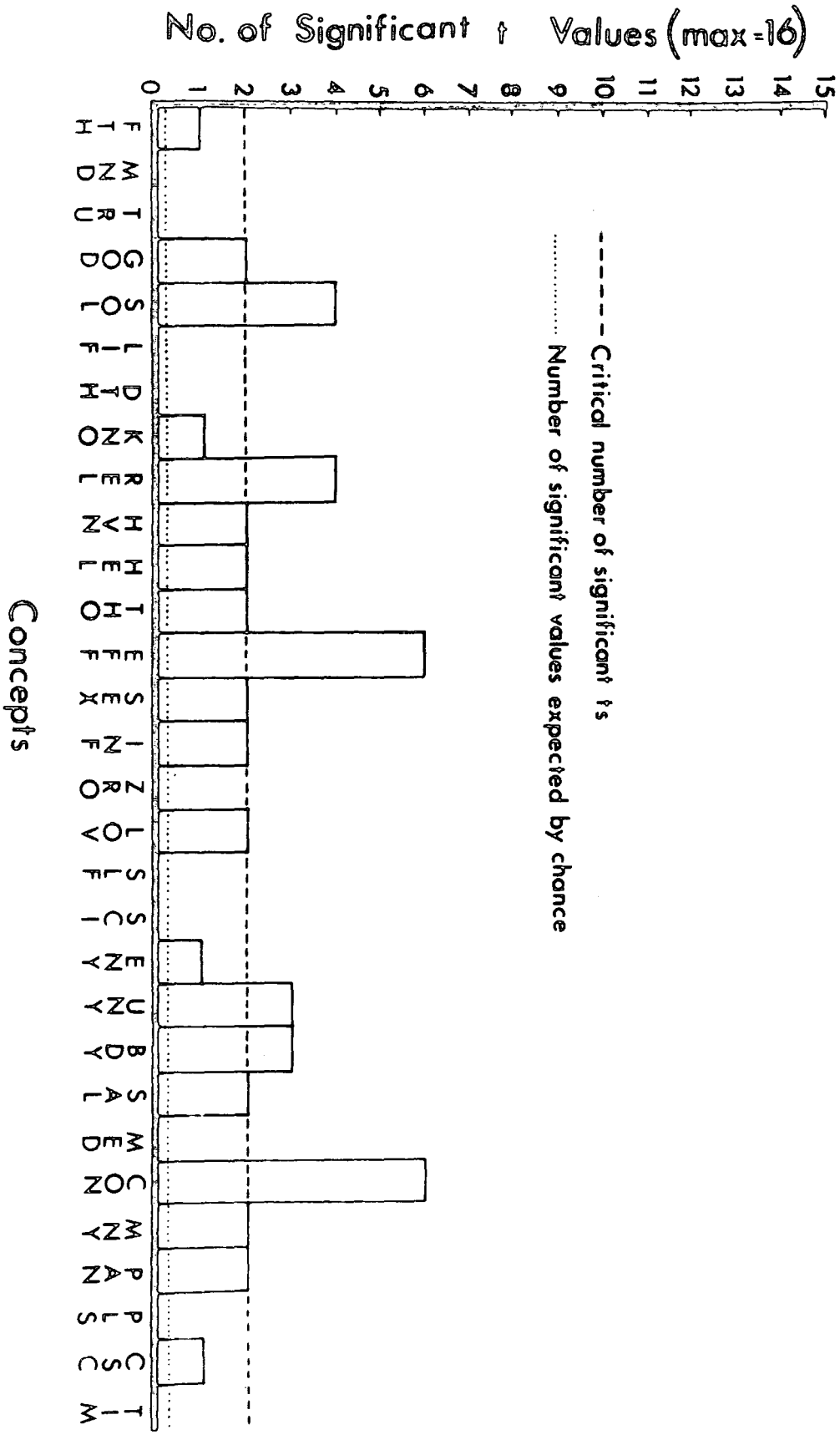


Figure III:16

Number of significant F values at $\alpha = .01$ for each concept in comparison of mystical and therapeutic context meditators. Number of significant values expected by chance and critical level for a significant number of significant values, as derived from the binomial distribution at $\alpha = .01$, for each concept are also marked.

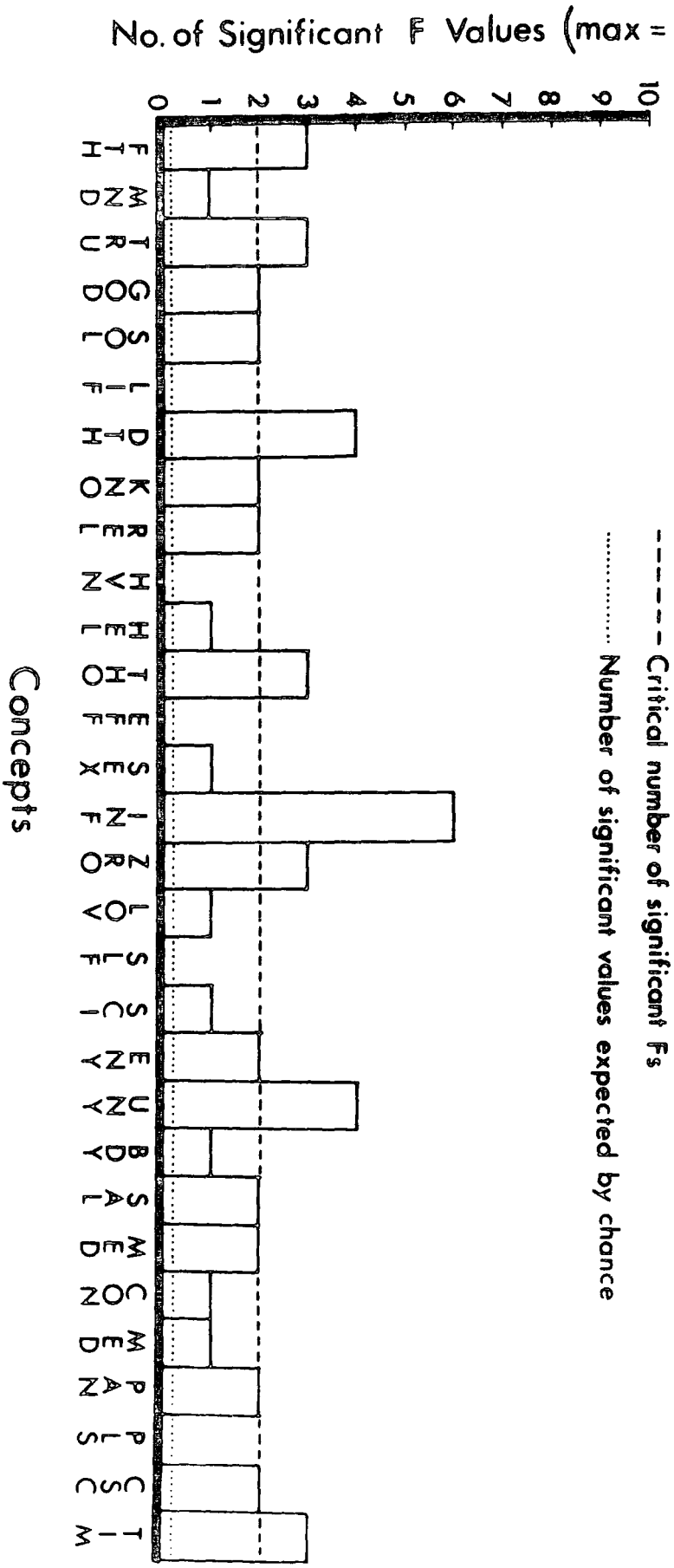


Figure III:19

Number of significant t values at $\alpha = .01$ for each scale in comparison of mystical and therapeutic context meditators. Number of significant values expected by chance and critical level for a significant number of significant values as derived from the binomial distribution at $\alpha = .01$ for each scale are also marked. Scales attaining significance are named.

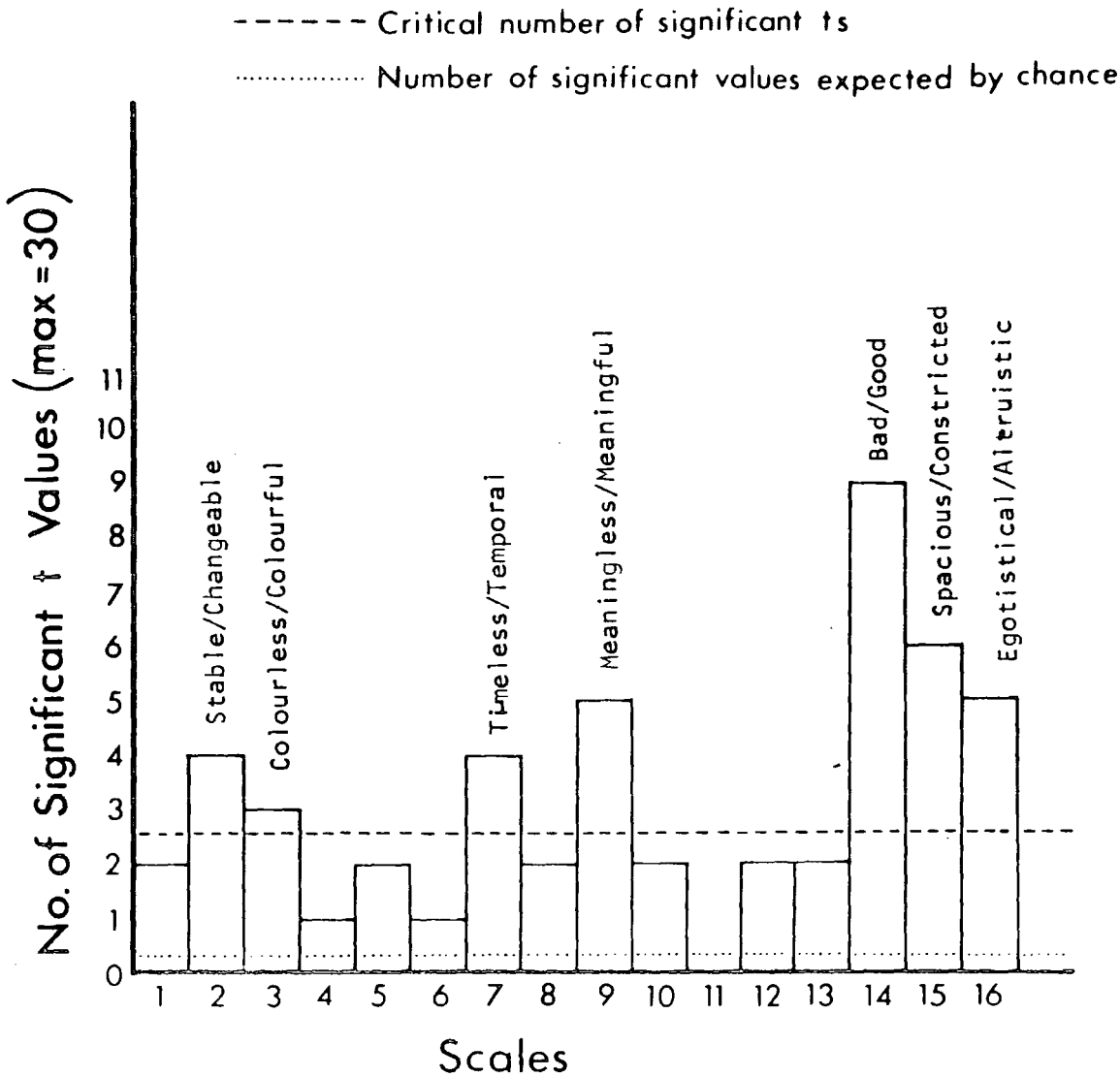


Figure III:20

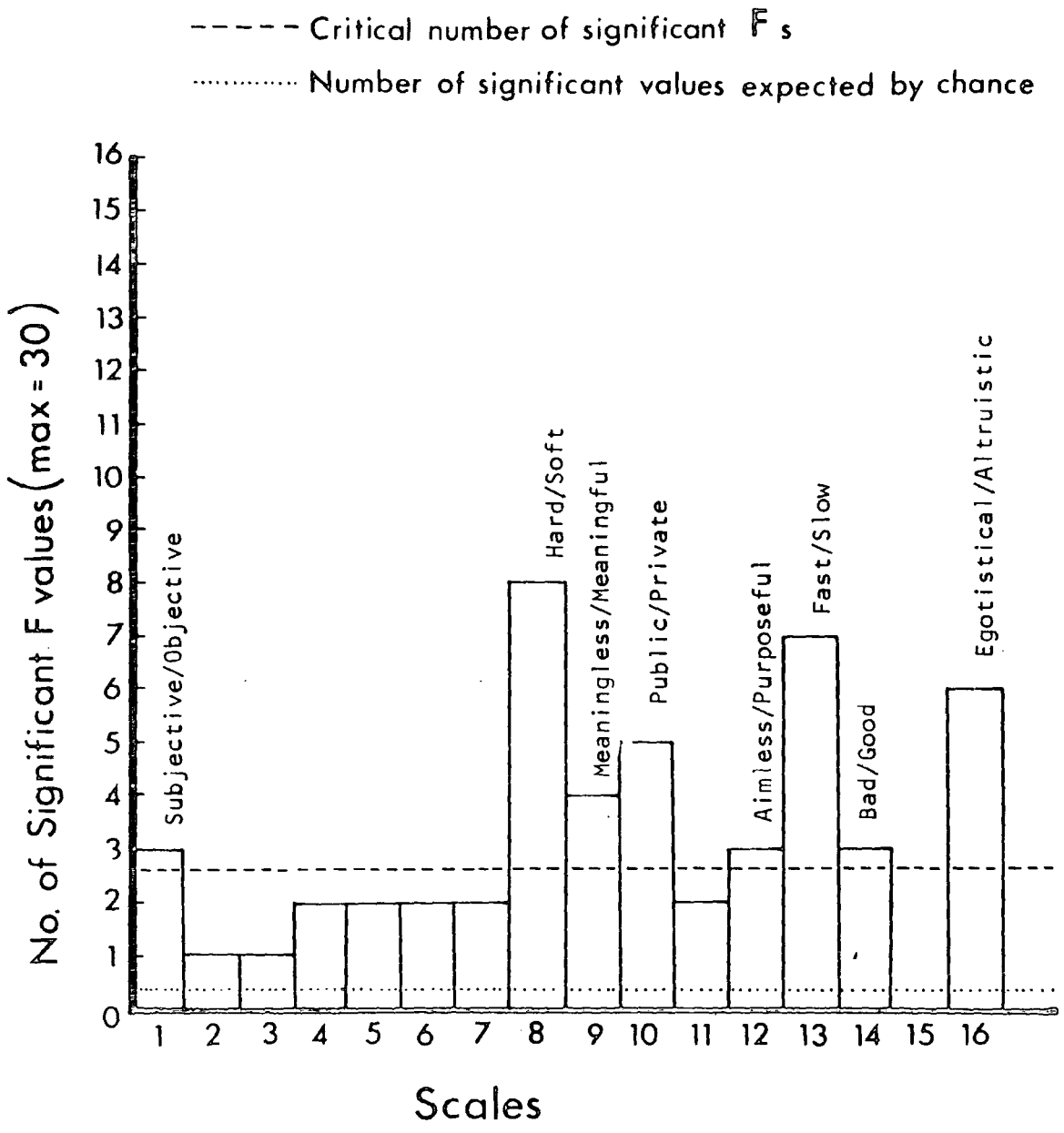


Figure III:20

Number of significant F values at $\alpha = .01$ for each scale in comparison of mystical and therapeutic context meditators. Number of significant values expected by chance and critical level for a significant number of significant values as derived from the binomial distribution at $\alpha = .01$ for each scale are also marked. Scales attaining significance are named.

APPENDIX IV

Tables of results of Manjushri study and comparison with Durham Data

The scale numbers are

1	timeless/temporal
2	purposeful/aimless
3	stable/changeable
4	intangible/tangible
5	public/private
6	bad/good
7	spacious/constricted
8	egotistical/altruistic
9	meaningless/meaningful
10	mental/physical

TABLE IV.1

Table of Majushri Means

	1	2	3	4	5	6	7	8	9	10
BDY	6.4	5.9	1.6	6.2	4.1	4.4	5.0	3.9	5.3	5.8
EFF	4.5	6.2	3.3	4.2	3.7	5.2	3.6	4.4	4.8	3.1
ENY	2.9	4.9	2.4	3.9	4.5	4.1	2.6	3.9	4.6	3.6
HEL	5.6	4.0	1.7	5.4	3.4	1.9	5.8	1.7	4.2	3.1
INF	2.1	4.1	4.1	2.6	4.2	4.3	1.9	4.1	5.1	3.2
LOV	3.2	6.4	3.9	3.9	3.7	6.0	1.9	5.8	6.3	2.6
MED	3.6	6.3	3.4	3.8	1.8	5.6	2.0	4.7	5.8	1.9
REL	2.8	5.4	4.6	4.2	4.1	4.7	2.3	4.5	5.7	3.2
SOL	3.5	4.3	3.4	2.3	3.3	4.5	3.6	4.2	4.1	2.6
UNY	3.6	5.6	4.4	4.1	4.3	5.2	2.2	5.0	5.9	3.6

TABLE IV.2

Table of Majushri St. Devs.

	1	2	3	4	5	6	7	8	9	10
BDY	1.53	1.41	1.50	1.62	1.65	1.26	1.56	1.43	1.63	1.75
EFF	2.24	1.26	2.19	1.31	1.29	1.67	1.01	1.46	1.50	1.29
ENY	2.02	1.73	2.01	1.73	1.12	1.03	1.38	1.03	1.42	0.96
HEL	2.01	1.89	1.49	1.83	1.77	1.33	1.75	1.24	1.65	1.33
INF	1.54	0.74	1.88	1.64	1.21	0.94	1.31	0.46	1.35	1.26
LOV	1.50	0.96	2.42	2.11	1.60	1.33	1.31	1.40	1.15	1.46
MED	1.77	1.25	2.31	1.92	1.57	1.64	1.56	1.60	1.67	1.18
REL	1.77	1.77	2.29	1.99	1.85	1.25	1.73	1.50	1.76	1.26
SOL	2.24	1.76	2.29	1.67	1.99	1.01	1.83	1.31	1.96	1.89
UNY	1.92	1.42	2.36	2.01	1.41	1.26	1.36	1.41	1.37	1.01

The following data represents differences between lay and ordained members of the community at the Manjushri Institute on their scoring of the semantic differential. The two groups are comprised of 7 ordained (5 females, 2 males) and 11 lay (3 females, 8 males).

TABLE IV.3

Table of Manjushri Means (Lay only)

	1	2	3	4	5	6	7	8	9	10
BDY	6.3	5.7	1.6	6.2	3.7	4.2	4.5	3.5	5.0	6.1
EFF	4.2	6.6	3.8	4.3	4.0	5.4	3.8	4.4	4.7	3.0
ENY	3.1	5.3	3.1	4.0	4.5	4.0	2.6	3.9	4.3	3.4
HEL	4.8	3.7	2.0	4.9	3.5	1.4	5.4	2.2	3.9	3.1
INF	1.6	3.9	4.4	1.8	4.3	4.5	1.7	4.2	5.0	3.1
LOV	2.9	6.3	3.6	4.3	3.4	6.5	2.2	5.7	6.2	2.3
MED	3.8	6.2	3.2	3.6	1.8	5.5	2.1	4.5	5.6	1.8
REL	3.2	5.6	3.7	4.6	4.4	4.8	2.3	4.5	5.5	2.8
SOL	2.7	4.5	4.1	2.2	2.9	4.5	3.5	3.9	4.6	2.5
UNY	3.2	5.0	4.3	4.4	4.1	5.0	2.5	4.6	5.7	3.8

TABLE IV.4

Table of Manjushri St. Devs. (Lay only)

	1	2	3	4	5	6	7	8	9	10
BDY	1.76	1.42	1.72	1.85	1.54	1.11	1.50	1.08	1.65	1.83
EFF	2.29	0.88	2.37	0.86	1.28	1.82	0.94	1.67	1.60	1.35
ENY	1.93	1.42	2.19	1.71	1.16	1.28	1.37	1.31	1.42	1.15
HEL	2.25	1.91	1.81	2.02	2.06	0.88	1.97	1.40	1.31	1.31
INF	1.15	0.29	1.77	1.34	1.54	1.16	1.14	0.57	1.35	1.31
LOV	1.44	1.05	2.31	2.09	1.07	0.99	1.40	1.42	1.19	1.42
MED	1.90	1.34	2.25	1.77	1.70	1.78	1.68	1.72	1.82	1.11
REL	1.85	1.49	2.38	2.01	1.87	1.34	1.91	1.72	1.92	1.40
SOL	2.05	1.62	2.31	1.34	1.93	0.99	1.56	1.31	1.92	1.92
UNY	1.59	1.35	2.38	2.01	1.56	1.13	1.44	1.30	1.35	0.57

TABLE IV.5

Table of Majnushri Means (Ordained only)

	1	2	3	4	5	6	7	8	9	10
BDY	6.6	6.1	1.4	6.3	4.6	4.9	5.9	4.6	5.7	5.3
EFF	5.0	5.4	2.6	4.1	3.1	4.9	3.1	4.4	5.0	3.3
ENY	2.6	4.3	1.4	3.7	4.4	4.1	2.4	4.0	5.0	3.9
HEL	6.7	4.4	1.1	6.1	3.1	2.7	6.4	1.0	4.7	3.1
INF	2.7	4.4	3.7	3.7	4.0	4.0	2.3	4.0	5.1	3.3
LOV	3.6	6.7	4.3	3.3	4.1	5.3	1.6	5.9	6.4	3.1
MED	3.3	6.6	3.7	4.1	1.9	5.6	1.9	4.9	6.1	2.1
REL	2.3	5.1	5.9	3.6	3.7	4.4	2.4	4.4	6.1	3.7
SOL	4.7	4.0	2.4	2.6	3.9	4.4	3.6	4.7	3.1	2.9
UNY	4.1	6.4	4.6	3.6	4.6	5.4	1.9	5.6	6.1	3.1

TABLE IV.6

Table of Manjushri St. Devs. (Ordained only)

	1	2	3	4	5	6	7	8	9	10
BDY	1.05	1.36	1.05	1.16	1.68	1.36	1.25	1.68	1.48	1.48
EFF	2.07	1.40	1.59	1.81	1.12	1.36	0.99	1.05	1.31	1.16
ENY	2.13	1.98	1.05	1.75	1.05	0.35	1.40	0.00	1.31	0.35
HEL	0.45	1.76	0.35	1.12	1.12	1.48	1.05	0.00	1.98	1.36
INF	1.83	1.05	1.98	1.39	0.00	0.00	1.48	0.00	1.36	1.16
LOV	1.50	0.70	2.55	1.98	2.10	1.48	1.05	1.36	1.05	1.36
MED	1.48	1.05	2.37	2.10	1.36	1.40	1.36	1.36	1.36	1.25
REL	1.48	2.10	1.36	1.76	1.75	1.05	1.40	1.05	1.36	0.70
SOL	1.98	1.93	1.84	2.06	1.96	1.05	2.19	1.16	1.64	1.81
UNY	2.23	1.05	2.32	1.92	1.05	1.40	1.12	1.40	1.36	1.36

TABLE IV.7

Table of T-Values for comparison of lay and ordained.

	1	2	3	4	5	6	7	8	9	10
BDY	0.62	0.90	-0.44	0.20	1.57	1.63	3.05	2.18	1.36	-1.45
EFF	1.12	-3.10	1.85	-0.28	-2.13	0.95	-2.10	0.14	0.56	0.68
ENY	-0.77	-1.72	-2.90	-0.50	-0.32	0.46	-0.45	0.29	1.60	1.74
HEL	3.51	1.14	-1.97	2.26	-0.73	3.32	2.03	-3.58	1.44	0.12
INF	2.12	2.02	-1.04	4.18	-0.75	-2.00	1.27	-1.34	0.32	0.47
LOV	1.35	1.48	0.80	-1.45	1.40	-2.78	-1.48	0.28	0.66	1.88
MED	-0.94	0.97	0.69	0.78	0.08	0.05	-0.46	0.60	0.95	0.82
REL	-1.60	-0.81	3.30	-1.69	-1.08	-0.97	0.28	-0.25	1.24	2.43
SOL	2.96	-0.77	-2.39	0.67	1.46	-0.34	0.04	1.95	-2.51	0.65
UNY	1.49	3.55	0.38	-1.21	1.08	1.01	-1.39	2.08	0.92	-1.95

____ significant at α = .05 $t > 2.12$ or $t < -2.12$

---- significant at α = .01 $t > 2.92$ or $t < -2.92$

for df = 16, two tailed test

TABLE IV.8

Table of F values for comparison of lay and ordained

	1	2	3	4	5	6	7	8	9	10
BDY	2.81	1.09	2.68	2.54	0.84	0.67	1.44	0.41	1.24	1.53
EFF	1.22	0.40	2.22	0.23	1.31	1.79	0.90	2.53	1.49	1.35
ENY	0.82	0.51	4.35	0.95	1.22	13.37	0.96	0.00	1.17	10.80
HEL	25.00	1.18	26.74	3.25	3.38	0.35	3.52	0.00	0.44	0.93
INF	0.39	0.08	0.80	0.93	0.00	0.00	0.59	0.00	0.99	1.28
LOV	0.92	2.25	0.82	1.11	0.26	0.45	1.78	1.09	1.28	1.09
MED	1.65	1.63	0.90	0.71	1.56	1.62	1.53	1.60	1.79	0.79
REL	1.56	0.50	3.06	1.30	1.14	1.63	1.86	2.68	1.99	4.00
SOL	1.07	0.70	1.58	0.42	0.97	0.89	0.51	1.28	1.37	1.13
UNY	0.51	1.65	1.05	1.10	2.21	0.65	1.65	0.86	0.99	0.18

____ significant at α =.05 for df 10.6 $F \geq 4.06$, for df 6,10 $F \leq 0.30$

---- significant at α =.01 for df 10,6 $F \geq 7.87$ for df 6,10 $F \leq 0.17$

TABLE IV.9

Table of Durham Meditators Means

	1	2	3	4	5	6	7	8	9	10
BDY	6.3	5.5	2.2	6.5	3.8	5.4	5.3	2.7	5.8	6.3
EFF	5.0	6.4	2.9	4.0	2.4	5.3	4.1	4.3	5.6	3.3
ENY	3.6	5.8	3.0	4.3	3.9	5.8	3.3	4.1	5.5	3.9
HEL	4.0	3.2	3.6	3.8	2.6	1.9	5.8	1.8	4.1	2.4
INF	1.6	4.6	6.3	2.1	4.0	5.0	1.9	4.9	5.6	3.5
LOV	2.5	5.7	4.1	3.6	3.8	6.5	2.5	5.6	6.7	3.1
MED	3.2	6.4	3.5	2.8	1.5	6.8	2.3	4.1	6.1	2.3
REL	2.3	5.4	4.8	3.9	3.8	5.5	2.6	4.8	5.7	3.4
SOL	1.5	5.8	5.5	1.8	1.7	.56	2.4	4.6	5.6	2.6
UNY	2.3	5.6	5.8	4.2	3.3	6.1	2.3	4.5	6.5	3.6

TABLE IV.10

Table of Durham Meditators Standard Deviations

	1	2	3	4	5	6	7	8	9	10
BDY	1.20	1.62	1.42	1.00	1.20	1.37	1.56	1.21	1.48	1.20
EFF	1.94	0.79	1.82	1.87	1.41	1.36	1.65	1.10	1.27	0.92
ENY	2.26	1.25	2.00	2.05	0.75	1.20	1.16	1.54	1.37	0.60
HEL	2.09	2.10	2.52	1.79	1.22	1.11	1.74	1.15	2.09	1.22
INF	1.00	1.69	1.16	1.65	1.41	1.37	1.27	1.43	1.46	1.22
LOV	1.66	1.79	2.49	2.29	1.81	0.87	1.54	1.49	0.46	1.25
MED	1.55	1.06	2.06	2.27	0.87	0.73	1.25	1.58	1.64	1.26
REL	1.52	1.73	2.07	1.62	1.38	1.41	1.50	1.33	1.69	1.11
SOL	0.94	1.24	1.77	1.07	1.16	1.32	1.46	1.54	1.62	1.06
UNY	1.40	1.69	1.64	1.84	1.10	1.27	1.49	1.62	1.00	1.37

TABLE IV.11

Table of Manjushri Means

	1	2	3	4	5	6	7	8	9	10
BDY	6.4	5.9	1.6	6.2	4.1	4.4	5.0	3.9	5.3	5.8
EFF	4.5	6.2	3.3	4.2	3.7	5.2	3.6	4.4	4.8	3.1
ENY	2.9	4.9	2.4	3.9	4.5	4.1	2.6	3.9	4.6	3.6
HEL	5.6	4.0	1.7	5.4	3.4	1.9	5.8	1.7	4.2	3.1
INF	2.1	4.1	4.1	2.6	4.2	4.3	1.9	4.1	5.1	3.2
LOV	3.2	6.4	3.9	3.9	3.7	6.0	1.9	5.8	6.3	2.6
MED	3.6	6.3	3.4	3.8	1.8	5.6	2.0	4.7	5.8	1.9
REL	2.8	5.4	4.6	4.2	4.1	4.7	2.3	4.5	5.7	3.2
SOL	3.5	4.3	3.4	2.3	3.3	4.5	3.6	4.2	4.1	2.6
UNY	3.6	5.6	4.4	4.1	4.3	5.2	2.2	5.0	5.9	3.6

TABLE IV.12

Table of Manjushri Standard Deviations

	1	2	3	4	5	6	7	8	9	10
BDY	1.53	1.41	1.50	1.62	1.65	1.26	1.56	1.43	1.63	1.75
EFF	2.24	1.26	2.19	1.31	1.29	1.67	1.01	1.46	1.50	1.29
ENY	2.02	1.73	2.01	1.73	1.12	1.03	1.38	1.03	1.42	0.96
HEL	2.01	1.89	1.49	1.83	1.77	1.33	1.75	1.24	1.65	1.33
INF	1.54	0.74	1.88	1.64	1.21	0.94	1.31	0.46	1.35	1.26
LOV	1.50	0.96	2.42	2.11	1.60	1.33	1.31	1.40	1.15	1.46
MED	1.77	1.25	2.31	1.92	1.57	1.64	1.56	1.60	1.67	1.18
REL	1.77	1.77	2.29	1.99	1.85	1.25	1.73	1.50	1.76	1.26
SOL	2.24	1.76	2.29	1.67	1.99	1.01	1.83	1.31	1.96	1.89
UNY	1.92	1.42	2.36	2.01	1.41	1.26	1.36	1.41	1.37	1.01

TABLE IV.13

Table of T-Values for comparison of Durham and Manjushri groups

	1	2	3	4	5	6	7	8	9	10
BDY	-0.42	-1.06	1.78	0.85	-0.87	3.12	0.66	-3.91	1.25	1.30
EFF	0.98	1.06	-0.81	-0.57	-3.94	0.39	1.71	-0.24	2.16	0.74
ENY	1.41	2.35	1.14	0.79	-2.44	6.26	2.45	0.57	2.79	1.65
HEL	-3.13	-1.68	3.90	-3.74	-2.07	-0.05	0.08	0.10	-0.21	-2.17
INF	-1.56	1.42	5.81	-1.08	-0.52	2.34	-0.22	3.20	1.49	1.11
LOV	-1.74	-2.17	0.29	-0.49	0.35	1.83	1.60	-0.44	1.93	1.37
MED	-1.05	0.37	0.21	-2.00	-1.08	4.09	0.73	-1.41	0.57	1.24
REL	-1.46	-0.02	0.49	-0.79	-0.75	2.58	0.58	0.91	-0.08	0.72
SOL	-4.80	4.16	4.14	-1.53	-4.02	3.95	-2.79	1.16	3.61	-0.13
UNY	-3.05	0.02	2.76	0.28	-3.15	3.13	0.26	-1.36	2.10	0.02

____ significant at α =.05 $t > 2.04$ or $t < -2.04$

---- significant at α =.01 $t > 2.75$ or $t < -2.75$

for df = 32, two tailed test

TABLE IV.14

Table of F values for comparison of Durham and Manjushri groups

	1	2	3	4	5	6	7	8	9	10
BDY	1.63	0.76	1.12	2.62	1.89	0.85	1.00	1.40	1.21	2.13
EFF	1.33	2.54	1.45	0.49	0.84	1.51	0.37	1.76	1.40	1.97
ENY	0.80	1.92	1.01	0.71	2.23	0.74	1.42	0.45	1.07	2.56
HEL	0.92	0.81	0.35	1.05	2.10	1.44	1.01	1.16	0.62	1.19
INF	2.37	0.19	2.63	0.99	0.74	0.47	1.06	0.10	0.85	1.07
LOV	0.82	0.29	0.94	0.85	0.78	2.34	0.72	0.88	6.25	1.36
MED	1.30	1.39	1.26	0.72	3.26	5.05	1.56	1.03	1.04	0.88
REL	1.36	1.05	1.22	1.51	1.80	0.79	1.33	1.27	1.08	1.29
SOL	5.68	2.01	1.67	2.44	2.94	0.59	1.57	0.72	1.46	3.18
UNY	1.88	0.71	2.07	1.19	1.64	0.98	0.83	0.76	1.88	0.54

____ significant at α =.05 for df 17,15 F $\geq$ 2.37 for df 15,17 F $\leq$ 0.43

---- significant at α =.01 for df 17,15 F $\geq$ 3.45 for df 15,17 F $\leq$ 0.30

APPENDIX V

Notes

Note 1

Glossary of test instruments used in the psychological studies of meditation.

A.V.S. Vos tendencies personelles (Allport, Vernon and Shevenell, 1962)

C.P.I. California Psychological Inventory (Gough, 1956)

F.P.I. Feiberger Personlichkeitsinventar (no reference given) *

I.P.A.T. IPAT Anxiety Scale (Callell and Scheier, 1963)

M.M.P.I. Minnesota Multiphasic Personality Inventory (Hathaway and McKinley, 1943)

N.D.S. Northridge Developmental Scale (Gowan.)*

S.T.A.I. State-Trait Anxiety Inventory (Spielberger, Gorsuch and Lushere, 1970)

* For these two scales, the F.P.I. is not referenced and unreported in the English literature and the N.D.S. is a 'new scale' unreported elsewhere.

Note 2

The present author has written a paper on theoretical and practical aspects of interviewing. This paper at present exists only in typescript. A paper for publication is being prepared from this typescript.

APPENDIX VI

Semantic differential used in Manjushri Study

The same instructions as were used for the Durham Study (p.195) were reproduced on the front page of the semantic-differential. On the second page an example was provided (p.229). The semantic differential itself consisted of the ten concepts (p.70) which were in random order for each booklet. A typical page of the semantic differential is reproduced on page 230.

Scale polarity for the scoring of this semantic differential is indicated in p.231.

AN EXAMPLE:

KNOWLEDGE

	-3	-2	-1	0	1	2	3	
timeless						X		temporal
purposeful	X							aimless
stable						X		changeable
intangible								tangible
public	X							private
bad				X				good
spacious		X						constricted
egotistical					X			altruistic
meaningless							X	meaningful
mental	X							physical

MEDITATION

	-3	-2	-1	0	1	2	3	
timeless	___	___	___	___	___	___	___	temporal
purposeful	___	___	___	___	___	___	___	aimless
stable	___	___	___	___	___	___	___	changeable
intangible	___	___	___	___	___	___	___	tangible
public	___	___	___	___	___	___	___	private
bad	___	___	___	___	___	___	___	good
spacious	___	___	___	___	___	___	___	constricted
egotistical	___	___	___	___	___	___	___	altruistic
meaningless	___	___	___	___	___	___	___	meaningful
mental	___	___	___	___	___	___	___	physical

SCALE POLARITY

	-3	-2	-1	0	1	2	3	
timeless	1							temporal
purposeful	7							aimless
stable	7							changeable
intangible	1							tangible
public	7							private
bad	1							good
spacious	1							constricted
egotistical	1							altruistic
meaningless	1							meaningful
mental	1							physical