in practices customs, that had survived over a period of time. Question 87, 88, addressed itself to the subject's belief in following rules always and the security inherent in following rules. Question 89, 91, 94, were regarding the subject's preference for an organized life and a life with few or no changes. Question 90 was concerned with the importance of discipline.

Table 1.8 shows the subject's responses to question on psychological rigidity. Question 72, asked whether artists were of less importance to the society than the scientist etc. Question 84, dealt with the importance of following rules and regulations. Question 85, was concerned with the necessity of the boss clearly stating to the junior how the work should be done and not leaving any scope for the junior to understand orders. Question 86 was regarding, the wisdom in practices that had survived over a period of time. Question 87, dealt with whether following rules led, to a secure life. Question 92, addressed itself to new ideas being better for the country progress. Question 93, was regarding the subject's preference for doing things in an established way or looking for new ways of doing things to do things was that prescribed by customs. Question 96, had to do with whether the society owed its progress to people who had new ideas about life and living. Question 97, 98, dealt with the subject's belief in religion and the necessity to follow all that was written in the religious text. Question 99, was regarding whether or not the subject found reality to be dry and so found fantasy and dreaming necessary.

Please refer to appendix for a detailed list of the questions and the responses.

VI

DISCUSSION AND INTERPRETATION

The assumption of the study that certain kinds of behavior which were earlier considered only pathological, have been slowly institutionalized and endorsed by certain segments of societies
and cultures as people have to make them at least marginally a part of their lives if they have to survive in that environment. Like schizophrenia was the disease of the culture in the 60s and 70s, it is presumed that autism is the 'disease' of the current civilization, of mass information, professionalization, logicalization and scienticization of many aspects of life. A logical corollary to a 'rain-man' generation that is wrapped up within itself, narrowing, cocooning and insulating itself emotionally, socially, etc., to avoid heavy encounters with reality and thereby prevent themselves from being over-aroused by social and emotional situations should be the defense mode.

The main characteristics of autism studied are aloofness, affect isolation, indifference to people, impairment of emotional relationships, inappropriate emotions, social cognition lacks, resistance to change, psychological rigidity and scienticization. These characteristics or traits can further be clustered into four basic syndromes:

(I) Affect isolation, self-isolation, unrelatedness to others, social aloofness, and indifference to people form one category.

(II) Insistence on sameness, conventionality, psychological rigidity, resistance to change constitutes another category.

(III) Impairment of emotional relationships, inappropriate emotions and lack of social cognition constitutes the third category.

(IV) The fourth category is that of scientization, 'logicalization', professionalisation of life and looking at it as an instrument to provide good life, service to society, panacea for removing all the evils of the world.

The process of autism can be explained in simple terms as:

(1) An inability to attribute beliefs, failures, intentions, etc. to other people.

(2) An inability to recognize emotions, gestures, etc. in others.

(3) A communication failure and gap and a symbolic deficiency which results due to the above reasons, so that the person cannot develop a relation with the world and there is affect isolation, self-isolation and unrelatedness to others and similar behaviors.
There is a social isolation, social aloofness and lack of social cognition, impairment of emotional relationships with people and inappropriate & need driven emotions and reactions to the environment.

There is an inability to adapt to changes, a need to structure the world, an intense resistance to change which results in rigidity, orderliness, maintenance of sameness, etc.

In the following case histories, an attempt has been made to show the development of the above traits through a description of the person's life events and capture the psychodynamics involved in adapting such behaviors. Case histories of four scientists and four doctors are discussed.

**CASE 1**

Bhanu Pratap (not his real name) is a 39 year old male, medical doctor by profession, specializing in surgery. He has done his studies from a reputed institute and is having his own practice. He is a bengali brahmin from Bihar and his native language is Bengali. He belongs to a middle class family. He lives in a metropolis and resides with his wife and child in his own house, where on the ground floor is his clinic. He is of average height, thin and very neat.

I interviewed Bhanu Pratap in his clinic which was very clean. He has kept specimens of some of the operations he has done, like the stone he'd removed from a person's gall bladder. He has no objections to the interview being recorded. He wants everything to be done properly. He seeks clarifications and rephrases questions to make sure he has understood them properly.

Pratap's father is retired and has done his graduation in metallurgical engineering. His mother is a house-wife, and has studied upto the VIII standard. He is the youngest of four children. He has two elder brothers and an older sister. Both his brothers are engineers and his sister has done a doctorate in computer science. Pratap's wife is a Sikh by caste and her native language is Punjabi. She too is a medical doctor and a surgeon. In his family, he feels the closest to his eldest brother. His father is more tolerant of his mistakes.

Pratap considers his father as a person with a tireless capacity for hard work. He admires and respects his father's determination to see his children well educated inspite of financial
difficulties. Though he respects his father, he admits that he perceives his father to be very backward and not in pace with the progress and changes in the society. His father has stuck to his old ideas and did not incorporate modern ideas in his life. His mother represents a long suffering lady, who has suffered to see others happy, but the extent of her suffering has made others unhappy too. He resents his mother and the entire family for treating him like a baby which he feels has resulted in his not growing up the way he has wanted to.

On his part, his elder brother too is very proud of Pratap. His brother's weak point is his short temper which Pratap too shares with him. He also describes his brother as being very dominating towards his wife and the family and is careless about his health, but these have suited his macho image. His second brother is the intellectual of the house and has won many gold medals but is a 'stay-at-home' armchair type, hesitant, mentally and emotionally not strong but has done well for himself by the sheer force of his intelligence. In contrast his elder brother is street smart, outgoing and not afraid to take risks. His sister is one of the most intelligent women he has met, but he finds her very self-centred, selfish and uncaring, incapable of giving love and affection as is expected from an only sister.

His wife he has known since his medical school days. He describes her as being a very understanding person, who understands to the dot what he likes and what he does not like. She has explicit faith in him and in almost everything he decides to do. She trusts him completely. He finds her very intelligent, yet he feels that at times she is slow in her thoughts and actions which he finds frustrating. He further finds her crumbling easily under the pressure of day to day living. When angry, she takes out her temper on unrelated things or persons like the kids, etc. But he says that he would choose her again as his wife if he is to make another choice as they have been used to each other ways.

Pratap describes himself as aloof and a lone ranger who likes being with himself and keeping things to himself and is more confident when alone. He is a person who listens more and talks less and a person who will not shirk from hard work when convinced it will help him achieve his goal. His weakness he feels is inability to camouflage his true feelings, inability to mix with too many people, short temperedness and rigidity in his ideas and aversive to change and
patience with those who don't not follow him easily. His achievements are his being able to secure admission in an English medium school and then in the medical college. He recalls that when he was in school, he had contested the Presidential elections which comprised of each student nominating a person and giving their reason for the nomination of the said person. Though he lost the elections, his Principal called him and told him that the reasons given for nominating him were the best. Another exciting moment in his memory was when he cleared his M.S. examination in the first attempt. His interests are reading, listening to music and watching movies whenever he has the time.

Though Pratap likes meeting new people, he is aloof and more happy when alone than when he is with people and does not enjoy going to parties. But, he does go to those parties which help develop associations and contacts for his profession. Being reticent by nature, he generally prefers not to open up a conversation with another person or a stranger unless the other person takes the initiative. And with women he is even more inhibited. He feels he is inhibited and diffident by nature but is not shy. For him maintaining a good relation requires a little understanding and accommodation of another's whims. If he has a chance to alter things in his life, he would have liked to use his father's contacts and settle in his native place where things would have been more easier than living in a city and starting from a scratch. He would also have liked to take up a profession complimentary to his eldest brother's, like architecture, so that he could work with him and learn from him. His brother wields the maximum influence in his life.

His happiest memories are his first visit to the sea as a child. Another memory is when his mother had returned from a vacation she had taken alone (without the children) and the day she had returned was a very happy moment for Pratap. Another fond memory was when he had got a double promotion from Standard II to Standard IV. His unhappy memories are when he failed to secure marks according to his expectations in Senior Cambridge; and when he failed to secure a rank/position in IX standard. Other episodes that have influenced him were when as a child of 5 years, he, for the first time, saw a dead body across the street and was very scared. Later there was a murder in the neighborhood. These images haunted him for a long time. Once when he was in VIII or IX standard and did not possess a driving licence, he was caught driving a moped. The two hours he spent in the police station were so very traumatic that to date he never forgets to
carry his licence. Another traumatic incident was witnessing the Hindu-Muslim riots in 1967 in Jamshedpur.

Bhanu Pratap is a surgeon with 15 years of work experience. He enjoys his work. He took up medicine because his father and brothers groomed him for it right from his childhood and instilled in him the idea of becoming a doctor as they were all engineers in the family and they wanted a doctor. He took up surgery because it was challenging and interesting and provided immediate results and came closest to real cure. The main appeal of the profession was the easy money and the social status the profession brought. Being a doctor, he felt, enhanced one's image and also increased the demand in the matrimonial value. For him, the profession provided a challenge, and the feeling of finding a "cure" was an addiction. He feels that study of medicine has had a subtle effect on him. It has affected him in two ways. Firstly he has been forced to become more smarter in his life-style. He learnt to be on his toes, stay awake late and get up early. But he has no time for leisure and the freedom to do what he wants. Secondly, it has made him more knowledgeable about human beings, something akin to a self-styled psychologist because he has seen suffering and the different ways people deal with it-through bravery, cowardice, pain etc. When a patient comes to a doctor he comes in a compromised position, his true self, and observing people in their true selves gives him valuable insight into life. For him, medicine is the most important aspect of human welfare and development, at par with technological development, which helps in curing diseases and prolonging life.

Recalling his early days in the medical college, he says the first time he encountered the cadaver, he felt very queasy.

The smell of formalin and the bodies lying on stainless steel tables was for him horrible and since lunch was just after dissection, he found it difficult to eat. Initially, he found it difficult even holding the dead body, but in a short time he got so used to it that it was just an anatomical specimen. He encountered his first death when he just finished his MBBS. The patient had a cardiac arrest and he had no time to call anyone, he struggled for half hour but the patient was beyond survival. The only reason he would sleep that night was out of sheer physical exhaustion.

1 Most surgeons have expressed similar reason for choosing surgery over medicine.
Though this memory haunted him for some time, he felt one finally got used to death. Dissections, helps in understanding the basic structure, but more important helps in overcoming the initial problem of blood and the queasiness involved with it.

Pratap's most exciting professional moments, were when as a junior doctor on duty in a village, he had all by himself handled five major cases as it was a Sunday. The five cases, were of poisoning, scorpio bite, two injury patients, and a patient in labour. He felt great sense of achievement when he could save all of them before outside help came. Another moment of pleasure was when he could diagnose a rare disease which, even his seniors failed to diagnose. Mistakes he feels are a part of learning and no doctor makes them deliberately, humans are not perfect, and errors, he considers are a part of education. When he makes mistakes he immediately consults his colleagues. For him the transition from a person to a patient was easy. To him a body is just a specimen. When a person comes with disease, one forgets whether she is a female or beautiful and concentrates just on the diagnoses, etc. Further, a doctor gets used to breasts etc. so no feelings are involved.

The crux of a doctor patient relationship is based on faith, which for Pratap has changed with the times. The doctor who should be duty bound to do whatever he can for the patient in suffering, now views him as a money extracting machine. And, conversely, the patient no longer has unlimited faith in the doctor like earlier days. He, attributes lack of respect for the doctor on part of the patient and illiteracy as the reasons for the clash between his values and the requirements of the job—since he has to concede to the wishes of the patient and do what the patient is looking for rather than what is ethically the correct treatment.

For success, Bhanu Pratap considers detachment and professional distance necessary. He prefers working alone. He feels that a basic knowledge of science, medicine, engineering should be known to everyone and then a few should be selected and groomed towards particular areas, since science, medicine, etc. have their own language and terminologly which aid in

2 Similar view are expressed by most doctors, detailed cases of which have not been discussed in this study.

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communication between specialists, it results inevitably in communication gap between specialists and the layman.

Bhanu Pratap is a loner and does not take people working with him or even for that matter his wife into confidence about his work or when planning for the future. He agrees that to succeed in life a man has to be selfish and look after his interests which he explains in terms of Ayn Rand's philosophy of being self-centered, minding one's business in a competitive world. For him, one can trust only true friends, otherwise some constraint is needed in expressing one's thoughts. For him being on guard is a must since people take advantage and can harm if one is not vigilant. But he does not believe in taking advantage of others. Most people he feels will not naturally help others and are not to be trusted completely, especially people in public life, who he feels have to distrust every one as they are surrounded by sycophants only.

Pratap feels that it is difficult to answer whether one must succeed at work even if it interferes with other things in life. For him, it is a paradox as he finds himself neglecting his child and family because of the job, and that hurts. He does not think it proper for a person to live up to their ideals at the cost of isolating themselves from others. He prefers a balanced approach which gives importance to mingling with people and being flexible enough to accommodate new ideas too. Having people around is what makes a person succeed, if one can use them well. If they are a hindrance, one should leave them. He does not share and discuss most of his experiences with his family and friends. When life is full of pain, talking to people lessens it which for him is a dilemma. Being reticent by nature, he generally avoids talking to strangers unless they take the initiative.

For Bhanu Pratap, being so immersed in work that one becomes indifferent to others is a limited perspective. For him, both money and social relations are equally important. Money he feels is necessary to meet one's material needs. Opinions of others is an important aspect of his life. He agrees that to bring about a change in society, ruthlessness is needed since people are aversive to change. Doctors he feels should concentrate on the health of the people and the government on rehabilitating the backward into useful members of society. Sacrifices for any

3 Many other doctors whose histories are not discussed also feel a similar paradox.
cause are not required. On security, he feels that the VIPs are in danger, being in important positions and need extra precaution and security. An ordinary man too is in danger, but taking precautions like locking the door, etc. are enough safeguards. Though he tries to hide what he emotionally feels and displays in different behaviour, he is unsuccessful at maintaining a disharmony.

On social issues, like poverty, he feels that one should try alleviating it but not get too involved since nothing much can be done about it. He very strongly feels that the slums should be removed and the people relocated elsewhere and the authorities should strictly see to it that the slum dwellers do not sell their houses to start another slum, and if it needs bulldozing, that would be justified since slum dwellers, according to him, do not want to better themselves. Beggars he agreed need to be banned but not handrickshaw pullers, who made an honest living. Though industrial accidents are a heavy price to pay for development, he does not condone them but feels that steps should be taken to prevent their occurrence. Stringent measures are required to be imposed on industrialists and necessary precautions taken, but the factories can't be shut down as eradicating development is not the solution.

Discussing the importance of science, Bhanu feels that the scientific outlook helps to be rational, it trains the mind to study situations and actions in a more rational, logical way. A scientific outlook in all the areas of life is very necessary, except when dealing with personal problems where along with scientific thinking one's gut sense or intuition is required. Along with education, Bhanu feels that the latest technology and science can make the country advanced and remove the backwardness. Computers, he feels, are very important, but not statistics and other quantitative methods. He feels decisions need to be taken only from the head, and never from the heart. For the long term interests of the people, Pratap finds construction of dams etc., very necessary and problem of dislocation of people relatively of lesser importance. He find nuclear power a necessity to meet the energy needs of the country. For the country's defence, he feels modern weapons are a must since there is threat and danger. Nuclear weapons he feels one must possess as a deterrent but not use them. For him, scientists, doctors, etc., are of more use to the society than artists. He considers it important that the child be taught early the value of money, determination, ambition and efficiency.
Pratap feels that on the whole breaking of rules should be discouraged, but if it is justified them one need not be punished. Only ethical codes he feels should never be broken. For him, practices that had survive over a period of time definitely have some wisdom in them. In his life, he has not made very rigid rules for himself though he considers that rules and regulations do lead to a secure life. He follows the rules of his work at all time. For example, if he sees a beggar dying on the street while going to see a patient, though medical ethics will dictate that the beggar be attended to, he will not stop but carry on to attend to his patient. He prefers an organized, ordered and disciplined life. He does not get bored with his routine and dislikes any major changes in his life. He likes to foresee events so as to prevent surprises and disruptions in his life-style.

Pratap feels that the boss or teacher must not impose his/her views but give the junior enough freedom to do things in his/her own way. For him, if people with new ideas plan for the country, it will be better. He does things in his own way rather than follow any dogmatic custom. He does not believe in any religion and so does not feel that any of the religions have any element of truth in them. He agrees that reality is dry and he does fantasize. When his fantasies come true it make him happy.

If Pratap were the Prime Minister, he would work to remove corruption and laziness in people. He would impose education. He dreams of a modern and technologically advanced India, the kind that Rajiv Gandhi wanted.

CASE 2

Udham Singh (not his real name) is a single 33 year old male, working as a senior resident doctor in a prestigious Delhi institution. He has been amongst the best students of his college. Tall, neat, well-dressed and clean shaven, he is a Sikh who does not wear a turban. He belongs to Punjab and his native language is Punjabi. He stays in a house provided by the institution. I interviewed him in the hospital. He was willing to talk and he did so in a precise manner, clarifying his responses with examples. He found some of the questions too subjective and difficult to reply to.
Singh is the only child of a well-educated, retired government officer. His mother too, is a highly educated house-wife. Singh was earlier close to his mother but is no longer so to either of his parents. He feels let down by them and prefers living alone. Neither of his parents, according to him, tolerat his mistakes.

Singh describes his father as a hard-working man till he took to drinking. Earlier his father has been singh's idol. His mother, he describes as a hard-working, honest woman, the very image of a suffering wife - something Singh dislikes. Being the only son, Singh feels his mother did not allow him do many things because of her strong attachment to him. He was unable to leave the house and join the profession of his choice. He even had to end his relationship with the girl he had loved for eight years and was about to marry.

Singh describes himself as a determined stubborn man. Will-power and determination are his main assets. His parents are his weakness as he is their only child. He faces many problems due to that. Short temper is his other weak point. In his life, the happiest times were the moments he spent with his girl friend which are now all past. His interests range from kite-flying, athletics, to horseriding, and having a nice girl friend. He prefers being alone and does not enjoy parties. He feels he is mature enough to outgrow his shyness and will take the initiative to approach a person if he likes him or her. Trust and honesty for him are necessary for a good relation. The most important influence in his life is a senior friend who helped has make the professional choice. His motto is to have a peaceful domestic life (which has eluded him) and to practice medicine in his own way. His dream is to become an army officer. If he had a chance to change things in his life, he would have liked to have another sibling so that he could be more relaxed and happy and free from the pressure and burden of being the only child.

Recalling his childhood, Singh feels that kite-flying and donkey rides were his best memories. He dreaded examinations and for him, that was the unhappy part of his childhood. Other major influences in his life which affected him deeply in his growing up were his father's drinking habit and the break off with his girl friend.

Today Singh is a practising doctor with 7 years of experience. He enjoys the work even though he wants to join the army. His parents had wanted him to join the Armed Forces Medical
College and this caused tension between him and his parents. He did not join the Armed Forces Medical College as he felt if he had to join the army, it would be as a cadet not as a doctor and wanted to join the forces, not their medical college. He chose the medical line because of his parents and chose medicine to surgery because medicine gave him more time to himself compared to surgery. According to him, the main attraction of medicine as a profession lay in it as a status symbol and the ability to earn a lot of money. Parents for him were the major compulsion because the entry into this profession was so early, when he was just out of school, and hardly able to take decisions. The profession has had a strong influence in making him very asocial, as he is unable to mix with people and even with the family. It has also made him arrogant and he considers himself better than people in other professions.

On the usefulness of medicine, Singh feels that medicine has only made a negative contribution to the society by prolonging misery instead of providing a better quality of life. It has only increased the birth rate and decreased the death rate. His early medical school days were for him a horrible experience with ragging, anatomy and the cadavers. Ideally, a doctor is a very committed person and being just that he does not get time for anything else other than work. He compensates for this loss of other things in his life by submerging himself further in his work. The best professional moment for him was when he topped in his examinations for the entrance in all those institutions he had appeared for. He does make professional mistakes but they are not due to negligence. There have been clashes between his personal values and the requirements of the job as a result of which he has lost some very good friends. That has made him take his profession more seriously than others.

His first experience with cadavers did not scare him but made him feel repulsive and since by nature he always tried to overcome what he did not like, he worked at dissections, etc., with more determination. The daily exposure to dissections, cadavers, etc., was what made one indifferent and accustomed to them. His first encounter with a patient for the first time in the gynaecology department made him faint, but going there daily made him overcome his uneasiness. According to him dissections are necessary for understanding and people who did not

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4 This view of medicine as a status symbol is endorsed by majority of the doctors, whose cases are not discussed in detail.
like dissections must not join the profession. Further, doctors become immune to death and dying since it is an inevitable part of the profession.\footnote{A majority of doctors indicate similar blunting of feelings.} Daily exposure to death has made it a very mechanical experience so it fails to evoke any sympathetic response over a period of time. He admits that changing one's perception and seeing a person as a patient in case of a beautiful girl is difficult and does create a certain amount of tension, but the thought of making a mistake because of getting distracted sobers one down. Furthermore, he adds that a real patient gets real commitment. Generally, doctors avoid treating their own family members as one tends to be more protective of them and overlook the sickness when one is dealing with them. In case of mistakes made by professionals, he feels that appropriate compensation should be given if the mistake is due to negligence. The key to success lies in hard work and commitment. If he had to choose, he would choose hard working and honest people to join the profession. The biggest incentive that could be offered to doctors, for him, is the freedom to do the kind of work they want to do.

Singh comes through as an aloof person. He feels that one needs to maintain a distance from the people and be detached in order to succeed. For him the best form of relaxation is being alone with books. He describes himself as being a loner and does not like mixing with people and going to parties but prefers being alone. If he likes a person he will take the initiative to approach him or her but he will not speak to a stranger if he has no work with him or her. On a broader scale, he feels that the best results can be got from team work if the team is good. On the need for selectivity in various professions, he feels that entry into specialized professions like medicine should be restricted to people with calibre only, otherwise it was a waste of resources. The absence of communication between the specialist and the layman is not unavoidable but necessary due to the time constraint. Technical language too he considers necessary to use because of its easy reference and for the unique identity of the group. He finds generalization of no use.

Talking about his relationships with people, Singh does confide in a few friends but considers it dangerous to confide in colleagues. He does not feel that for success one needs to be for oneself only, and prefers working for others but in the current competitive times he finds that most people are selfish and one has to be self-centered to survive. For him, there are times when
one should mind one's business and times when one should interfere. He maintains caution in dealing with others but is not over-cautious. Even with friends he is cautious because people take advantage. According to him there were sharks all around. He does not take advantage of others and considers it a bad quality. People in public life he feels distrust others because they themselves are untrustworthy. Even though he does not want to, he does concentrate on his work only, even though it interferes with other things in his life. Yet, he finds it distasteful if a person is so immersed in his work that he becomes indifferent to people around. For him, standing for one's ideals at the cost of isolating oneself from others is proper. For someone who is ambitious, losing friends to further his career would not be improper. Whether one likes it or not, one has to earn money but he does not let it take precedence over social relations. He will not talk to strangers if he has no work with them. For him, people who do not get ahead in life are unable to do so because they do not have the courage to get away from those around them. He discusses his experiences with his close friends only, not his family. When life is painful, even though he does not want to, he discusses his experiences with his friends and this helps him. He regards the opinion of others as an important aspect of his life since peoples opinions have the capacity to make or break a person.

On the various social issues and problems, Singh does not feel that persons whose permanent backwardness one is sure can be ignored or overlooked. Neither does he consider it necessary to sacrifice one's life for any cause. On the problems of slums, beggars, etc., he is of the opinion that they should be eradicated and the dwellers given better housing and proper facilities. Industrial accidents need to be given importance and those responsible for them should be appropriately dealt with since accidents were shameful and too high a price to pay for industrialization. But stopping industrialization or closing down the factories which are dangerous is inappropriate. Modifying the factories is a better solution. He feels there are threats to the country from all borders and defence and security are very essential. Nuclear weapons and other modern weapons are necessary because of the arms race and should be kept as deterrents, but their actual use would be unjustified and improper. He believes that being in an important position places one in danger and though the protection given to the VIPs is in bad taste, it is
inevitable, but there is no danger for the common man. To bring about changes in any society requires a certain amount of ruthlessness according to him.

On the importance and relevance of science and technology, he considers the scientific method or outlook as the best way of dealing with things since it involves logical objective thinking. Though in dealing with family matters it does not work as members in the family are not very logical, yet he tries to be logical and objective as far as he can, to solve his personal problems. For him, the answer to the country's backwardness is not modern technology but indigenous technology. Computers are essential as they broaden one's perspective and give one more choices. Quantitative analysis for him has a limited utility since it only releases figures or numbers, and their interpretation can vary. For the development of the country, objective decisions needed to be taken according to his viewpoint. Emotions he feels do not solve problems and even though people are dislocated where dams etc. are built, they can be relocated since objective decisions are needed to be taken. Nuclear energy too, he finds necessary for the development of the country though it is unsafe. Artists for him are the soul of the scientific machine. He does not feel that a child be taught early the importance of ambition, determination, efficiency and the value of money.

Regarding the significance of rules and regulations in life, Singh feels that breaking rules was necessary for knowledge and progress and as long as the rules are not broken for illegal purposes, they should be encouraged. Though he does think that rules and regulations give emotional security, the feeling that one is doing the right thing but not necessarily the perfect thing. Following rules make one an average, mediocre person, but he does follow the rules of his workplace since he is subservient to the system. Practices that have survived over a period of time for him do not have any wisdom in them. He prefers an organized, disciplined and orderly life to the extent of being obsessive-compulsive. But for a change of routine he goes horse-riding, or takes a walk alone or goes for a drive. He emphasises he does not like any changes in life though he does get uneasy with routine. The boss, he feels, should not be confused about his goals but should not dictate the details of how the work should be done and should leave some scope for the student to use his imagination as he is the boss not the master. For the progress and betterment of the country new ideas are required and the old ones he feels can be dumped.
Society owes its progress to people with new ideas. In his life he usually does things his own way and not by the ones dictated by custom, etc. Upto the formative years, one needs to follow and do things as described by elders, customs, etc. but beyond that one need to grow up is his opinion. He does not believe in any religion and has even cut his hair out of fashion. What is written in the religious text, he feels has no validity and needs to be updated. He considers reality is dry and drab and in his life fantasy is very necessary.

If he were the Prime Minister he would work to eliminate crime and try to solve the social problems like differences on caste etc. and further work for a better professional environment. He dreams of a prosperous, united India.

CASE 3

Ram (not his real name) is a 41 year old male, medical doctor by profession. He has specialized in Gynaecology and is running a maternity hospital along with his wife, who too is a medical doctor, with specialization in Gynaecology. Ram belongs to Uttar Pradesh, and is a Kshatriya whose native language is Hindi. He is from a middle class family but now is doing very well financially. He is residing with his wife and two children in a large house which he owns. Ram had his early education in a village and later did his college and higher studies in the city, from a reputed Institution.

I interviewed Ram in his hospital. He is very precise in his answers and till the interview lasted, has asked his staff not to disturb him, unless there is an emergency.

Ram's father is a businessman, belonging to Maharashtra. His mother is a house-wife and is uneducated. He is the second amongst the six children. Except for him, his other siblings are not highly educated and are in business. His wife, though of the same caste, belongs to a different country. In his family when he made mistakes, it was his grandfather who was the most tolerant. He was close to his grandfather because his parents along with all the other children except him had shifted to the city and he lived with his grandfather for many years upto Standard VIII in the village. For him life in the village was very tough. The schools bad, he had to work in the fields
too and he had no time for anything else in his life like playing etc. Now he feels closest to his wife.

For Ram, his grandfather was the support in his life. His grandfather loved him a lot but wanted discipline and rules to be followed. His grandfather's weakness was his short temper and when angry he would beat up everyone. His grandmother was an ideal woman, very loving with no weakness. Both were now no longer alive. Ram explains his inability to describe in detail about his father as would be expected from a son in normal circumstances, since initially he lived with his grandparents and later when he moved to the city to join his parents, in two years he joined the Medical College where he had to stay in the hostel. Nevertheless, he describes him as a hardworking man whose weakness was his strictness and inability to listen to anyone even when he was wrong. His mother is an emotional person and always worries about her children even though she is unable to do anything for them. Her weakness is her attention seeking habits. Ram does not feel strong bonding with his parents. He feels they have wronged him and failed him in many ways. The best person in his life is his wife, and the most exciting moment of his were was when he met her and the happiest moment for him was when she consented to marry him. He describes her as being very hardworking but short-tempered.

For Ram, his strongest asset is his ability to understand what poverty is and thereby feel for the poor. His weakness is his emotional nature, which he feels is an impediment in his profession. His greatest achievement was his becoming a doctor given his family background and the adverse circumstances. Though earlier he wrote poems, etc., now his major interest is only medicine. He likes meeting new people and feels more happy with people around. He does not enjoy all kinds of parties but selected ones where there are known people. He feels he is shy by nature, but will take the initiative to approach or talk to a man/woman if he liked him/her, but he lamented the fact that in his profession they meet doctors or medical people all the time. For him the secret of a good relation was confidence in the other person. In his life it was his boss who influenced him in professional decision making and understanding the patient's needs. His motto in life is serving humanity. His dreams center around his work and how to achieve greater things in medicine. If he were given another chance to live his life he would want to alter his early childhood, and wish to stay with his parents in the city for the better opportunities and options a
city life offered. Also, he would avoid staying in a hostel, since hostels were traumatic and made a person less emotional and more insensitive.

For Ram, his childhood away from his parents was an unhappy experience. He felt greatly wronged and still feels the loss of opportunities in the village, since along with his studies, he had to work in the fields, there was no time for play which he missed. He feels he can never compensate for this lack in his life especially profession-wise which is a direct resultant of his being left in the village by his parents. The only happy episode was his attaining good marks in matriculation. Another incident that left its mark on him was when his daughter was seven days old and had to be operated upon. Though he was not an emotional person, where his profession was concerned, and can handle any emergencies with a cool mind, he wept for his daughter and realized the importance of doctors then.

Ram has twelve years of work experience. He enjoys his work. Ram did not join the medical field out of choice but was due to the social trend and pressure where good marks meant taking up medicine or engineering. He chose medicine because he was more interested in it than engineering and it was easier to settle down and get a job as compared to engineering. He finds his job professionally satisfying and feels that in a way he is repaying the society. For others, according to him, the attraction in medicine lies in the social status of doctors, being a doctor is a status symbol. Medicine is a craze also because there is easy money and it is considered a noble profession. The only influence the profession has on him is to make him less emotional. The main benefit of medicine is health care and being from a village he knows how invaluable it is. Being such a necessity, he feels strongly against those who join the profession on a basis other than merit.

Ram's early days in the medical school were not pleasant. They involved hard work and further he disliked staying in the hostel. His most exciting professional moment was when, after a family planning operation, a couple wanted to have children and he was successful in it. Other such moments occurred whenever he achieved something difficult and cured a complicated case, etc. Ram does make professional mistakes which he feels are part of everyone's life. Small
problems, he feels can be rectified but grave errors one can not do anything about. He further clarifies that doctors are also human and mistakes are a part of learning and occur in everyone's life. When a normal man does not compensate for his mistakes, why should doctors since mistakes are by accident, and not intentional.

His initial experience with dead bodies, dissection, blood was horrible. The smell of formalin and the other related things were traumatic for him but only for the first month. After that one gets used to it as it became a routine and an everyday habit. He considers dissections and animal experiments very necessary for understanding human functioning. For him the transition from a person to a patient is automatic, though one does notice when the patient is a beautiful woman, but a patient is a patient, and the doctor sees only symptoms and not the person. He does not avoid treating his own family or relations though many doctors do avoid it as they are not able to retain their objectivity. The main crux of a doctor-patient relationship is the faith and confidence the patient has on the doctor and if the patient loses faith then it is better for him to go to another doctor and be satisfied rather than be treated without faith. He feels helpless, moved and bad if a patient of his dies. He sees himself just doing his job - curing and healing for him are up to God. The most important medical ethics are sincerity, honesty in the profession. The key to success lies in hard work, updating one's knowledge and continuing to learn, to keep pace with new developments and latest research. If he had the chance he would select sincere, hardworking and interested people to study medicine. Ram feels that doctors practising in cities do not deserve any extra incentives, but doctors working in villages deserve many incentives like free accommodation, free education for their children etc. He has often had clashes between his personal values and the requirements of the job but for him his work came first and everything, even family, were secondary.

He does not find detachment necessary for success. He prefers team work. Specialized knowledge, he feels, should not be restricted to a select few but competition is necessary and those who clear the competition should be taught. For him the communication gap between a

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6 Most scientists and doctors held similar opinions regarding mistakes.
layman and a specialist is unavoidable due to the circumstances where there is lack of time, too many patients to be seen, etc.

Ram does take people whom he works with into confidence about his future career plans, etc. He does not feel that minding one's own business is the best way to get along in life, though in the present times of competition one has to be self-centered and look after one's interests only. He feels the need to be cautious and alert for fear that one wrong move and people can cause harm. He also feels that if one is not careful and watchful, people have the tendency to take advantage, since most people, for him, are selfish and will not help others. He feels that even while expressing one's feelings to one's friends, some amount of discretion is necessary. But he does not feel that one also needs to use others to one's advantage. Further, he finds it unnecessary that people in public life need to be distrustful of the people around them for personal or national security.

For Ram, succeeding at work constantly, even if it interferes with other things in life, is important. He further feels that if one is so immersed in one's work to the extent that he becomes indifferent to those around is not a limited perspective but, rather, an indication of the person's involvement in his work. But he feels that flexibility is necessary, and one need not stick to one's ideals or what one believes in at the cost of isolating himself from others. For him, getting ahead in one's career at the cost of losing friends is unagreeable. He finds that in today's society unless one has money, one is not accepted by people so he gives priority to money over social relationships. And the main responsibility of each person should be to earn money for his/her own pocket. He does not agree that most people who do not get ahead in life don't do so because they don't have the strength to break away from those around them. Ram regards the opinion of others an important aspect of his life. He likes to discuss his experiences with his friends and his family. When life is painful he likes to be with his wife.

Ram does not feel that one has to be ruthless to bring about changes in the society. For him healthy and useful as well as persons with permanent backwardness both are a part of society so both needed to be looked after. He does not find it necessary to sacrifice life for any cause. Even though there will always be poverty, Ram considers it necessary to do something about it.
Slums, he finds as necessary for the poor living in the cities and is against their removal. He also does not agree that beggars and hand-rickshaw pullers need to be prevented from settling in cities. Ram feels that there are threats to the country from other countries and stresses the need to be prepared fully. For him the VIPs in important positions are in danger too. And not only the VIPs, even an ordinary man was in danger and one is never safe. He does not agree that the security around VIPs needs to be removed, since even with security they are being killed like any ordinary citizen.

Ram considers accident as a part of industrialization but feels that precautions needed to be taken to lower their rate of occurrence. But he does not find it wise or necessary to stop the whole process of development because of accidents and close down the factories and industries. On the importance of science and technology, Ram finds the scientific method and attitude as the best method for everything, solving personal problems, etc., but feels that common sense is also necessary. For him, latest technology will not be useful in dealing with the country's backwardness, rather indigenous methods will be of more help. He finds computers to be useful for all purposes and quantitative methods best for describing things. For the country to develop, decisions need to be taken from the head, and not the heart, and they should be scientific and logical. For development, he stresses on the need to be objective and impersonal. Dams etc. are needed even though they involved dislocation of people, etc. He also feels that the country needs nuclear power, (even though it was unsafe) but with precautions. Since wars are a part of human nature, he feels the country should accumulate modern and nuclear weapons but only as a deterrent. According to him a child should be taught early the value of money and the importance of efficiency, determination and ambition. He does not consider artists of less value to the society than the doctor, scientist, etc.

Ram feels that practices that have survived over a period of time definitely have some wisdom in them. For him breaking of rules should to be discouraged and following of rules and regulations by everyone will lead to a more secure society. He follows the rules at all time. He prefers an organised life, but often fails to achieve it due to irregularities of the profession. When a student begins, the boss must clearly state how the work is to be done, but when the junior gains some experience, he should be given freedom to do the work as he wants. He does not feel that
people with new ideas will be better for the country nor does he feel that society owes its progress to people with new ideas. In his life, he does things his own way. Though he feels that the right and proper way to do things is by the one prescribed by the elders and customs till one learns to take decisions and know what is right and wrong. For him all that is written in the religious text is real, but alterations can be made with changes sometimes. Reality is not dry, but he likes to indulge in fantasizing only as a change.

If he were the Prime Minister he would work towards education, health care for everyone and try to remove corruption. The India he would like to see in the future was a literate, healthy country, where everyone was equal and the country was devoid of politics.

CASE 4

Shyam (not his real name) is a 40 year old male, tall and of a slight built. He is a medical doctor by profession, with super specialization in cardiac surgery, working in a reputed hospital. He is a Tamil Brahmin and from an upper middle class family and lives with his wife and son in his own apartment. His wife too, is a medical doctor and from the same caste. I interviewed him in the hospital. He is very professional in his attitude and finds some of the questions too subjective and vague.

Shyam's father is a retired civil servant and a graduate in agriculture. His mother too is a graduate in Chemistry and is a house-wife. He is the eldest child and an only son. He has a younger sister who too is a medical doctor.

He is closest to his mother. His mother is ideal, gentle, compassionate, a good cook and one with whom he has no kind of inhibition or fear. She is the most tolerant of his mistakes. Her negative points are only minor and though he fights with her at times, she is perfect in his eyes. His father is very strict and he has never been close to his father, there is always a distance, and he holds his father in awe and fear. Although for all his emotional comfort he goes to his mother, it is his father who is the guiding picture in his life. His sister is a good friend of his, very dependable, with a lot of common sense and someone with whom he is completely honest. She
has no other interest, no friends besides her work, which he wants her to rectify. His marriage is an arranged one and he describes his wife an outgoing person, intelligent but emotionally very fragile, who gets upset easily. Her nature is a contrast to his own nature—for example, she expresses her emotions which he never does.

Shyam describes himself as very efficient, professionally dedicated and a good surgeon. Though his attitude is that of concern and care for his patients, he never gets too close emotionally. He is a perfectionist and seeks perfection in every task he undertakes be it surgery or cooking. He is sincere, hard working and emotionally stable. His major drawback is his inability to pursue anything he is not interested in, and his tendency to get bored of things easily. His greatest achievement has been getting through the medical course. And after so many years of service, these things did not matter any more and did not affect him. His life he finds boring with no unexpected events so that it is difficult for him to even describe any exciting moments since everything is so planned. His interests range from reading, trekking to swimming and any other light activity.

Shyam feels more comfortable with people known. He does not like meeting new people, going to parties and other gatherings. Even if he likes a man/woman he will not take the initiative to approach him/her. He is slightly shy but not an introvert. To maintain a good relation for him sincerity and a healthy exchange is necessary, doing things the other person expects and vice versa. If given another chance, he would like to be physically more active and indulge in sports. He will also improve his dress sense and perhaps do the things he has already done in a better way.

His childhood has been very smooth and pleasant. The happiest memories were when his father was posted in a small district in South India. He has had an easy life with good friends. He also enjoyed the new places his father was posted to. His only unhappy memory was when he was in standard VIII and his father suffered a heart attack which was serious.

Shyam has more than 15 years of work experience. He enjoys the work. Family tradition led him to take up medicine, his grandfather being a doctor too. Most surgeons state the same reasons for choosing surgery.
felt the results were immediate and gratifying, one didn't have to wait a long time for the effect. The main attraction to surgery was the prompt feedback and the feeling of directly curing a person. For him it is an entirely satisfying profession and people too appreciate the work. Others are also attracted to medicine for similar reasons along with monetary considerations. Whatever effect the profession had on him, was gradual which he could not place exactly. Since he joined medicine because of its value, and its creative aspect, and since his decision was a voluntary one, he overcame challenges and took difficult cases and did the job well. Though he does not get any time for himself, he does not mind at all.

Medical Science has prolonged life, improved the quality of life and it is due to medicine that one can fight off diseases. It has gone a step beyond pure mysticism. Recollecting his early medical days, he does not have any bad moments since it was his choice to study medicine. Though dissections, etc., did have a lousy effect on him he overcame them soon enough. Professionally there have been many exciting moments - the first operation he saw, the first open heart surgery he saw, etc. Then in cardiac surgery itself those moments when one saves lives, manages emergencies, etc. are thrilling. He does make mistakes but attributes them to the process of learning and training. Anything one does for the first or second time one is bound to make mistakes. One can punish negligence but not mistakes or errors which are not deliberate. There are moments of clashes between his personal values and the requirements of the job. Many a time he has felt that the seniors are not doing the job properly or can do a better job with the patient but cannot speak his mind since they are his senior doctors and in authority.

The first time he dissected a dead body it was terrible, but after a week of continuous dissection, he got used to it. Since dissections, etc., are done with purpose of curing and this kind of controlled bleeding does not affect him. Dissections which are conducted by many students in school are cruel and waste of time, and need to be done in a regulated fashion unlike the way it is now. For doctors the transition period from a person to a patient is automatic, as a doctor is taught to look for diseases and symptoms. Even in case of a beautiful girl, one looks for symptoms, though some patients do become friends. Also there are norms to ensure that a person of the opposite sex is not illtreated. Doctors avoid treating their own relatives because they too are humans and though they keep their feelings under control, in surgery things are never smooth.
And when they start going wrong one tends to become emotionally involved and that affects the faculties. For him, the basis of the doctor-patient relationship is mutual trust, and depends on the ability of the doctor. The doctor should have compassion and be clear that what he does is for the good of the patient and the patient should endorse this feeling because many treatment options are available and the doctor tailors the things according to the patient's affordability, beliefs, prejudices, even though irrational, and so the patient's confidence is essential. Shyam feels very helpless when a patient dies, because there remains a lingering feeling that may be something could have been done to save his life. He also gets emotionally involved in such circumstances because the labour involved is immense right from diagnosing to operating, and if the patient dies it is bad. Where death is inevitable, like in cancer patients etc., then he does not feel so bad about it.

A doctor is a healer who alleviates a person's pain and sickness. The secret of his success lies in hardwork and luck. To be a good surgeon, good technical skills are required. Also, the person should be a good diagnostician and clinician and be able to instil confidence in the patient. When analyzing the patient's results he should be able to do it objectively taking the patient's overall mortality into consideration. The patient should be satisfied with the doctor and his colleagues must also appreciate his work as a well thought out deliberate procedure. Lastly, a good surgeon should be able to manage emergencies without losing his composure.

Even though he considers detachment necessary for success he does not find it worth him. He prefers a well integrated team which is more productive than working alone. Subjects which are specialized like medicine, etc. need people but more important is aptitude so people need to be selected in such a way that the quality is not diluted since not everyone has the caliber to be a doctor or an engineer. The communication gap between a layman and a specialist is inevitable, and he does not think that giving specialized knowledge to an ordinary person is necessary since it is of no use to him.

Shyam does take his colleagues into confidence about his future plans at times. He finds no answer to the question whether one has to be self centered to succeed. Logically he feels that

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8 6 doctors have expressed similar reaction to death.
one is always for himself but losing friends will not make one achieve much. By minding one's own business, one will not antagonize many people, but there are times when one should mind one's business and when one should interfere. He feels some caution is required while expressing one's feelings even to one's friends. He does not think that people take advantage or cause harm if one is not careful or watchful. But people in public life need to distrust others for personal and national security. Most people he finds will not help others. Sometimes he finds using other people for one's advantage unavoidable.

Shyam will not like success gained at the expense of his family life, friends, leisure etc. but sometimes he feels that one has to lose friends in order to get ahead. Living upto one's ideals or standards at the cost of isolating oneself and becoming indifferent to the people around is for him, improper. Occasionally one can be different but not always—some flexibility is necessary. He likes to share and discuss his experiences with his family and his friends. When he is disturbed he prefers being with friends, not alone. He does not think new ideas will be necessarily good for the country and society does not owe its progress to people with new ideas only.

If a person enjoys his work immensely and in the process becomes indifferent to people around it was alright, but if he does not enjoy then it is a limited perspective. Personally for him success does not imply a big bank balance, social relationships are more important. But one should earn enough to support oneself. He regards the opinion of others as important.

To bring about changes in the society he feels ruthlessness can act as a catalyst, but suppression cannot work for an indefinite period. For Shyam, money and resources are limited then those persons whose permanent backwardness one is sure of can be ignored and healthy and useful persons be looked after. For any cause sacrifices are necessary so lives have to be lost in demonstrations, agitations, etc. He feels that there is no threat to the country, and expenditure and attention on defence and security is uncalled for. Security he emphasizes, should be there, but invisible security, because visible security serves no other purpose except keeping the common man away, not the ones bent on harming. The common man should have access to the VIPs since he elects them. Shyam often faces a disharmony between what he emotionally

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9 For the detailed question on social problems refer to appendix (a)
feels and the speech or behaviour that follows, e.g., if he is angry with a friend he will not express it till it is beyond control.

Shyam feels that like in the West, poverty can be eradicated, but the division between the rich and the not so rich will remain. Though removing the slums was inhuman, personally he was against the slums and felt the need for strict action to prevent further encroachment and development of slums. Since beggars and rickshaw pullers come to better their lot in the cities, though they are a nuisance, they cannot be stopped from coming to the cities. Most industrial accidents according to his viewpoint are caused by negligence and laziness and they have to be prevented. For example Bhopal gas leak was not a new experiment that went wrong but a time tested method and was a result of negligence. But closing factories is pushing the panic button too fast, one should aim to make things safe not stop achievement. Shyam considers scientific outlook and attitude as the only method of understanding and intuition too is based on previous experience and knowledge. Being scientific or having a scientific bend saves time. Even in social relations one has to be methodical even though one may not be rational. For dealing with personal problems too, a scientific attitude solves the problem compared to being emotionally worked up. Technical language is an important aspect of science. Not the latest technology but appropriate technology will remove the backwardness. Indigenous equipment in the country is shoddy. Computers being faster and more efficient can be used. He stresses on the importance of statistics but points to the fact that they can mislead too.

Shyam in his experience feels that decisions concerning the people have to be made from the heart, e.g., family planning failed because of the harsh methods, since people go by their head. Purely economic and other decisions have to be made from the heart. Decisions regarding development like building dams etc. have to be made objectively with an impersonal outlook and the dislocated people resettled. For large benefit of many, small numbers have to be shifted. Nuclear energy need to be looked at rationally. It is a small risk involved which need to be accepted to move ahead. Nuclear and modern weapons are required as a deterrent only. For him both artists and scientists are equally important. He agrees a child should be taught early the value of money and the importance of efficiency, determination and ambition.
Shyam will never encourage a person to break a rule, but discouragement will depend on the pettiness of the crime, whether it will affect the society or not. Breaking of scientific rules is permissible. Personally he gives importance to rules and regulations if they are beneficial. If they impair his creativity, he does not think twice about breaking them. He generally follows the rules of his workplace most of the time and agrees that rules do lead to a more secure life. For him practices that have survived over a period of time have some wisdom in them, and by and large the right and proper way to do things is by the way prescribed by the elders and customs. All that is written in the religious text for him is not real and feels that changes can be made. He generally prefers an organized life and maintains discipline. For unfamiliar things he looks for a time tested method. Familiar things he tries to modify. Generally he prefers a routine and at times looks for changes. For routine tasks like cleaning the surgical wards etc. he feels the boss must state how the work has to be done and leave no scope to misunderstand orders, but for creative and intellectual activity that require thinking one needs to leave scope for creativity and not be dogmatic about it. For him reality is not dry and drab yet he finds fantasy and dreaming necessary.

CASE 5

Gopal (not his real name) is 56 years old. He is tall and of a slight built. He is multilingual and knows 9 languages. He is a nuclear scientist in the safety division. He is a brahmin from Tamil Nadu and his mother tongue is Kannada. He comes from the middle class and his income falls in the upper category of the institution. He lives in the accommodation provided by the institution. His house is large and spacious. The decor is simple and neat. Gopal does not object to the interview being recorded. He answers the questions willingly. He is elegant, soft spoken and poised in his manner. He is, however, cautious and guarded in his answers especially to the ones pertaining to his profession. He is descriptive and elaborate in his reminiscence of the
early days of his life. He is very hospitable and concerned. He has made a copy of this interview cassette for himself as he wants to listen to his responses and play it safe.

Gopal comes from a large family of six sisters and three brothers. His birth order is eighth in the family. Both his parents are no longer alive. His parents were from Tamil Nadu. His father was a graduate and a clerk in the High Court. His mother was a housewife who had no formal education but was fluent in three languages. His wife is a graduate and a house-wife. He has two sons, both studying. One is abroad and the other is in the country itself.

Gopal's father was a very wordly-wise person, and yet very straightforward. He believed in helping people and led a very simple life which was within his means. He believed in giving his children as much education as was possible. He loved music and encouraged his daughters to sing. He had to suffer a lot of hardships but took things in his stride. He especially faced difficulties in getting his daughters married. For Gopal his father was ideal.

Gopal's mother too was ideal. She was very understanding, very patient and bore her burden without complaining. She never indulged in gossip also took time out from her daily chores to educate herself and would often sing to the family from the epics. This probably helped her to deal better with her worries as she never gave any hint of these to the other family members. In Gopal's eyes neither of his parents had any weaknesses.

From amongst his siblings, Gopal is not very emotionally attached to anyone but he has learnt a lot from his eldest brother. He describes his brother as a very observant person who notices every thing around him. He studies gadgets, nature, and people, very minutely. He can understand and size up people as well. This probably is because he is a teacher by profession.

Gopal feels very unhappy for his eldest sister, who is also the first child, as she took on herself all the responsibilities of the house. And, besides, suffered in marriage too, due to lack of understanding on the part of her husband.

But, Gopal says, it was his fourth sister who took on the role as a mother, after his mother fell ill in the later years. The sister got all the other sisters married. She provided all the
necessities, and was aware of difficulties the family was facing. She is very fond of him. She holds him in high esteem, since he took up a job to help the family out. The younger two sisters also acted with responsibility and were a great support to his parents. His other siblings were given in adoption to his uncle, so they did not make a very significant impression on him except for his third older, she sister sang and wrote very well and taught him to appreciate music.

Gopal's wife is a very balanced person who does not get upset easily. She is very understanding and never finds fault with Gopal, and is too tolerant of him. Her only drawback is that she can made better use of her time. Gopal's marriage was an arranged one and he married early to give his parents a home. He wanted to study further, but his elder brother had wanted to go to Ethiopia. So he sacrificed his dreams and decided to get married early so that his wife could take care of his parents. He has been married for more than 25 years now, and has two sons.

His strongest point is his broad outlook. He is a person who tries to understand the other's persons of view and is able to place himself in the other's shoes before coming to conclusion. His weakness is his inability to say 'no' and thereby often finds himself in a difficult position like when he takes on things that he is not well equipped to handle.

The happiest moments of his childhood are linked to reading a good book. Books make him happy. Reading the English poems his father introduced him to, made him happy, unhappy moments were those when people older to him did not get the right opportunity. Emotionally he is not particularly attached to anyone in the family, but he has learnt a lot from his brother. His mother had been most tolerant of his mistakes. His brothers and sisters always teased him.

Two books have particularly influenced him. The 'story of Philosopy' is a journey and an attempt to understand one's mind/self. Another book is by Kameshwar, regarding the life of Chandrasekhar. Gopal is particularly impressed by the manner in which Chandrasekhar worked so hard, inspite of criticizm from people around him. Watching the stars at night with his maternal grandfather were memorable moments. He would wake up every hour in the night to see the sky change. Gopal claims that right from his childhood, he has been trained to think objectively, and not just follow blindly what had been told.
His greatest achievement according to him has been the fact that he was able to look after his parents very well. His parents went through many hardships due to financial constraints. They lived with him after retirement and this none of his other siblings could boast of. When he was sent to the US for a year to study, on his return he wanted to study more but had to decide against doing so as his elder brother wanted to go to Ethiopia to teach. As he was more keen on teaching, exploring the world and travelling, he had not wished to marry at that point in life. But he had to consider marriage as his parents were advanced in age and needed to be looked after. That sacrifice of tying the marital knot for his parents gave him immense satisfaction.

His interests range from watching nature, bird-watching to music, mainly classical. Of course, reading is what gives him maximum happiness. He also enjoys teaching and learning new languages. He is well-versed in 9 languages - French, German, Russian, English, Japanese, Tamil, Hindi, Kannada, Bengali and Sanskrit.

In his life he feels that his maternal grandfather was the one who introduced him to many things in life like the Sanskrit language and literature and the night sky. His grandfather always encouraged him to learn things and affected his life significantly. Other significant influences have been two of his colleagues with whom he shares many similar interests and has learnt from them their way of approaching and solving problems. The secret of maintaining good relations according to Gopal is patience and understanding the other's view.

He does not like to think about anything to achieve some peace. Earlier he thought about the books he read, the job etc. His motto is to keep the people around happy. Occasionally he writes a diary but does not indulge much in writing. If he has a chance to live his life again, he would like to take up a teaching job, living in one place for a few years and then moving on to a different place.

Gopal joined the department very early and has more than 34 years of work experience. He enjoys the work and likes being associated with this branch of knowledge. He was originally interested in Physics and Chemistry, and got an opportunity to study Physics in College. So he
took it up. When he was doing his graduation his elder brother, who was a teacher, often got books on atomic energy, as it was a new field of interest at that point in time. Gopal too got interested in this topic and applied for a job in the atomic energy department. He got selected. The division he is associated with, has been a deliberate choice as he has regarded safety as the most important aspect of nuclear energy. It also gives him a broader horizon as compared to most of his peers. Safety is a vast area which was encompassing Physics, Chemistry and Biology.

The long stint in the profession has not significantly affected his outlook or attitude, but there has been a change in his perception and dealings with people. Most significantly being, dealing with people having contrary views, having patience with them and bringing them around to similar thinking lines, especially in dealing with anti-nuclear viewpoints. In his view nuclear energy is a very important source of power and can play a significant role in our lives. Gopal recalls that earlier professional years, were more exciting. Bhabha was the director at that time and he was a tremendous influence on everyone. He encouraged and motivated them and placed a lot of confidence in them. He also made sure that their material comforts were well taken care of. Bhabha's enthusiasm that India be self-reliant suffused everyone around. For Bhabha, every person's opinion mattered and so he made everyone feel an integral part of the programme. After his death Sarabhai took over and tried to complete Bhabha's vision. But after Sarabhai no one was able to match the intensity, depth and creativity of the previous heads and gradually running the institute became just another job.

Gopal describes his career as being relatively free from clashes between personal values and the requirements of the job. Though there are moments of frustration because in a scientific tradition, values are far more superior than other professions, like when things are not done in the way he wants them to be done and when things move too slowly. He has not made any major professional mistakes, but nevertheless, emphasizes that mistakes are a part of every man's life. People can not necessarily take all the decisions correctly. But mistakes should not be repeated and there are opportunities for redressal of mistakes. Gopal's most exciting moments are discovering something important pertaining to his work and when the reactor was operated for the first time.
The relation between the scientist and the people is more interactive in the present days. In earlier times science was accepted by everyone without questioning. But now science is often blamed for a lot of things. A scientist thus needs to explain what science can do. Another contradiction in science is that people have faith that wind water etc can be harnessed for energy. But will not believe a scientist when he states that nuclear power is safe. He has more faith in non-scientific concepts.

According to Gopal, in science ethics being of a higher standard than other professions, the main indication of this being the fact that other person's work is acknowledged and due credit is given to the colleagues, and observations are based on actual experiments. Their key to success lies in hard work and having broader frame and outlook, also reading and updating one's knowledge. The kind of people that he would choose in this profession are those who are curious to know how things work, not the one's who are interested in a routine job only. The main incentive that can be offered to a scientist is freedom, with basic monitoring. Gopal agrees that a certain amount of detachment is required to retain objectivity, not necessarily for success but for a better interaction with one's colleagues. He feels that group work has an edge over individual work but it depends on the individual. To prevent the work from being single sided, at least two persons are required. He feels that selectivity for certain subjects like mathematics, engineering, etc., should be based on aptitude and ability, and merit must be given importance rather than reservations to generate a group of experts. The absence of communication between experts and the common people is not inevitable though it does exist. He attributes it to the specialist remaining in isolation and in a state of non-communication. This results in a new breed of people who do not understand science fully but speak to the people and create misunderstandings. In his personal life, he is not aloof, he likes meeting new people and is generally happier with people and he enjoys going to parties and other such social gatherings.

Discussion of Gopal's relationships reveal that he does not agree that to be successful one has to be totally self-centered. One should be able to carry other people along with him. Though in the present times of competition one has to protect one's interests but that does notjms have to become the primary aim. He concedes that once he decided to stay on in the organization, other all career plans stopped so it did not matter whether or not he confided in his colleagues. He
disagrees that the best way to get along in life is to mind one's own business. He also does not find it necessary to remain constantly on guard against people. But some caution is necessary when expressing one's feelings to one's friend to avoid causing hurt. People do however, take advantage if one is not watchful. People in public life have to be cautious and alert. He feels that most people will help others rather than look after their own interests.

Gopal believes that though poverty is a part of the society, schemes have to be developed for the poor. Slums do not provide a proper way of existence for them. Better facilities have to be provided. He has tried to constantly succeed in work even if it interfered with other things in life. For him, living upto one's conviction and ideals requires strength and is the proper thing to do. Though of course, accepting another's decision is right if the latter is proved wrong. He will not like to lose friends in order to get ahead, he relates as an afterthought. On the social front, he likes to share his experiences with friends, etc., but in times of pain, he prefers being alone. He is slightly shy. Sometimes he does talk to strangers even when he has no work with them and sometimes does take the initiative to approach the person he likes. To bring about great changes in the society one has to be ruthless.

On answering questions on relations with people, Gopal considered it a sign of genius, if a person is so immersed in work that he becomes indifferent to persons around him. He believes that one has to earn enough to support oneself, but money is not more important than social relationships. About those who don't make it in life, he feels that besides not having the strength to break away from the people around them, they are also timid. He regards the opinions of others as an important aspect of his life. On a broader level, in case of an industrial accident he feels the government gives compensation to the victims and the same rules apply to nuclear accident. Moreover, it is a safer place than most industries.

Gopal doubts the supposition that persons whose permanent backwardness one was sure of could be ignored and one could take into account the healthy and useful members of the society. He stresses that science had made it possible to keep terminally ill patients too alive and ignoring them is not right. He is however, unsure as to what the consequences would be when they constitute large numbers. For any cause some sacrifices have to be made and lives have been
lost in agitations, etc., but the cause has to be right. He feels there any constant threats to the country from other countries but too much attention is paid to defence and security, instead of building good relations with one's neighbours.

Holding an important position does not place one in danger from the people but in the country certain situations have arisen where the VIPs are in danger and have to be protected. At times there is a disharmony between what he feels and the behaviour that follows and also there are times when he feels angry, depressed or happy even when the situation did not demand it.

10 On science and technology, he finds the scientific method the best one for understanding everything since it is impersonal debated, discussed and then accepted, and is not one person's views pitted against the other. He says science pervades all areas of life, but one does not recognize it as science. Each one has the ability to look at certain observations, find a pattern and draw a conclusion, but often one is irrational, accepting another's ideas, e.g., even doctors are not well informed about nuclear medicine, and if they state nuclear energy is dangerous then one believes them even though a radiologist is exposed to radiation and yet that is not considered unsafe. Further, there is more in XII standard books on radiation than in medical books, though radiation was used in curing of cancer etc. Science needs a new language because a new discovery needs new technology so technical language is a necessity to science. He disagrees that the latest technology can help wipe out the country's backwardness, as what works in the west may not be appropriate here. He does not feel that computers should be used in all areas of life. Quantitative methods are important to reach a conclusion and discerning patterns, but while explaining to the common man, one does not have to use it. He would like a child to learn early the value of money, ambition, efficiency and determination.

If the country has to progress decisions have to be made logically, since emotions do not constitute the right basis for decisions. However, for interaction feelings should be given the relevance due to them. Though certain problems like the dislocation of people is serious, it might

10 The scientific method as the best is the view expressed by majority of both scientists and doctors.
be necessary to improve the standard of living. The country is not moving on the Gandhian path of rural self-reliance, so for that land is needed. As the Indian population is such that everywhere there are people, one can go ahead and build dams and give them compensation. Anyway the condition of the people can not be bettered without the dam or another source of power. As it is a democracy, and each can do what he likes, one can not ban beggars. He disagrees that nuclear power is dangerous. It is safer than most other industries and so far death recorded in nuclear accidents have been much lesser than those in any other industrial accident or railway accident. But he does not believe that nuclear weapons are necessary in war.

Those who break rules should be discouraged, as rules help organize society and are necessary. Regarding practices that have survived over period of time he evaluated each practice some had merit, some did not. Making a generalization regarding rules and regulations is difficult since it is context based, but he personally prefers to follow the rules of the work place at all times to maintain discipline. The rules can be changed after discussion but discipline has to be maintained. He also prefers an organized life though he finds it difficult to achieve. He likes an occasional change in his daily routine.

As regards work instructions, Gopal feels that the the boss or superior should clearly state how the work should be done and leave no scope for the junior to misunderstand orders. The country will be better if people with new ideas are involved in the planning but they should build it on the old ones, and not be radical. In his life he does things in his own way instead of following another, and does not think what is prescribed by the custom is necessarily right. Religion is necessary as very few people are so strong as not to need it but he did not feel that it should be followed to the letter. Reality is drab, so dreaming is necessary for it makes him strive to achieve the impossible.

For Gopal, industrial accidents are a small price to pay for the larger benefits of industrialization. For as long as equipment is made by men and operated by men, accidents are inevitable. Talking about nuclear accidents he feels that it is easier to maintain nuclear reactors if they are fewer in numbers. As the country depends on them for electricity one has to be very careful to avoid any accidents. He further explains that nuclear reactors have no extra hazard as
compared with other industries. It is the fear of the unknown that makes one afraid. In the immediate aftermath of a nuclear disaster only 30 persons died, long term radiation effects are debatable. Attraction to nuclear weapons in case of is only natural because of their elegance compactness and simplicity.

If he are the Prime Minister, he would like the country to adopt the Gandhian way, and manage the country with limited resources. He would like to see an India that is self-reliant, and did not indulge in self depreciation and is not fascinated by ideas from the West and where there is proper management of resources.

**CASE 6**

Ramesh (not his real name) is a 50 years old, short, stout man working as a nuclear scientist. He comes from Maharashtra and is a Marathi Vaishya by caste. He is married and has 3 daughters. He is an engineer by profession with a year's training at the research centre. He is from a middle class family and lives in the government flat in the centre. He has no objections to the interview being recorded. He is very cooperative and will often wait and repeat his sentences so that nothing is missed out while writing down his responses.

His father is an agriculturist. He is not educated but knows how to read and write. His mother is a house-wife and she too is not educated. He has an elder brother and an younger brother and two younger sisters. His wife is a house-wife and her native language is Kannada. She is from north of Karnataka. She is a graduate and has done her post graduation in Hindi, which he appreciates as she did not know Hindi before that. In his family he feels closest to his mother. He communicates with his father through his mother. When he makes mistakes it is his mother who is more tolerant.

Though Ramesh's father had no formal education, he learnt to read and write from the neighbours (who were Brahmins) and taught all his children about the culture. He is very hardworking and very religious. He is ambitious and has been able to expand his land by a massive amount. All Ramesh's good habits like not drinking, smoking and being physically
healthy are inculcated through his father. His father is a proud man and will never take anything from anyone. He donates generously for religious causes. His father's main asset is his willingness to learn anything happening around by studying it. He found few weaknesses in his father, though he did not encourage higher education in the children. He earned a lot of money but never saved it. He spent it all on buying land. He is very stubborn and will not listen to anyone about any decision he took.

His mother managed the vast newly acquired land. She is calm, quiet, loving, content and never complaining. Though she has never learnt to write, she manages everything alone. What he dislikes about her is that she is very emotional and is more fearful than an average woman. She does not care for her own health. Ramesh has differences with his brother and father because of his wife who feel that he is sending too much money to his father, which she wanted to be spent on the children. When he reduced the amount sent to his father, he hurt his brothers, so his relationship with them is distant and cordial and no longer close. His elder sister helped him financially to study even after her marriage. She is outspoken but never intentionally hurts anyone. With his younger brother and sister the relation is casual.

His wife is good looking, very social and helpful and can easily console others, being talkative by nature. She does not believe in casteism. She is a determined woman. She is very materialistic and is very suspicious by nature, believing others more than him, which he feels is a common trait in all women. She is always comparing herself with others and wants more of everything. She is also very insecure and fearful about the future.

Ramesh is not easily tempted by material things. Though he does appreciate good things he is not tempted to possess them. He has kept himself physically healthy right from childhood. In his official matters he always consults his colleagues and thinks many times over before taking any decision. He is not averse to changing his views if others are right. But if he is right, he is not afraid of confronting his seniors and will also constructively criticize his seniors. His weakness is his inability to mix well in social niceties like drinking and smoking and so often finds himself isolated. Another weakness is his emotionality like anger etc. which he expresses when someone tries to harm him, or his center or his nation. His greatest achievement is to have taken the
responsibility of his family, parents, etc. and given his children proper education. All his life he has been able to monitor his needs according to his salary. Another achievement is making the project he is associated with functional. He has visited many places in the world and these have been exciting moments. His main interest is to do something valuable for society. He also loves listening to music, playing chess, swimming, and watching the television.

Most of the time he likes meeting people but when he is working he does not like people around. He enjoys functions like marriages, etc, but strongly dislikes drink and dance parties. He is a shy person who, when situations demands can be bold. If he likes a man or a woman he will approach him/her but only to talk to them and not for any ulterior motive. The secret of maintaining a good relation is good manners, hospitality, helping the needy, respecting others and not hurting them. He is influenced by his father and by the books of great men like Gandhi, Nehru or any scientist, but is not influenced by colleagues or friends. His motto is to do something good for the society. His fantasies evolve around visiting certain religious places. If he gets another chance, he will like to satisfy his wife a little more. This is his only desire and nothing else in his life need be changed or altered.

His happiest memories involve playing in the farms and fields. He always stood first in his school. His unhappy memories are of the time when his house has been set on fire and they had to vacate it and shift to a different location where there has no football, no games and since he had to walk 5 km to school back and forth which left no time for anything else.

He has more than 26 years of work experience. He enjoys his work. He decided to become an engineer because of his excellent marks. He joined the atomic research center because of the opportunity to do something that is not a routine job. The research provides a challenge and novelty attracts him to the job. Others are attracted here because of the challenges and job satisfaction it provides, besides the good salary, good promotion and other perks and a lot of travel. He feels the profession has affected him a lot, especially the human aspect. The originality and the initiative he had initially is now lost because to implement the research one

11 Scientists joined the center for this reason, the job being novel and not routine.
requires technical people. But people now-a-days who instead of progress and development demand more salary and other perks. There is a lack of team spirit. He feels that he has come away from his family and friends to a jungle. But nuclear energy, he is certain, will provide an alternate source of energy and it is the future of the country and therein lies its importance.

His early years in the institute were very good. There was always much to learn and know, and 22 subjects to be cleared in one year. Only those above 50% would be chosen to work. So trying to gain access to the vast knowledge has been challenging. His most exciting moment professionally has when he was chosen to take over as head of a project he had been working on, and later, when the project was completed, and was successful. He agrees that mistakes are a part of life, often in analysis, in judgement there is a tendency to make mistakes which is why he is particularly careful before taking any decisions and consults many people before any decision. This is because if things go wrong at the top it affects all who work on the project and delay it, whereas a mistake by a worker does not affect the project that much. Mistakes by the seniors are very expensive as it held up progress so care had to be taken to avoid them. Punishment for mistakes made regarding new/unknown things is inconceivable but when mistakes are out of negligence, they should be dealt with. If people failed then training is required and if equipment fails then improving the equipment is the answer. In the center, the mistakes, their causes etc. are thoroughly discussed to prevent them from happening again. One can compensate by money and resettling the family in case of accidents. There is no clash between his personal values and the requirements of the job.

He considers dissections, animal experiments as part of learning, and feels that there is no other alternative. He feels that some cruelty is very much part of the profession. The scientist is isolated from the common man and interacts more with non-living things or with colleagues. A scientist also cannot explain his work to the people because it is complex and difficult. The main ethical principle for a scientist is honesty in reporting the research and that includes mistakes too. The key to success lies in integral team work with sincerity and dedication. In the profession, he would like to choose people who are intelligent, of course, but more important who are honest and hard working. There are already several incentives like cheap housing, and other good facilities like school, hospital, and a good salary.
Though detachment is encouraged in the center, he does not find it necessary for success but feels the place of work has to be isolated from distraction, noise, etc. Certain kind of work requires that one works individually and some things require team work especially to implement ideas. Team work is necessary. He explains that since everyday a new science is born and one cannot possibly study everything, as one would end up as a jack of all trades, so specialization is a must, and selectivity is necessary because some had to be patients and some doctors. People with intellectual caliber and interest should be selected. The lack of communication between the common man and the specialist is not inevitable since the scientist is working energy for the people and though he did not communicate, but the common man needed to be educated on what kind of work the scientist is doing, so interaction is necessary.

Ramesh always takes his seniors into confidence about his plans, as it does not affect his career negatively. He does not feel the need to be self-centered to succeed. A choice has to be made when to mind one's business and when to interfere, but it is not a fact that people will go mad if left isolated. There are instances when one has to be on guard, but not always. He maintains some caution while expressing his true feelings even to his friends. He does not feel that people take advantage of him if he is not careful and he does not take advantage of others for bad causes but for good causes he does. Generally, he feels, people help others.

Ramesh will not constantly try to succeed at work if it interfered with other things in life. People can live up to their ideals, but need not isolate themselves from their colleagues, etc. It is situation dependent on whether one should lose friends in order to get ahead in life. He likes to share his experiences with his family and friends. In his painful moments, he likes to be with his friends.

If a person gets so immersed in his work that he became indifferent to the people around it, limits one's perspective. He does not consider money more important than relations but wants a person to be able to earn enough for the basic needs. He disagrees with the opinion that to succeed one has to detach himself. He regards the opinion of others seriously. For him change is a slow process and one should not accelerate it, ruthlessness therefore is undesirable.
For him, persons whose permanent backwardness one is sure of cannot be ignored and only healthy, useful people paid attention to. For any cause sacrifice has to be made but he stresses the need to implement good things anyway. He finds no threat to the country except from Pakistan. His view is that every country should decrease their defence budget and disarm. Only in certain places holding an important position places one in danger and not everywhere. For him an ordinary man is not in danger. Nevertheless, he does not agree that the security around VIPs be decreased to let the common man meet them, already he feel the public wastes too much time of the VIPs. And, moreover, the VIP too has to distrust people for reasons of security. Generally, he does try hard not to maintain a disharmony between his thoughts and actions but he worries more than what the situation demands.

Since there will always be a difference amongst people in what they have and do not have, only a minimum amount of food, clothing, shelter need be provided to everyone. Beyond that, the number of clothes one has does not matter. Slums should not be allowed to grow and should be removed. Beggars have to be stopped and personally he never gives alms to beggars.

He explains that accidents can never be avoided completely because of the human factor, but good maintenance can reduce the chances. In case of accidents the error should be rectified so as to prevent their re-occurrence. But he feels that industrialization cannot be stopped—an example being the local buses, they caused too many accidents but one does not think of banning them.

He considers technical language important for the subject. For him the scientific method is the best method for solving most of the problems. Only a few things are not defined by logic which require a human aspect along with the scientific outlook. Neither modern nor indigenous technology can help reduce the country's backwardness. It is by removing corruption and controlling population that will solve the problem. Computers can be used in all areas of life provided the person using it is not corrupt. Quantitative methods can be used to define things in all cases. In his view, the head is not more important than the heart, a combination of both head and heart is needed. For development one has to be objective and impersonal. In case people are dislocated they can be compensated by money, land, etc. He does not agree that a child should learn early in life the importance of money, efficiency, ambition and determination. For him an
artist is not less important than a doctor and a scientist. There is nothing that is totally risk free, and the need of the hour is nuclear power, in Ramesh's view. Fears regarding nuclear power are unfounded as it is not harmful. It is like screaming when one sees a cockroach which does not harm. He feels radiation can be dealt with care not fear. For the larger benefit some risks have to be taken and these can be turned into acceptable risks, as this kind of fear stops all progress. He feels people always fear the newly developed product of science and technology. Just as once they used to be afraid to sleep under the fan, lest it fall on them or drink water from Bhakra Nangal dam, but now they are no longer afraid, the same applies to nuclear energy.

He considers nuclear power as safe as any other industry and the radiation is kept below international standards and the waste is of very small quantity and can be safely deposited. People who criticize nuclear energy should stop using electricity, only then will they realize the importance of nuclear energy. If other countries have nuclear weapons then the country should also acquire as a matter of survival. When one is sure the enemy country is using nuclear weapons then their use is justified.

For Ramesh rules are a must for the institution and should be followed, only in exceptional cases can they be broken. He agrees that if some practices have survived over a period of time, there must be some wisdom in them. Rules, if followed, lead to a secure life, but flexibility in the rules is necessary and they should not be implemented ruthlessly. He follows the rules most of the time. In his daily life he prefers an organized life but not during picnics etc. He maintains discipline but does not take it to an extreme. He feels that in the center being with the same people in office and also in the township there are times when he does get bored and so he does welcome a change.

Ramesh feels that in case of something new, even the boss might not be able to state in detail how it has should be done, but for things known the boss can explain to the junior how it has to be done and even encourage them to express their ideas. He does not think new ideas will necessarily be better for the country. In his life he follows what is good from the past and what is bad he charges after discussing with others. He feels a combination of custom and new ideas is the proper way to do things. But he does admit that society owes its progress to people who
have new ideas about living. Man made religion for the betterment of society when there was no
science, so there is nothing real in it and changes can be made but the spirit behind the rule should
be followed. Reality is not drab and he feels that if one has dreams it should be for a good
purpose, not without any outer achievement and not idle immoral fantasies.

If he are the Prime Minister he would emphasize on the process of population control and
try to remove corruption. He would motivate the people to work hard for progress, the country’s
upliftment, self reliance and inculcate moral values in them. He would like to see an India where
equality exists, everyone has a minimum standard of living and there are moral values and good
relations among people.

CASE 7

Ram (not his real name) is a 46 year old male, with an average height and with a cleft
palate. He is married with two children. He works as an engineer in the center for nuclear
research. He is a post graduate in metallurgical engineering and is working towards a doctorate.
His native language is Hindi. He belongs to Madhya Pradesh and is a brahmin by caste. I
interviewed him in his flat. He was hospitable and gave a brief resume of his life before the
interview started. He elaborated and explained in detail the events which affected him.

His father was a farmer in a small district, his mother was a house wife. As a child when he
made mistakes, his father was the most tolerant. Both his parents are dead. He is the youngest in
the family, having an elder brother and a sister. His wife belongs to the same caste, comes from
the same region. She is a matriculate. They were married when he was in high school. After his
parents passed away in his family he feels closest to his wife.

Ram describes his father as a "Sanyasi" who was a regular reader of "Gita" and also liked
"Chanakya". He could forecast events. Ram had been brought up with a lot of affection and care
since before him many of his siblings had expired so he was treated as God’s gift and was named
as such. His father he feels had guessed that he was special and he was the closest to his father.
He loved his father very much. His love is blind and so he found no weakness in his father. His mother was a simple housewife and one who gave him maximum attention because of being the youngest. She had normal weaknesses like anger and greed but nothing specific. His brother is much older to him and so, there is not much of an interaction with him. His sister is only five years older to him and is very affectionate and used to carry him with her everywhere when he was small.

His wife is a very simple lady, innocent and a very good cook and one who takes good care of him. His married life has been free of conflict and is cordial—when she is dominating he compromises and when he is dominating she compromises. He does not go against her wishes and they respect each other. Her weakness is her ego which needs to be reduced and she has limited friends and her interaction with people is minimal.

Ram's strong point is his wisdom which is different from his qualifications. Another of his assets is his ability to deal with people—superiors and subordinates and maintain harmony at his workplace and at home. Earlier he had been short-tempered, but after learning Yoga and self-analysis, he has overcome anger and no longer is annoyed when people do not do what he wants them to and no longer imposes his wishes on them. His weakness is his inability to give up smoking and drinking completely even though he realizes they are seasonal pleasures. His greatest achievement was organizing a successful seminar and another was being selected on a foreign collaboration programme. His interests are reading, swimming, yoga and listening to music. He likes reading philosophical books like the one on and by J. Krishnamurthy because they take one on a higher mental level and have a very systematic approach to a problem. He likes books with a similar approach.

He finds meeting new people exciting. He can be happy with people and can also be happy alone depending upon the kind of people. He does enjoy going to parties and other such gatherings. The secret of maintaining a good relation is respecting other's feelings. He does not feel anyone in particular influenced him in his life. His motto is peace of mind in the broadest sense. His fantasies revolve around nature. If given another chance to live again he would not like to change anything.
His childhood had been a happy one baring a few unpleasant incidents. When he was in the first standard, he went to a nearby school in his village. His teacher gave him a problem which he was unable to solve, so he beat him up with a stick. After that incident Ram would not go to the class but played with the village boys during his school hours and returned home. When his father got to know of the incident he took him to school personally, but as soon as his father left, he tried to run away. His headmaster then told him not to spoil his career and offered that he sit with any teacher he liked. So for six to seven months he sat in the VIII standard. Even though he lost a year it started a new chapter in his life. Then he joined the first standard again the following year after the teacher had been transferred. His happy moments were when in the IX Standard he was able solve a problem for his villagers regarding the money to be given for some contract work and won the respect of the elders. Then in XI standard his chemistry teacher praised him for his work and encouraged him to study and moulded his career by giving him difficult books to read. Another happy moment for him is when he was operated upon to join his lips. It made him feel a perfect man once his cleft had been set right. His sad moment was when his son burnt his fingers and the doctor expected some bribe which Ram did not give so instead of doing a complicated surgery, the doctor amputated his son's finger. He still feels guilty about this, incident.

He has 20 years of work experience. He enjoys his work - it is like a second wife. After he topped in the XI standard he decided to go for higher studies or engineering as he was interested in it. He also cleared the Pilot's training test but his superiors advised him to go in for engineering. He took up mechanical engineering because it had been the latest branch at that time. After engineering he got a call from three reputed institutes, Pilani, Bhabha, and Bhilai Steel Plant and he joined Bhabha. The appeal lay in the security and status a government job of this kind offers; also one gets to go abroad and work on the frontier areas without any external interference. The basic necessities of the people are taken care of and are free in the institution. Others he feel are attracted for similar reasons because the job is very prestigious, directly under the Prime Minister and the atom bomb still held an attraction, whether one made it or not it is a big name. The profession broadened his outlook and thinking, the environment forced him to adapt to the circumstances, deal with frustration, learn to survive differences and instead of the initial blind ambition, made him more realistic, realizing that he is just another employee amongst
the many thousands. Ram considers nuclear energy will lead to development and raise the
standard of living of people. Though it has a destructive potential in wrong hands, there is a
danger in everything else too, as people died in road accidents also so for the upliftment of the
masses nuclear energy should be regulated.

When he first saw the nuclear site it left a beautiful impression with the sea and the hills.
In the campus he felt like he was in a foreign country. He had been the only engineer and there
was no one to question his work. There was an eagerness in him to know about the new things
and developments. His most exciting moment was when his project was completed and he saw
his efforts flowering. He did make mistakes but not blunders. For him one can not learn if one
does not make mistakes. So the kind of compensation in the case of accidents can be given in
terms of monetary benefits and rehabilitation of the family like any other industrial worker. He
does not have clashes between his values and the requirements of the job. He feels dissections
and animal experiments necessary in science. He feel that the day is not far off when human
beings will also go in for selective breeding and useless and unproductive things will be disposed
off. But harming without a purpose is wrong. He also stresses that in the Gita too it has been
emphasized that it is a cycle, a food chain where one organism is the food for some one else and
either one kills or is killed. The relationship between the scientist and the common man is almost
nil though he feels the scientist should be in contact with the people and bring them out of their
ignorance and hypocrisy. Ethics he feels are the same as any scientific endeavour. The key to
success lies in adapting to the organization, fitting in with the system and hard work. The kind of
people he chooses will be those with a scientific background and outlook and who are sincere and
dedicated. The incentives should be better facilities since the best people join the institution and
their standard of living needs to be maintained.

For success, not physical detachment but attachment as described in the Gita is required - a kind of detached attachment. He regards teamwork as more productive if there is no clash.
The team should be a hierarchy because learning is only effective when there is control and proper

\[ Many other scientists have expressed similar views on detachment. \]
planning and complimentarity. Seniority deserved merit. He prefers competition for progress and feels that those successful can be selected for specialized subjects. Regarding the absence of communication between the specialists and the rest of the society his views are that in sectors like agriculture there should be dissemination of information but in matters of defence and security there should be secrecy.

In an organisation one needs to take people into confidence. He emphasises the need for constructive competition not with an intention of destroying the competitor. Each man had to be self centered since first comes the self, then wife and the children, and so on in the heirarchy of needs. He agrees that one has to mind one's own business to get along in life. Ram is not always on guard with other people. He feel that one can express one's feelings if the other person can help otherwise there is no need. He does not agree that if one is not careful others take advantage since he has full confidence in himself that no one can take advantage of him. Taking advantage of others is something he dislikes especially reporting some one else's work on some one else's name. For him most people are selfish helping only themselves. He does not reveal personal feelings even to his friends. He does not see the need of people in public life to distrust others for personal and national security.

Ram does attempt to succeed at work but not at the cost of other things in life, since failing in one, succeeding in another will not bring happiness. He does not agree that people should live upto their ideals at the cost of isolating themselves from others around, as one is living in a society and the ideals need to coincide with the society. For him friendship is separate, and to get ahead only one's effort mattered and in the process if others are left behind, it's inevitable.

He discusses his experiences with his family, and his friends. When life is full of pain he likes to be alone and meditates and analyzes the problem and prays that the person who caused the pain gets good thoughts. He will talk to a stranger even if he has no work with him/her.

He did not consider it a limited perspective if a person is immersed in his work so that he/she became indifferent to those around him because those who are dedicated to their work
carried their problems home, and it is not possible to think between nine to five only, and such people are happy too. He did not agree that one needs to give priority to money over social relations, but earning money to meet one's basic needs is necessary. Further, the intention matters, if one is earning money for a good cause like opening a factory, then it is a constructive purpose and also right to do so but not for destructive and selfish reasons. In a race not all the people can be directors, yet those who are unsuccessful are not useless. He does agree that people who don't get ahead don't have the strength to break away from those around them. For learning, one has to regard the opinion of others as important. He wishes to bring about changes in the society, but according to him, one need not be ruthless but should be rigid.

Ram feels that a time will come when only healthy and useful persons will be taken into consideration, there would be selective breeding and the survival of the fittest. But at present he feels that the people are sentimental and emotionally attached which is good. For a larger benefit and a cause sacrifice has to be made. He does not agree that there are threats to the country and so feels that there is no need for excessive attention to defence. Holding an important position does place one in danger since decisions have to be taken which may not be in favour of a certain class and etc the public in general, and so security is required. Though he feels that stopping the public from meeting the VIP is against democracy, it has to be done. In certain situations, even an ordinary man is in danger. There are times when he does feel depressed or angry for no particular reason. Most times he feels that his behaviour shows his feelings.

Ram agrees that poverty will be there in the country because, unlike the west, here one person earns and several eat. If each person is concerned and earned, then the problem can be solved otherwise one has to accept things as they are. Slums can be removed by controlling population, spreading literacy and rehabilitating them. Beggars, in his opinion, should be banned and the healthy beggars be made to work like the prisoners who also worked and earned. Accidents are a part of life and for that one can not stop industrialization like the match stick one

13 Similar view has been expressed by 3 more scientists but no doctors.
uses for cooking and also it can be the cause of fire but banning match boxes would be unjustified, so for progress he feels one had to live with a little risk.

On science, Ram feels that technical language is an essential part of any subject. He considers the scientific method as objective, rational and systematic and the best method of understanding, solving personal problems, etc. Latest technology he feels can only be used with education for removing backwardness. He agrees that mass computerization is necessary but not for taking all personal decisions like choosing marriage partners etc. Quantitative methods assist but are not the answer for everything. Decisions taken by the head not heart are required for the country's development. For development though, problems like displacing people are serious, one has to be objective because one can not hamper the nation's progress for a few. If people are rational they would also not oppose since they will be rehabilitated elsewhere. Regarding nuclear power Ram feels that the fuss created regarding its safety is uncalled for since there is no system that is 100% safe whether it be coal or hydro/electric power. And more people have died in mines as compared to nuclear accidents. He further expressed there is risk in everything even sitting under the roof. But nuclear power is one of the safest and it is criticized because people are afraid of it. He describes the reactor as nothing but a controlled atom bomb. The public that criticises should be educated but if an informed person criticizes nuclear power in his opinion should be sentenced. He feels that a scientist's outlook crosses political boundaries and is global. But wants the country to possess nuclear weapons as other countries also have them. He does not see the necessity for a child to be taught early about ambition, efficiency, money etc. For him, artists are not of less value to the society than the scientist etc.

Ram feels that rules need to be amended since they are meant to facilitate work. For organizational interest people breaking them should be discouraged. He agrees that if some practices have survived over a period of time there is probably some wisdom in them. Rules, if followed, lead to a more secure life. He usually follows those rules which are good for the organization, at other times he uses his discrimination. He prefers a flexible routine. He maintains discipline at all cost. He does not get bored with the routine and order, and so dislikes changes. The boss and subordinates need to work together and decide how things should be done in a scientific endeavour. In his life he does things his own way based on previous experience.
He does not believe that the right way to do things is the one prescribed by customs. He agrees that society owes its progress to people who have new ideas about living but does not think that new ideas will be good for the country. He feels that most of the teachings in religious texts are real and relevant. But not their personification, and since meanings change with time, all that is written need not be followed to the letter and changes can be made. For him reality is not dry and drab since there is actually no reality—everything is an illusion and that makes it interesting.

If he were the Prime Minister he would work for global peace at all levels. The kind of India he would like to see is free of slums and beggars. He would like to make it an affluent and a green country.

CASE 8

Sanjeev (not his real name) is a 36 year old scientist, tall and of medium build. He is married and has a 6 year old son. He is a Brahmin from Andhra Pradesh and his mother tongue is Telugu. He is a doctorate in Physics and has won several awards and is an exceptional scientist. He resides in the apartment provided by the institution. He seemed keen on the interview and found it a good exercise for introspection. The interview, he feels, should have had more value oriented and introspective questions to test people’s areas of conflicts and dilemmas.

Sanjeev’s father is a teacher and retired as a headmaster. He is a post graduate and BEd. His mother is a house-wife and had studied up to matriculation. His is a large family of seven children, 6 boys and 1 girl. He is the youngest child. His wife is of the same caste and from the same region. She is a post graduate, BEd. and is a teacher by profession. In his family he feels the closest to his mother who has also tolerated his mistakes.

Sanjeev describes his father basically as a headmaster who, though is strict is respected. He communicates with his father via his mother. His father is very well mannered. An example of this is when his father caught him smoking during his degree days and instead of being harsh just told him that smoking is bad. But after the third time stopped saying anything. His mother is affectionate, sweet and very caring. He is more attached to her. She has warmth, feeling and
when he sees her his first reaction is always to hold her, touch her like his own son does with his mother. Since he is the youngest by the time he grew up his brothers and sister had moved away. He is close only to his third brother with whom his relationship is more of a friend. In front of him sanjeev could smoke, and his brother often pampered him with gifts. But he feels nice when the entire family gathered together.

Sanjeev describes his wife as very caring, affectionate, artistic, pleasant and very friendly. Her weakness is that she is very demanding from their child, particularly about discipline which he does not agree with, since expecting adult behaviour from a child is unfair.

Sanjeev is self-confident and a pleasant mannered person, not harming by nature even to those who had done him harm. He is helpful by nature, loves the company of friends and is an extrovert. He is very emotional and expresses himself very freely but has never cried in his life. He is egoistic too because if someone said some task is impossible, he is sure to take it up, and can not resist a challenge. His weakness is his inability to be diplomatic, if something is bad, he calls it bad. He feels he is also very loose with money. If he likes something and has the money he will buy it there and then. Scientifically he has achieved what he has wanted, with all the recognition and awards and personally wherever he goes he finds it comfortable to live. His most exciting moment was when his son is born. His interests range from making electronic things himself to repairing his scooter, etc. He basically likes to do things himself. Swimming is another activity he enjoys, though he took it up because he was told that floating is difficult. He feels floating frees his mind like Yoga does. He likes visiting new places. He also loves writing poems.

Sanjeev likes meeting new people and feel happier with people around and enjoys going to parties and other social gatherings. He does not feel that he is a shy person. If he likes someone he will take the initiative to approach him/her. The secret of a good relation is putting the best foot forward when interacting with others. His mother has influenced him the most. Besides his mother, a teacher in his post graduation days and his co-worker influenced him. His motto is to be happy and content and see life in a positive way. His fantasy is to participate in a motor cycle race, in his life too he is a rash driver. If given another chance he would like to finish his work in a shorter time and would like to improve on his mistakes. What disturbs him is his belief in god
and he finds it difficult to understand this irrational side of his nature. He finds solace in the concept that God is there looking after him and it gives him mental courage and brings out the best in him. His taking recourse to an abstract idea and passing it on to his son is a disturbing loop for him.

Sanjeev's childhood was a very happy one, and he would like to relive it. He used to be a book worm and did not play much with other children. The only game he would play is that he and the other children apply a mixture of red brick clay on their legs and pretend they are flying. Even as an adult, whenever he dreams of flying and clearly sees the road and he wakes up refreshed. He generally has this kind of dream when he is in an elated mood. There is nothing unhappy in his childhood that he can recall.

Sanjeev has 14 years of work experience. He does not have any complaints regarding work. He is interested in research and had been doing his post graduation when he got selected for nuclear research and he joined it. He took up science because right from his childhood he loved to play with numbers. In his division of nuclear science, he got to know things he would not otherwise have known in any other routine job. Also the institution has the latest facilities and there is not much time wasted in commuting like in other jobs. The appeal of this institution therefore partly was in the easy access to things. He feels that the study has affected him tremendously. As a child, when he had any queries, he was not given a proper answer or his queries has been dismissed and he had not been encouraged. Now, with his own son, he analyzes and explains things in great detail, their causes etc., which he ascribes to the gift of science. He feels that for the development of any society, nurturing of science is a must, without science there can be no progress.

The initial year of his training is very refreshing. What ordinarily took two years to learn one had to complete in a single year. Every subject learnt had been useful and interesting. He was very excited about the theoretical part but he was in the experimental group and so for some time he was on two boats, where he was supposed to be academically recognised he was not and where he was recognized for for his work, he was not supposed to do anything. He picked up the challenge to prove to himself that he can do well in the experimental area. And the work he did
remains the best. Since he loves challenges he would pick up things he is not good in and then in
the process learn new things which he found exciting. When he got his award it was thrilling.
The mistakes he made are not serious and they affected no one else. But in cases of serious
mistakes one needs to look into the circumstances that lead to the mistake which but money can
not compensate for. There are clashes between his values and the requirements of the job which
he feels is natural in any organization. But Sanjeev, being flexible, incorporates the positive
aspects.

The interaction of the scientist is basically nil with the general public, but a scientist
survives on the money the public contributes. So, ideally, even though the scientist is interested in
other work, he should do research which has some relevance to society. The main ethical
consideration is to do research honestly with the facilities that are available. The key to success
lies in confidence, readiness to work hard and take on challenges and an enthusiasm to excel in the
career one chooses. If he had to choose, he would pick those people who are enthusiastic and
looking for excitement and challenge and had an intensity and a drive to work hard. The challenge
in the work is itself the main incentive for him. Besides all his basic needs are already
taken care of by the center. Detachment is essential while working, but one also has to interact
with people. It is only when people seek recognition, benefits and not the positive, that
detachment is required. He finds that a team job is good only when the team is compatible.
Otherwise he prefers individual work. He feels that everyone should get an equal opportunity to
clear the examinations for subjects like medicine and whoever clears them can be selected. The
communication gap between specialists and the layman is unavoidable, though he feels that public
has a right to question the scientist's work.

He does take people whom he works with into confidence about his future career plans.
He does not believe that for success self-centeredness is necessary. He feels that if one gives
one's best, results will follow. One has to help others instead of minding one's business only.
Only misguided people take advantage of others, but if one made oneself clear most people would
not take advantage or harm others. He does not find it necessary to be cautious with friends as
long as his intentions are good. He does not agree that using other people for one's advantage is
unavoidable. People whom he knows are by and large helpful but cannot say the same about others. People in public life have to be cautious but not to the extreme of being distrustful.

He constantly tries to succeed at work even though it interferes with other things in his life because he feels very intensely about his work. If one is convinced that one's standards are right then through interaction one can also convince others, isolation is of no use. He does not agree that to get ahead one has to lose friends sometimes. When life is painful, he likes to share his sorrow with others. He will strike a conversation with a stranger even if he has no work with him/her.

Sanjeev is not so immersed in his work to the extent of becoming indifferent to the people around, but feels that it happens when people feel very intensely about their work. He has not yet faced a situation where he has to give importance to money over social relationships and does not see isolated richness bringing happiness, it has to be shared. He does not agree that people who do not get ahead are unsuccessful because they can not break away from those around them. He does regard the opinion of others as an important aspect of his life. He does agree that for progress and change one has to be ruthless.

According to Sanjeev people whose backwardness one is sure of are not to be ignored as it is a problem and everyone's responsibility and by ignoring it one can not solve it. Sacrifices have to be made for any cause. He agrees that there are constant threats to the country, not just military but economic too. So, unfortunately defence is a necessary evil as one has to be prepared. He does not feel that all people in important positions are in danger, the common man too faces danger often. He finds the security around VIPs unnecessary. Sanjeev feels that people basically misbehave or try to dominate because of lack of security and once he analyzed the reason he had been able to control his depression, etc. Often there is a disharmony between what he feels emotionally and the behaviour that follows which he attributes to a negative aspect of his personality since he finds it difficult to articulate his dislikes and point out the negative things when they should be pointed out, but with positive things he has no problems.

For Sanjeev, as far as poverty is concerned, everyone needs to be above the poverty line but homogeneity can never be possible. He agrees that slum dwellers and beggars should be
removed but they have to be accommodated elsewhere. Accidents like Bhopal gas leak are not a small price to pay for the industrialization benefits. His view is that one must see the positive and negative aspects when going in for something new. If the risks are too many and surpass the benefits, one need not go in for it. All security and safety arrangements have to be adequately made. Machines which are old should be closed as their life is over. He emphasises that just because things are dangerous, industries cannot be closed down, an example he gives is of electricity, which is dangerous but one has learnt to live with it.

On science and technology Sanjeev feels that the technical language is necessary. But it is also necessary to be able to communicate in non-technical terms with the general public. Scientific attitude is necessary in terms of planning, etc., since it helps in seeing patterns based on data. It further teaches one to detach oneself from something and thereby be more rational. Irrationality arises due to possessiveness and the yardstick one applies for others one does not apply to oneself. Ideally, one should be scientific minded in all areas, in relations etc. But in reality one is not, and that is why problems arise. To deal with the country's backwardness modern technology in some areas is required, but blind induction of modern technology will be counterproductive. Computers are useful and can be used, but not to the extent of irrationality. He agrees that statistics and other quantitative methods are important. Decisions have to be made from the head not the heart. For development one has to be objective. For example if by building a dam 1000 are displaced, but 10,000 benefit then one should go ahead with it. Nuclear energy is necessary since there is no other source of energy. In the current scenario one can discuss things but defence is required. Using nuclear weapons is not justified as it will destroy future generations too. But one could use modern weapons. Nuclear power is unsafe because of lack of fully trained manpower which is a drawback in all sectors. But in the nuclear center more precautions are taken and every year the operators of nuclear plants have to undergo drilling and alertness tests. He feels that a child should be allowed to grow creatively and not be forcefully

14 Most scientists and doctors are of a similar opinion regarding industries.
taught the importance of ambition, efficiency, money and determination. He does not find artists of less value to society than scientists, doctor, etc.

Regarding rules and regulations, Sanjeev expresses that one should look into the reasons for the rules being broken and allow for re-evaluation, discussion. If inspite of the above provision someone breaks the rule then he should be punished. For progress and development there has to be some basic discipline. For him, practices that have evolved over a period of time do have some wisdom. He agrees that rules and regulations do lead to a secure life, but he does not follow the routine, though, just the discipline. In his house he likes things to be organized. He does get bored with the routine and welcomes changes.

The boss does not need to clearly define how the work has to be done but feels that it should be left to the student to find if there is, any imaginative way of reaching a solution. The country will be better if people with new ideas plan for the country's future. In his life he does things in his own way, not the way it has been done from down the ages. But some things prescribed by elders and customs are right. Society, in a way, does owe its progress to people who have new ideas about life and living. He does not agree that all that is written in the religious texts is true. 15 But customs are good for the common man as it makes them do things in the name of religion which they will not do otherwise. For example, fasting, which is good for health but people will not do it otherwise. He does not see the logic of following the religious customs to the letter and emphasizes the need for incorporating change. Fantasizing because one considers reality dry is bad, though he does fantasize, it is not because reality is dry and dull. One has had to face reality no matter how bad it is.

If he is the Prime Minister he would nationalize all rivers and have a well connected water system so that all states have enough water. He would give heavy incentive for the education of women especially to control population growth. He would decentralize all powers except defence so that each State contributed only a portion of its income to the Centre and spent the rest on

15 A few more scientists are of a similar opinion.
The India of his dreams is a reasonably self-sufficient country both industrially and agriculturally, and where people live in peaceful co-existence with the rest of the world.

**Interpretation of the Statistical data**

To augment the case histories, to help understand the process in greater detail and enhance a comparative analysis a statistical analysis of the entire sample was done. Only questions that relate to the autistic traits have been statistically analyzed. Difference between the two group of scientists and doctors was not found to be very significant. This may be attributed to the effect of scientific socialization.

1. **Aloofness** is defined as detachment, interpersonal and objective withdrawal, being at a distance. A look at the interests and hobbies of both doctors and scientists reveal that the number of people who prefer to do things by themselves and those who prefer to be with people is almost equally distributed. A comparison of the data of doctors and scientists also does not show much of a difference. Both scientists and doctors prefer team work. 83% of doctors as compared to 65% of scientists prefer team work. The difference between them being significant at both levels. Though both consider team work as more productive, 30% of scientists felt that an initial period of reflection, followed by team work is a better alternative. On selectivity of knowledge, 43% of the doctors feel that knowledge of subjects like medicine etc should be restricted, since people with intellectual caliber are needed. But only 26% of scientists feel that it should be restricted since ignorance of science makes people backward. Only 54% of doctors compared to 74% of scientists wanted knowledge to be free for all. On the communication gap between a specialist and the layman being unavoidable, 40% out of the doctors feel it is unavoidable, whereas 66% scientists feel it is unavoidable. The difference being significant at .05 level, the reasons varied between the communication gap being a part of the training itself, to lack of time, and generalization often being useless since people had different intellectual levels and the specialist, a highly qualified person did not need to tell the layman everything. But most doctors feel that to be a good doctor a communication gap should not exist between the patient and the doctor. Most doctors also consider ways it can be bridged, but scientists consider it a no win

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16 Refer to Appendix a for the detailed schedule of Questions.
situation. On sociability, both scientists and doctors find meeting new people exciting. There is no difference in their responses. When asked whether they are more happy with having people around or happier alone, 71% of doctors are more happy with people around them whereas only 40% of scientists feel happy with people around, them and 49% scientists feel happy with known company only, not all types of people whereas only 17% of doctors feel that they preferred the company of known people. 69% doctors enjoy going to parties and social gathering as compared to 49% scientists. Only 17% doctors do not enjoy parties, as compared to 37% scientists.

Affect Isolation: Implies a tendency towards emotional aloneness, unrelatedness to others at all levels from personal to social. Responses on affect isolation reveal that regarding the issue of poverty, majority of both doctors and scientists feel that it can not be ignored and steps must be taken to give everyone a basic minimum, though they feel that a difference between haves and have not's will always remain. On the issue of removal of slums, majority of both doctors and scientists, 63% and 60% respectively, feel that slums need to be removed, but emphasize that they can be given alternate housing and be resettled elsewhere and be not allowed to spring up. On the importance of succeeding at work, even if it interferes with other things in life, the difference in the responses of doctors and scientists is significant. 63% of doctors feel that their work is more important, whereas only 40% of scientists feel that they needed to work and sacrifice other things. The doctors feel that it is a paradox since their work is such that the patient does come before other things and a sense of commitment is necessary in their profession. To the necessity of being self centered to survive in the current competitive times 57% of doctors feel it necessary, but only 34% of scientists feel it is necessary whereas 66% feel it is not the right attitude. To the importance of standing upto one's ideals at the cost of being isolated, there is no difference in the responses between the doctors and scientists. Further, those who feel that one should stand up to one's ideals & those who do not agree that being rigid and in isolation is necessary and stressed on flexibility is also almost equal. Also few scientists scientists and doctors agree it is proper for a person to do what he wants and stick to his ideas regardless of what others think. Most scientists and doctors stress on the need for flexibility and following norms in a society. Majority of both doctors and scientists disagree that one needs to lose friends in order to get ahead in one's career. Both doctors and scientists like to share and discuss their experiences with their friends or family.
On the question of trusting friends completely, 40% doctors feel that one needs to trust completely, whereas 63% scientists feel the need to trust necessary, 51% doctors feel it is unwise to trust friends completely and 37% scientists feel it is unwise to reveal everything. The difference in the responses is significant at the 05 level. Majority that is approximately 60% and 63% of both doctors & scientists describe themselves as being shy.

Indifference to people: Or a lack of interest, concern, inclination towards people. The query on the kind of compensation that should be given to people who are targets of mistakes reveal that 71% of doctors and 77% of scientists feel that mistakes are a part of learning and are not made deliberately so there is no need for any compensation. Further, nuclear scientists feel that victims of nuclear accidents need not be compensated for any differently than from people of other industrial accidents. Very few doctors and scientists feel that the victim needs to be compensated. 40% doctors and 60% scientists feel that it is a limited perspective if a person is so immersed in his work that he becomes indifferent to those around whereas 51% doctors and 40% scientists feel that it is a sign of dedication and involvement. The difference between the responses is significant at .05 level. There is also a difference between that of doctors and scientists as to whether minding one's business is the best way to get along in life. 46% doctors as compared to 26% scientists feel it is, whereas 54% doctors as compared to 74% scientists feel that one needs to help others. Few doctors and scientists feel that one needs to give priority to money over social relationship to succeed in life. Majority of both doctors as well as 9% scientists feel that social relations are more important. 20% doctors and 25% scientists feel a balance is important. 60% of doctors as compared to 37% scientists agree that each person should earn money for his or her own pocket. But they feel it should be to meet his basic needs and not by foul means whereas 37% doctors as compared 63% scientists do not feel that the major responsibility of a person should be to earn money. The difference between their scores is significant. Both have similar views regarding people who are unsuccessful. They feel that they are unsuccessful not because they cannot break away from those around them but there can be other reasons and people often succeed because of relationships. 89% doctors and 71% scientists feel that the opinion of others is an important aspect of their life. Whereas 11% doctors and 29% scientists feel the opinion of
others does not matter to them. The difference between their responses is significant at .05 level. Both feel that one should stand for one's ideals but an equal number emphasize flexibility too.

**Impairment of emotional relationships:**

damage in relations with family, friends, work, interpersonal relationships and the society by and large. More scientists (57%) than doctors (43%) take people whom they work with into confidence about their future career plans. Whereas 46% doctors and 23% scientists do not take their colleagues into confidence. 46% of doctors as compared to 23% scientists feel that to succeed each person has to be for himself. The difference being significant. 51% doctors as compared to 77% scientists feel it is not the right attitude. The difference between doctors and scientists is also significant for more doctors feel that one needs to be self centered and mind one's business to succeed as compared to scientists. There is a significant difference between the responses regarding whether one must remain on guard and be watchful against being harmed by people. 69% doctors feel the need to be cautious as compared to 43% scientists. Both doctors and scientist feel that one needs to be cautious while expressing one's true feeling even to one's friends and it is unwise to trust them completely. 51% doctors & 46% scientists feel the need to be cautious with friends and 89% doctors as compared to 71% scientists feel that if one is not careful people take advantage, and only 11 doctors as compared to 29 scientists do not find the need to be careful. The difference between their responses being significant. Though a majority of both feel that one needs to be watchful and cautious against people, more doctors endorse the belief. There is a significant difference between their responses on the inevitability of using others for one's own advantage. 57% doctors find that one does use others and is also used by others and 43% doctors did not find it unavoidable. 37% scientists feel that one does take advantage of other and 63% scientists did not find it proper. There is a very significant difference between the opinion of doctors and scientists regarding the helpfulness in people. Most doctors, 86% in all, feel that people are selfish, whereas only 54% scientists feel most people are selfish. 43% scientists as compared to 14% doctors feel that people generally help others, but majority of both doctors and scientists feel that people are generally selfish. But the difference in their response is significant. 66% doctors as compared to 46% scientists feel that people in public life have to distrust others for personal and national security, since they feel official secrets need to be
guarded but the rest of doctors and the scientist, do not feel that there is any reason to distrust others.

**Inappropriate emotions** refers to emotional narrowness, and perceptual inconsistencies regarding reactions to emotional situations like fear of unknown etc. Both doctors and scientists feel there are instances of clashes between their personal values and the requirements of the job. 51% doctors feel that they resolve the clash through a compromise, compliance, and adjustment; whereas the other half of doctors feel that they can not see any resolution. 66% scientists feel that they achieve a resolution through changing their personal values and being flexible and only 34% scientists feel no resolution is possible. Scientists as a group adapt to the demands of the job more easily as compared to doctors who feel that a resolution through compromise for them is more difficult. There is no significant difference in the responses of doctors scientists as to whether people with permanent backwardness can be ignored and healthy and useful members of the society be considered. Majority of both feel that they need attention and can not be ignored. There is also no significant difference amongst them. Both feel that sacrifice is necessary for any cause and one need not be sad about the lives lost in agitation. Majority of both doctors and scientists feel that is a threat to the country from other countries, 74% doctors and 57% scientists feel that there is a threat, and 74% doctors as compared to 60% scientists feel that attention to the defence and security is very necessary. 94% doctors feel that holding an important position places one in danger from the people and only 60% scientists feel the same. Only 58% doctors as compared to 40% scientists feel that one is not in danger in an important position. The difference in the responses is significant. 54% doctors as compared to 34% scientists feel that not only the VIP's but even an ordinary man is in danger and though a majority of doctors and the scientists stress on the need to be cautious and careful against people, the difference between their responses is significant. The majority of doctors feel that the VIP's require security 66% doctors as compared to 46% scientists feel that security is necessary whereas 51% scientists as compared to 34% doctors feel that the VIP's do not need security since they are representatives of the people. Though a significant number of scientists stressed the need for security for VIP's they are significantly less as compared to the doctors.
Social Cognition lacks indicate an incapacity to form healthy social relations, lack of empathy and a failure to perceive other people's feelings. Majority of both doctors and scientists feel that mistakes are a part of learning and a very human thing. So they require no punishment or penalty since they are not done deliberately, 91% doctors and 80% scientists endorse the above view. Only 29% doctors as compared to 20% scientists feel that mistakes need to be punished. Regarding compensation to victims of mistakes, a majority of doctors and scientists, 71% and 77% respectively, feel that no compensation is required. Majority of doctors and scientists, 91% and 86%, feel that for development even though people are dislocated, one needed to be objective since one needs to balance loss against gain and if displacing a few does good to many, then sacrifices have to be made. Both disagreed that accidents like Bhopal gas leak are a small price to pay for industrialization, 77% doctors and 86% scientists feel that such accidents are due to loss of industrial safety, ignorance, and an unscientific system. Also 83% doctors and 69% scientists feel that such incidents should be given importance and not repeated. 77% doctors and 66% scientists feel that in case of accidents the staff, management are responsible and should be questioned. But only 11% doctors and 17% scientists feel that factories which are dangerous should be closed and 86% doctors and 83% scientists feel that risk has to be taken and industrialization & development can not be stopped because of accidents. One needs to be equipped to deal with accidents. 87% doctors and 87% scientists feel that nuclear power is necessary for the country and with strict measures it is as safe as any other industry. While some feel that risk is necessary, others feel that it is the cleanest source of energy. There is a significant difference in the necessity for accumulation of nuclear and modern weapons. 77% doctors feel that weapons are necessary for the defence of the country whereas 54% scientists feel the same way. 43% scientists and 23% doctors feel that it is an unnecessary expenditure. But on the use of nuclear weapons 71% doctors and 86% scientists feel that weapons should be used as a deterrent by just accumulating not using them in a war. But 26% doctors and 6% scientists feel that in a war everything is justified. When the nuclear scientists are asked whether according to them nuclear power is unsafe only 34% feel it is unsafe, where 66% feel that it is as safe as any knowledge is, or any other industry is and statistically more people died in railway accidents than in a nuclear accident and some amount of risk is involved in every aspect of life, even walking on
the road, and further they feel it is fear of the unknown that leads people to be against nuclear energy. 80% out of the sample feel that the criticism against nuclear energy are untrue and false, not based on facts but emerge out of ignorance by people who want to erode the technical base of the country.

Scientificization: Professional insulation through logicalization of everything in life. On the effect the study of the profession has had on the doctors and scientists, 71% doctors feel that it has made them more logical, 14% feel it has made them a recluse and 14% feel it has made them social. Amongst scientists 80% feel that their profession and science have made them more logical, 11% feel it has made them a recluse and 8% feel it made them social. Regarding the question of to whether or not the profession had any use in the society 91% doctors and 71% scientists feel that society benefits from their profession, while 23% scientists feel it does not benefit society at all. The difference is significant. Amongst doctors most of them are indifferent to dead bodies and are habitual of blood, dissections etc since it is a routine for them, 89% feel that there is no emotional involvement though when they see a dead body, for the first time most are affected but get used to it within a few days. 74% doctors feel they are indifferent while 9 feel that dead bodies do disturb them. A majority of both doctors and scientists, 83%, feel that dissections and animal experiments are very necessary for science and animals had to be sacrificed for the truth. Only 20% doctors feel that dissections are unnecessary and and can be substituted by a good imagery with simulation technique and 14% scientists feel that dissections are useless. For most doctors, emotional blunting is a part of the learning process and they feel that through objectivity, scientific values, daily exposure to dead bodies blood etc, it is established. An instance of which is that find they found it relatively easy to view a person as a patient not as a person even if she is a beautiful, girl since the change in perception is an automatic mechanism and all a doctor sees is disease. 83% doctors feel that emotional blunting is easy. 60% doctors feel that they avoid treating their own relatives and family so emotions don't hamper their decisions and they can retain their objectivity and avoid wrong judgements. 29% doctors feel that one should be bold enough to treat or to operate upon one's family members too. 71% doctors and 46% scientists feel that the relation between the specialist and the layman is like a contract where transaction takes place and service is rendered to the person. 29% doctors and 54% scientists feel that they
are duty-bound to serve the people, be committed and do whatever is possible for them. The
difference between their responses is significant. Most doctors 66% feel that they are used to
deaths and it does not make much of a difference to them. Most doctors feel that they are curers
and healers, and in their roles take the place of god, but few feel they are just workers and that it
is in God's hands to cure. Both doctors and scientists 83% and 80% respectively, feel that the
technical language is a necessary part of any specialized field. There is a significant difference
between doctors and scientists on the importance of the scientific method. 63% doctors and 89%
scientists feel the scientific method is the best for understanding everything. And 57% doctors as
compared to 77% scientists feel it can be extended to all areas in life like social relations, etc., and
63% doctors as compared to 77% scientists feel it can be used for solving personal problems too.
Most doctors and scientists 43% and 57% respectively, feel that alongwith technology, indigenous methods too are required, and that proper technology, not necessarily the latest will help remove the country's backwardness. Both doctors and scientists feel that quantitative
methods are very necessary, whereas 34% doctors and 25% scientists are unsure about their use.
71% doctors and 66% scientists feel that it will be better for the country if decisions are taken logically from the head rather than emotionally from the heart. Majority of both doctors and scientists feel that for the development and progress of the country one has to be objective. Just as dams, may be more important than the problem of dislocation of people. Nuclear power is endorsed by 89% of the doctors and 89% of the scientists. 63% doctors feel that a child needed to be taught early the importance of efficiency, money, determination and ambition. But as only 31% of the scientists feel so. Thus the difference of opinion between the two groups is significant. Overall on scientifization there is not much of a difference between the two groups. This may be due to similar exposure of both groups to science and the scientific methods.

Resistance to change: insistence on sameness etc. Only 14% doctors and 26% scientists feel that people who break rules should be encouraged. 43% doctors and 29% scientists feel that the reason behind the rule being broken should be the deciding factor on encouraging or on discouraging the digressor. Both doctors and scientists feel that practices having survived over a period of time have some wisdom in them, but only those that are scientific and logical are relevant, not others. 60% doctors and 71% scientists feel that rules and regulation lead to a
secure life. Also majority of doctors 80% and scientists 66% feel that they follow the rules of their workplace generally at all times. 77% doctors and 83% scientists prefer an organized life. 79% doctors and 75% scientists feel that discipline needs to be maintained at all cost. Both doctors and scientists get bored with routine and sometimes like changes. On the whole majority of both doctors and scientists prefer an organized life and abide by the rules and regulation. But do seek those changes which they feel are good and better for them.

*Psychological Rigidity*: a tendency to maintain orderliness within rigid and limited patterns of behavior lacking variety. Both scientists and doctors feel artists are as important to the society as doctors and scientists. Half of both groups feel that rules need to be followed, and the other half of both doctors and scientists feel that practices that have survived have some wisdom in them. But majority, 66% doctors & 66% scientists feel that the boss or superior should not dictate every detail of the job but leave scope and give freedom to the junior to express himself, so that creativity is maintained. But they feel that a structure or outline is necessary along with freedom. Both, 60% doctors and 71% scientists, agree that rules and regulations, if followed, lead to a more secure life. More doctors (71%), as compared to 54% scientists agree that people with new ideas will be better for the country's future. 49% doctors and 54% scientists feel that they generally do certain things in the manner it has been done for ages, and in certain things tried to find new and unfamiliar ways of doing them. 31% of each group feel they do look only for unfamiliar ways. Both 77% doctors and 86% scientists feel that, as a whole, society owes its progress to people who have new ideas about life & living. 46% doctors and 49% scientists feel that all that is written in the religious text is real, but 69% doctors and 63% scientists feel that not every thing in the religious texts need be followed and that alterations and changes can be made as it is dependent on time and context. Only 66% doctors and 57% scientists feel that reality is a drab and thus fantasy is a necessary part of life.

The case histories and statistical analysis reveal that abnormality and normality are like the square triangle, difficult to discern. In the current times, autism like traits do seem to be the adaptation devices adopted by the individual and also and also induced by the institution and culture. It is difficult to concretely say that autistic individuals go to specific professions or that certain institutions attract autistic individuals but there is a definite tendency in certain institutions
and professions to induce autism like traits in people, and such traits are a requisite for the person to adapt successfully to the profession, institution and culture. It is difficult to demarcate clearly when autism may be an inherent individual characteristic or a social characteristic, as in the above cases all of the people interviewed have more than 5 years of experience besides the years of studying the profession. But there is substantial indication that even when on a personal level most individuals are not autistic, their responses to social and environmental situations showed an autistic trend. Between the two groups also there is not much of a difference and this can be due to scientific socialization.

On aloofness, indifference to people affect isolation, etc the scientists came through as more aloof as compared to doctors which may be because a doctor is in direct contact with people whereas a scientist was not. Moreover a doctor needs to deal with people everyday whereas a scientist interacts with the general public only occasionally if at all. Doctors generally feel that the communication gap between a specialist and a layman needs to be abridged to a certain extent whereas scientists feel that they do not need to communicate with the layman. Majority of both doctors and scientists describe themselves as shy, while doctors feel that due to lack of time, interaction is limited to people of similar profession and this makes them awkward in social situations. Scientists feel that they are unable to deal with social situations involving other people besides colleagues as they interact rarely with people outside of the institution. Even though the doctors deal with people most of the time, emotionally they are aloof from the patients they meet. Scientists do not interact with the general public at all, their institute or residence a 'self sufficient' and isolated township with all the needs met within the township and they are literally isolated from the people.

On impairment of emotional relationships lack of social cognition, inappropriate affect, doctors in their emotional relationship are significantly more impaired than scientists. They feel the need to be more self-centered, watchful against people and mind one's business. Both feel the need to be cautious while expressing one's views even to one's friends, but more doctors are distrustful towards friends. This can be because doctors are living in a real world with real problems of living, earning etc. More doctors compared to scientists stress on the need for defence and security. On work relations majority of both doctors and scientists feel that mistakes
made by them are a part of learning and do not feel they need to compensate the victims. More scientists than to doctors adapt to the institution as they have been able to had resolve the clash between their personal values and the job requirements through compliance, compromise & obedience to the institution. But most doctors feel that no such resolution is possible.

On resistance to change, insistence on sameness and psychological rigidity, both scientists and doctors emphasize that rules lead to security. More scientists than doctors prefer an organized life and also more scientists than doctors oppose new ideas. Doctors feel that for them an organized life is not possible due to the nature of their work whereas for a scientist, organization is inherent in his routine too. Moreover they also differ on the rules that each follow. Doctors feel that the important thing is to save the life of the patient and for that they might or might not follow a rule. But scientists followed all rules determined by the organization, though many feel that the rules determined by the organization needed evaluation. But they do not feel that the rules should be disobeyed and feel that staying on in the system and bringing about slow changes is preferable. On the whole though both doctors and scientists feel that they do not like unpredictability and welcome changes sometimes, if it is for their betterment. Though they find change necessary observation of their life style do not indicate that they change changed their routine but wanting changes for them is more a theoretical premise.

Scienticization, defined as logicalization of life is the trait most manifest in the sample. For the other traits, the percentage of people who exhibit a tendency for them in the sample varied approximately between 55% to 93%. But for scienticization for the majority of questions people who exhibited the tendency is more than 93% of the sample. The symptoms of autism have been expressed through objectivity, use of logic, and science has provided a mirroring environment to be able to express these with a new respectability. Both emphasize the importance of objectivity for development, progress, and the need for dams, industries, nuclear power etc as the pillars of developed and civilized society. Both endorse the need to make people scientifically oriented, as in their opinion lack of scientific outlook and attitude comes in the way of the country's progress. Though both the groups expressed the importance of science and technology, scientists emphasized more on the need for logic.
Besides the responses given there are other salient features that emerge. Doctors are more confident about the utility of their profession, whereas scientists showed a subtle dilemma regarding their profession. Almost all doctors find their job immensely satisfying but majority of the scientists feel that there is no job satisfaction, though they do enjoy the research aspect. They have stayed on because they feel that no other job provided such security and perks. Though most scientists feel that initially they are attracted to the concept of doing research in the latest high technology area, slowly due to the lack of encouragement and politically charged environment all initiative is killed. The main attraction for scientists to take up defence and nuclear research lies in the study of latest in science, discovery and invention and the opportunity of going abroad and then they feel that atomic and nuclear science has an inherent attraction. Right from the time the atom bomb has been dropped, harnessing of this energy is their fascination. For doctors the status and eulogizing of the profession is the main attraction. Saving a life provided the psychological 'kick', as, they are directly dealing with life and death and a majority conveyed that at times they did feel they are 'godplayers' Whereas most scientists are dissatisfied with their work environment, most doctors are dissatisfied with the monetary and material aspect of their profession which they feel is not a sufficient barometer for testing their caliber.

For both scientists and doctors, initiation into the profession has been memorable experience. Most doctors described how their first encounter with cadavers is a shock because of the smell of formalin. Regular exposure made them so accustomed to it, that it no longer mattered as it was like handling a piece of wood. The first few days they had found it difficult to eat but soon it became just another experiment. Dissections did not affect them at all since in school itself they were trained to do so. Even as regards death the pattern of adjustment was similar. The first few deaths affected them deeply, but exposure to it regularly has made them insensitive and strong and accept death as a part of life. Though sometimes an unnatural death does leave them with a sense of failure. Further, most doctors feel that if their patient is terminally ill, they will not like to unnecessarily prolong his life, as the quality of life spent is more important than the life span. Scientists on the other hand are awed by the institution. They encounter latest technology and equipment and have the opportunity to see in real life what others only read about, and are in the forefront of research. For them, it is like science fiction come true and
controlling such powerful sources of energy does indeed hold tremendous fascination. They feel that it is difficult not to be overwhelmed and impressed by the technology that they are exposed to as a part of their nuclear and defence research. However, both groups feel that the effect of the profession on them is not really dramatic, but there are subtle changes for the better as logic and rationality become a part of their nature and help them solve problems in a superior way.

Though doctors come through as more distrustful of people and more impaired in their emotional relationships, a deeper analysis is required. Doctors are not only in direct contact with people, but they also live among them, as often they have to seek their own accommodation and also, meet the basic needs of their family. Scientists on the other hand, have been provided accommodation in a campus within their place work. And all their basic needs are taken care of to a large extent by the provision of most amenities provided at a subsidized rate. In fact, they lived in a township specifically developed for them, which is self-sufficient with schools, hospitals, buses and other necessary strappings, irrespective of the conditions existing outside the gates of the township. A majority of them do not need to concern themselves about and venture to improve or share their benefits with the people outside of the township. Their interaction too, in the office and in their residential neighbourhood is restricted to the same people, since research centers are mostly developed in areas away from crowded cities and less inhabited by civilization. In this protected and limited environment, where the work equations and power relations are carried to the homes, there is a obvious tendency to be more cautious in responding to questions dealing with relations with colleagues work etc. It is observed that the doctors are more open in their responses and the scientists are initially guarded then gradually begin to trust. So towards the end of the interview with them they have a lot more to add. Furthermore, though they do state that seeing the same people is boring, theirs is an ideal world. As a senior scientist succinctly describes their world as one in which "there are all neurotics who can not adjust to any other environment and are living in a make believe, ideal world with all the luxuries and have difficulty adapting to the 'outside' real world. They are afraid of change and challenges and just want a secure life and so never changed jobs. A government job is ideally suited for people afraid of change." In a way then both doctors and scientists are equally aloof and detached from the people. Though, a doctor deals with people all the time, he sees them only as patients, a kind of machine,
in need of repair and he rarely gets emotionally involved so that his self is not invested and remains insulated. The Doctor-Patient relation is a one way transaction -more on I-It terms, mechanical and objective, with detachment and aloofness being the main underlying current. As for the scientist he is in a physical isolation already, as already discussed.

Scientists stress more on the necessity for 'detachment'. Detachment they feel is required not for success, but as is described in the 'Gita', a condition of mind that is best for good work. They emphasize the need to detach themselves from the results of their work, do their duty like a 'karmayogi', not be concerned about the consequences except making sure of giving the work one's best. The Bhagwat Gita is the surmon given by, Lord Krishna in the famous epic battle of Kumkshetra in the Mahabharata when Arjun refuses to pick up weapons against his own relatives friends and teachers. Among scientist it is evident that the need to justify and rationalize their work is desperately felt. They strive to find the utility or futility of their work. However, this tendency is not seen among younger scientists. Doctors on the other hand, feel that detachment is detrimental to being a good doctor. Yet a doctor over the period of training and handling patients repeatedly becomes detached from them. More than 95% of doctors feel that blood, dissections and death do not, on an average, disturb them. They feel that in their training involving objectivity, logic and everyday exposure makes them insensitive, and feel that one needs to be emotionally strong. They have even become indifferent to death. They feel that death is an inevitable part of life and feel sorry only if the person has died of some disease that could be cured. For terminal patients most doctors are indifferent. Further, all the doctors in the sample feel that emotional blunting is easy and they do not generally see patients as persons but as carriers of diseases. So they directly switch over to observe symptoms and find the cause of disease and find it easy to do so. A majority of both scientists and doctors feel that mistakes made by them or their colleagues are not deliberate and are rarely out of negligence; so the victims should not be compensated personally by them. The government they feel does give monetary compensation, which they consider is sufficient. In a way, both are similarly equally apathetic towards people and life.

Though a statistical analysis is not possible to ascertain the difference between people with more experience and people with less experience, and the difference in the responses as a function
of age, some noticeable differences may be observed here. Though scientists as a whole express disillusionment with the research conditions in the country, older scientists and those with more experience have compromised and accepted things as they are and they are more cautious voicing their dissatisfaction with the system. They are also more disillusioned and stress on detachment and find solace in the principles of the Bhagwat Gita. Younger scientists, however, are more vocal in their complaints and do not agree that compliance and discussions will alter the situation. Further, though they feel that a majority of research done is replication of what has already been done in the west, and therefore futile, they find satisfaction by doing research in areas of their own interest, along with the projects assigned to them. Also, the senior scientists who have dreamt of taking India to the forefront in nuclear and defence research now see the dream lost in the morass of unfinished projects, delays etc. The younger generation take their profession as a job that provides on opportunity and access to the latest scientific and technological equipment. It also provides travels abroad and more job security. As far as the doctors are concerned, the younger doctors are more professional and businesslike. Both realize the importance of managing well the people's emotions and realize that young and old patients often come with emotional problems. The younger generation of doctors often appease the patient by prescribing a medicine even when none is required. The older generation bemoan the loss of the family doctor and general physician and feel that superspecialists taking over is not a very healthy trend. Both older doctors and older scientists feel that the younger generation lacks the commitment and dedication which older doctors and older scientists had. They also feel that the patient also has changed and no longer accepts the doctor's opinions uncritically as they did earlier and that the patient shows less faith in them and often questions them reflecting a lack of respect and reverence as was earlier given to doctors. The consumer act they feel would be expensive for the patient and is unnecessary.

Amongst the group itself there are some differences. Surgeons are more fun loving, have more confidence and derive more satisfaction in their work, and are not the thinking type of individuals. Physicians, on the other hand, are more serious, contemplating and express doubts about whether they actually healed and cure. Amongst scientists too, engineers are very similar to the surgeons in personality characteristics. Thereotical scientists, involved in research, are very similar to the physicians. They have more doubts about the reality of their work, derive less job
satisfaction etc. The physician and the theoretical scientist may thus be described as 'the philosopher' arm-chair thinkers who prefer working alone, avoid company and gregarious parties, like meeting known people, and are more shy. The surgeons and engineers are the 'working-with-hands' type. They do not think too much about issues. They are the doers. As one surgeon put it, 'we are basically mechanics, trying to set right a thing gone wrong, of course it is highly complicated and requires excellent skill but not too deep thinking.'

An engineer's job is self explanatory. But as an engineer put it 'the scientist does the thinking and conceptualizes things. As engineers we give his theoretical model a reality, improvising, using our skills and knowledge of machines.'

Both surgeons and engineers get instant feedback, and that can be the reason they find more satisfaction in their work. A physician and a scientist have to wait before they can even perceive the result of their work. That probably is the reason they have more doubts and questions.

**Overview**

Based on the theoretical premise that abnormality-normality are not two distinguishable extremes, this study has purported to understand autistic processes and their occurrence and relevance in society. The case history approach with simple statistical analysis to augment the argument have been used.

Autism can be defined in simple terms as 'self-isolation' or 'self-encapsulation' to protect against a world that is perceived as threatening, unpredictable and uncontrollable, ever changing and chaotic so that the person does not have the trust and faith to reach out and communicate with the outside world but reconstructs reality according to his needs and capability to make it more structured, stable and predictable. The main characteristics of autism are aloofness, affect-isolation, indifference to people, lack of social cognition, resistance to change, rigidity, impairment of emotional relationship, and scientization.

A study of the characteristics reveal that these processes are, to a certain extent, a part of the psychodynamics of the entire sample. Though, for most of the autistic characteristics, not
more than 88% of the entire sample exhibits the trait, varying between 50% to 93%. what stands out is the impact of science on the sample. More than 93% of the sample reveals that scienticization is in fact the main trait and the study of science and related disciplines induced many of the autistic tendencies in the people like social aloofness, indifference to people and scienticization of their lives.

After the fall of the medieval world view, the west became suddenly aware that they existed in a totally unknown universe. To remove superstition from factual information scientific attitude has been developed. The basic need to master the environment so that it can be made seemed safe, stable and manageable meant removing the uncertain, and believing the universe behaved in a predictable manner. Science became the new god, as it was able to handle this basic fear of the unknown. It's advantages are too obvious as it took the west, from the dark ages to prosperity. In the eagerness to endorse it as the new god science became as dogmatic, ritualistic and closed as religion has been, so much so that inexplicable and irrational incidents either were consciously pushed to the background and given less or no exposure in the media, or these incidents sent the whole of the scientific or 'rationalist' community scurrying for finding rational and scientific explanations. This may be amply examplified in the incident of the 'milk miracle' of 21st September 1995, when the whole country was sent into a tizzy believing that the images of certain gods were consuming milk. The incident spread across the Hindu masses over the world like wildfire, sent the rationalists into a swirl as as they tried to find loopholes or give scientific explanations for this unbelievable phenomenon. They appealed to the people to be rational and objective and not get carried away by such irrationality. It goes to prove how much science has taken over our psyche as it refuses to believe or even accept that ambiguous and inexplicable incidents are possible. Science and technology has induced in people a tendency towards autism like processes which is evident from this research.

There have been other researches done in this area and they have reached similar conclusions. Lifton (1986) on the basis of his research describes a process somewhat similar which he calls doubling. He states that the doubling usually begins with the medical students encounter with the corpse, which, he must dissect on the first day of medical school. As he is aware that he will need to do this regularly he feels it necessary to develop a "medical self" which
enables him to function reasonably efficiently within the several other demands of the profession and retain his humanness in the face of death. The ideal doctor remains warm and human by keeping that doubling to a minimum. But few doctors are able to come close to meet that ideal standard. Consider also the scientist's doubling, who for the most part is a humane person devoted to family and strongly opposed to violence of any kind. He may undergo a form of doubling from which emerges his "nuclear weapons" self it which enables him to deal with the starkly obvious destructive capability of his work. He is aware that he is actively involved in making these merciless weapons, and argues that they are necessary for national security. It is precisely his humane commitment to democracy and family life that enables him to claim similar humanitarian explanations for his 'nuclear weapons self', despite his most fatal contribution to society as he is also aware that these weapons have the potential to destroy humanity. He is able to do this as doubling becomes a part of his functional psychological equilibrium.

Visvanathan (1988) in *science hegemony and violence* argues how violence is inherent in science, and traces what he describes as the schizophrenic attitude regarding vivisection on animals. He quotes Bernard's work as the basis for the attitude "the physiologist is not an ordinary man: he is the scientist possessed and absorbed by the scientific idea he pursues. He does not hear the cry of animals, he does not see the flowing of blood; he sees nothing but the idea and is aware of nothing but the idea and is aware of nothing but the organism that conceals from him the problem he is seeking to resolve". The research shows that dissections and animal experiment are considered necessary by both scientists and doctors and they feel that animals had to be sacrificed for humans and at a later stage even human volunteers had to be tested on for larger benefits for the human race.

Kanner (1949) on the aetiology of autism, writes that the vast majority of parents of autistic children have several features in common. Most of such parents are not comfortable in the company of people, and are impressed by seriousness and are disdainful of any thing that smacked of frivolity. They are perfectionists, and obsessive individuals who set rules as substitutes for life's enjoyment. Autistic children are offsprings of highly organized, professional parents, cold and rational, who have defrosted long enough to produce a child. He describes these parents as the "refrigerator" types (1960). Using Kanner's analogy, study of the scientific method does show that
science can indeed be viewed as the 'refrigerated parent', inducing in its scienticized children autistic tendencies.

Tinbergen and Tinbergen (1983) argue that autism is a true civilization disease of a modern, industrialized, urbanized and highly competitive society. Comparing the modern society with earlier primitive societies, they feel that earlier societies are like an extended family. One of the benefits of an extended family, they feel, is that in the absence of the parents, the other members provide a back up in the form of substitutes. In such a set up the younger mothers are able to draw from the experience, advice & help of older women and thus, parentcraft develops imperceptively. Learning for children is more fun, cheerful and involves a lot of rough and tumble. They state that few members of the western societies realize how uncheerful, cut-and dry, efficiency-oriented the atmosphere in modern societies is. Children in earlier societies learnt relatively little from deliberate or forced instruction and more from observation, imitation and practice in a playful environment. Children in modern societies have fewer or no opportunity for observational learning and are forced to rely on instructional learning. This is because of the breakdown of the extendend families to nuclear and further one-parent families. The parents or guardians here are too busy getting ahead in their careers securing the maximum for the family, and have little or no time for the children who are left in the care of professionally run institutions. Besides the children are forced to perform and succeed in a highly competition world. Added in this is they face a world where they have to learn new inventions new needs and skills each day. Further, modern children to an increasing extent grow up in large, dense anonymous societies, in large cities and megalopolises. These children are faced with conditions that overstretch their adjustability and grow in an atmosphere of all work and little play. Their lives are organized and regimented to a large extent. This cold social climate according to Tinbergen is largely responsible for 'autisogenic' traits.
Conclusion

From the study then, one can make the following inferences:

(1) The world and universe as it exists is chaotic, full of too many stimuli and is unknown to large extent. To add to it, the present rate of change has created a world of information explosion, fast changing technology and new inventions etc making it more complex, unpredictable, fearful and unmanageable.

(2) To control and overcome our fear of the unknown is a basic instinct. Adaptation and survival require that the world becomes stable, predictable and thereby more manageable to us.

(3) The accelerated rate of change in a modern, technologically advanced society places a considerable amount of stress on people's adaptability requiring new skills and modes constantly to master the environment. The result is that many defences are being incorporated as patterns of everyday behavior for survival. Some behaviors earlier considered pathological are becoming to some extent a part of the new 'normality'.

(4) Autism like processes are a type of defense to deal with the massive onslaught of information by perceptual filtering and lack of communication so that the world instead of being unpredictable, changing, unstable becomes a stable, predictable controllable world. It is a response and structuring dictated by the inner needs and the external reality. The term autism, used here does not imply a full blown syndrome but is rather on extension of a metaphor.

(5) In the study of the sample chosen, science provides the mirroring environment for the scientist and doctors to effectively handle their anxiety resulting from the existence of a world which did not operate according to their dictates. The method of science based on objectivity, rationality, experimentation etc. suitably handles this basic fear of the unknown in people, so much so that it is considered a panacea for removing all ills of the society. This is evident by the massive technological advancement and progress made, when once it was accepted as the only way of experiencing life. It has resulted in a mass scienticization of every sphere of one's life.
Both doctors and scientists are esteemed members, the products of science and major agents of social change and their study reveals that scientific training and the inculcation of scientific attitudes does involve inducing autistic traits to adapt and be useful, productive members of the discipline.

Autism like traits described in the present study are more a induced, mass response, a social phenomenon rather than an individual reaction.

The study highlights the changes in personality an individual undergoes as a part of the training imposed on him by the organization.

The kind of Autism as demanded by the scientific organizations in the study from its members does not enhance their originality, their creativity, rather their creativity is stilled, restricted to fit the parameters of the organization churning out conformists. It is used as a defense mechanism.

For both doctors and scientists science and its dictums are the preset rules to view life by and large.

Nuclear and Defence scientists are more conforming than doctors and followed the dictates of their organization more rigidly.

From the study there emerges an atypical doctor and an atypical scientist.

In a case history approach it is difficult to draw a conclusive statement, but the analysis reveals that there is a trend whereby certain pathologies have become a part of our everyday existence. The current study shows that autistic processes are induced and encouraged by the scientific and medical profession for survival in the system. They are no longer held as abnormal but are basic, prerequisites for participation in the community.

On the basis of the study there emerges as atypical scientist and typical doctor.
**Personality Profile of a doctor**

Medicine is a coveted profession. The doctor is obviously confident and assured. He enjoys his work. He is attracted by the Social mood, service to the society and mobility in the profession along with the high status it is accorded socially. Monetary gains of course are a natural by product, and add to the appeal. The doctor feels that it is due to medicine that the quality of life has improved, life span has prolonged, diseases cured. He is at a loss of words that can adequately convey up the benefits medicine has brought to society.

Initial exposure to dead bodies, blood and death had been a trauma but then he got used to it as it became a routine. He feels that animal experiments, dissections are necessary to help understand anatomy and necessary important to help a person get over the queasiness of vivisection and toughen up. To retain objectivity and prevent emotions from hampering his decisions, he avoids treating his near and dear ones though he laments his lack of emotional toughness. Emotional blunting comes easily as it is a natural development of the training. Even when a beautiful girl comes to him as a patient he might notice her initially, but then automatically switches off his feelings once he begins treating her, she is just another patient. When a patient dies, he takes it in his stride as a natural phenomenon if death has been perceived as inevitable like in terminal diseases. If, otherwise it leaves a lingering feeling of remorse as the doctor feels may he have been able to do something to avoid it. His relation with the people is that of faith and trust, more like a parent-child, relationship one with the knowledge, the other ignorant of it, and it is therefore is his duty to serve and cure the patient. This of course is fast changing in the present scenario of introduction of consumer laws where the patient is only a client. The doctor is not a Godplayer anymore, but curing does give him a 'kick' - the more difficult the case, the more satisfaction he gets out of it. There are clashes between his personal values and the requirements of the job but often he finds no resolution. The profession has made him more logical, rational but also insensitive. He does make professional mistakes but considers them as a part of learning, of life and so feels he does not deserve to be punished. He feels that he needs to maintain a professional distance from people for success and even for normal functioning.
but detachment from relatives is not necessary. He prefers team work. He feels the need to be cautious for success and a little self-centered to survive in these competitive times. Most people in his view will not help others and are selfish. Moreover one has to be careful against people and be on guard, as one wrong step and opportunists around take advantage and even cause harm. He follows the rules of his work place at most times and feels that rules give security. But he does not think outdated customs need to be followed and feels that changes can be made. He dislikes too many changes. He likes to be with friends, enjoys going out, but due to the demands of the profession he hardly has any time even for his family and his friends. His profession somehow always is his the main priority. It is a paradox he had to live with- his 'Achilles heel' being the imperfection of a perfect profession. Further he mostly interacts with people of his profession due to circumstances. He describes himself as a shy person whose main drawback is his inability to control his emotions, or deal with his emotionality and be less sensitive, less reactive. He is distrustful of people.

For him the scientific method being objective, systematic, and rational is the best method for understanding. He advocates a scientific attitude for dealing with social relations, personal problems, etc. For progress and development he feels that taking decisions from the head instead of the heart being objective, rational and impersonal is necessary. Though industrial accidents can not be taken lightly, factories and industries can not be closed according to him. Similarly, nuclear power is necessary for the development of the country even though it does involve risks. Since he feels the country faces danger from other countries, nuclear and modern weapons are necessary. He feels the country would be better if people with new ideas planned for the country's future. The overall picture of a doctor is a man who is confident, knowing he belongs to an elite group has a coveted profession, which is an indispensable part of the society. He is aware of the fact that he is a cut above the ordinary man and his attitude reflects this awareness. He is proud of his profession and the contribution it makes to society. He knows that society can not exist without a doctor.
Personality Profile of a Scientist

The scientist forms a part of the elite group known for their intellectual calibre, drowned in work, lost to the world. The scientist is in the frontier of research, in the most prestigious institutions which deal with atomic and defence research. However the scientist does not enjoy his work or find much satisfaction in his job. Working with the latest technological instruments, idealism and the atom bomb attracted him to the profession. Access to those advanced instruments which one only reads about, opportunities offered by these prestigious institutions and the job security were other factors that drew him to this profession. Along with it are the several material benefits by way of subsidised foods, housing, schools etc. He is not too certain about the larger benefit of this profession. Though he does consider that it can be a panacea for all ills, there are traces of doubts. This can be because in defence and nuclear establishments there are things beyond his individual control. Also unlike a doctor, the results of a research are not immediate and often may take several years to complete. This uncertainty adds to the frustration. All this together makes him dissatisfied in his job and he is not able to enjoy it much. From a dream to invent and discover, his profession turns into just another routine government job with immense security and perks which he cannot forgo. But of course there are for him, moments of discovery and invention which are very satisfying.

Being a part of this profession for him was a dream come true. Because the cream of intellectuals and scientists were chosen for it. But all the enthusiasm gradually dies down as most of the research is merely a repetition of the west. Further indigenous research is not encouraged and projects are often discontinued as heads of the institution or and the government changes. This leaves him with a little sense of purpose and he is doubtful about the utility of his work. Yet there are moments of elation when projects are completed and rendered functional. He gets ample opportunity to study and interact with the intellectuals of the world, with renowned scientists and is able to visit many countries. He is also saved from the rigmaroles of everyday chores, commencing and an ordinary existence. For him too as for doctors mistakes being a part of learning do not merit punishment. There are clashes between
his personal values and the requirements of the job but he has compromised and resolved the crisis. His interaction with the common man is nil. He is aware of his inability to deal with people outside the profession. His detachment with the end product of his job is of the kind propagated by the Bhagavad Gita, where it is emphasized to do one's duty or karma irrespective of the consequences. This probably is a rationalization, to be able to confront the fact that his work is often used in destructive purposes than constructive ones. He prefers to work alone or with a well coordinated team. He does not feel that one needs to be self-centered to survive in these competitive times. He feels that most people will help others and one does not need to be on guard against unknown or known people. He feels that customs and religious text have some wisdom in them and need to be followed. He follows the rules laid down in his work place at all time and feels that rules lead to a more secure life. He prefers an organized and disciplined life and like the doctor dislikes changes. He does not enjoy going to parties and other gatherings and enjoys solitude. His interaction with the outside world is a minimum as he lives in the campus of the institution, far away from the hustle of the regular world, an ivory tower, unique and isolated. Like the doctor, the scientist describes himself as a shy person, and feels that his major drawback stems from the fact that he is very emotional.

Like the doctor he considers the scientific outlook to be the one that can remove darkness out of one's life. He advocates it more strongly than a doctor and feels that only this can remove ignorance of the people and liberate their minds. For progress and development, he too feels that decisions have to be objective and impersonal for the benefit of many, a few have to be sacrificed. Industrial accidents are serious but closing down factories and stopping development is too extreme a step to take. He does not feel that nuclear power is unsafe. For him it is as safe or unsafe as a matchstick or any other industry. Everything in life has an element of risk and nuclear power is no different. In fact, the safety standards in these institutions are more severe than anywhere else and fewer people have died of radiation as compared with those killed in trains or road accidents. For the development and progress of the country nuclear power is required. He does not feel there is a threat to the country from other countries, yet feels that modern and nuclear weapons are needed as a deterrent. He does not think that the country will fare better if people with new ideas made plans for the country's future. The scientist comes
through as a man isolated or in fact cocooned in his 'make believe' secure world, who somewhere down the line has felt pangs of doubt about his potential. Unlike the doctor, the scientist is in search of finding validity and usefulness of his work. And, unlike a doctor, he strives to find justification for his work and the contribution that he makes to society.
<table>
<thead>
<tr>
<th>Trait</th>
<th>Similarity</th>
<th>Differences</th>
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<tbody>
<tr>
<td>Affect isolation</td>
<td>Majority of both feel ruthlessness is necessary to change society. Majority of both consider themselves shy (60 per cent doctors and 63 per cent scientists).</td>
<td>51 per cent doctors find it unwise even to trust friends as compared to 37 per cent scientists only.</td>
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<td>Indifference to people</td>
<td>Both 71 per cent doctors and 77 per cent scientists do not find it necessary that people who are the targets of mistakes need to be compensated. Most doctors and scientists give importance to flexibility instead of standing for one's ideals rigidly. Most 66 per cent doctors and 74 per cent scientists also did not think that to be successful one needs to break away from the people around.</td>
<td>40 per cent doctors as compared to 60 per cent scientists consider it a limited perspective if a person gets so immersed in his work that he becomes indifferent to others. Only 26 per cent scientists as compared to 46 per cent doctors feel that it is better to mind one's own business. More doctors (60 per cent) than scientists (30 per cent) consider money important.</td>
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<td>Impairment of Emotional</td>
<td>81 per cent of both doctors and scientists find nuclear power to be safe and necessary for the country. Majority of both feel that people in public life need to distrust others around him for personal and natural security.</td>
<td>89 per cent doctors consider the opinion of others as important as compared to 71 per cent scientists. Only 28 per cent scientists as compared to 46 per cent doctors do not take people into confidence about their future plans, but 20 per cent scientists as compared to 11 per cent doctors are unsure about their response.</td>
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<td>Relationship</td>
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Inappropriate emotions

Majority of both groups feel that people with permanent backwardness can not be ignored.

Majority of both feel there is a threat to the country from other countries and defence is necessary.

Both groups find a clash between their personal values and that required by job, but only 51 per cent doctors as compared to 66 per cent scientists find a solution.

94 per cent doctors as compared to 60 per cent scientists feel that being in an important position places one in danger, and required personal security.

69 per cent doctors in comparison to 43 per cent scientists feel that one needs to be cautious of strangers.

Also more doctors than scientists feel that even an ordinary man is surrounded by danger. Also more doctors (66 per cent) than scientists (46 per cent) feel that the VIPs need security around them.

Social cognition lacks

91 per cent doctors in comparison to 80 per cent scientists feel that professional mistakes should not be punished without proper reason.

77 per cent doctors as compared to 54 per cent scientists feel that nuclear and modern weapons are necessary.

Majority of both, 86 per cent doctors and 84 per cent scientists feel that factories do not need to be closed just because accidents occur.

89 per cent of both feel that nuclear power is needed for progress. Both feel that nuclear and modern weapons are needed as deterrents only.

Scienticization

Majority of both, 71 per cent doctors and 80 per cent scientists feel that their profession makes them logical and rational.

Both groups find dissections and animal experiments necessary (80 per cent doctors) and (83 per cent scientists). Majority of both feel that computers and statistics are important. Majority of both feel that decisions need to be taken from the head and not the heart for progress.

91 per cent doctors find that their profession benefits society as compared to 74 per cent scientists.

54 per cent scientists consider their profession should to serve the people, as compared to 29 per cent doctors.

89 per cent scientists endorse the scientists endorse the scientific method from understanding all things
91 per cent doctors and 89 per cent scientists feel the need to be objective and impersonal as they find them to be necessary requisites for development.

Majority of both feel that slums should be removed.

89 per cent of both feel the need for nuclear energy.

Majority in both groups feel rules and regulations lead to a secure life and they follow the rules of their workplace.

Majority of both, 77 per cent doctors and 83 per cent scientists prefer an organised life.

80 per cent doctors and 74 per cent scientists feel discipline is necessary.

Majority in both groups like changes at times.

Majority in both (66 per cent) feel that the boss or superior should leave scope for juniors to do things in his/her own way and not dictate all minor details.

Majority in both feel that rules and regulations lead to a secure life (60 per cent doctors and 71 per cent scientists).

Both feel that people with new ideas will be better for the development of country (71 per cent doctors and 54 per cent scientists).

Majority in both find that religion need not be followed to the letter and changes can be made.

Majority of both find reality dry and fantasy as compared to 63 per cent doctors.

Only 34 per cent scientists as compared to 51 per cent doctors feel that all that is written in the religious text is not true.