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The creative experience : a comparative study.

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THE CREATIVE EXPERIENCE: A COMPARATIVE STUDY

A Dissertation Presented

by

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ABSTRACT

THE CREATIVE EXPERIENCE: A COMPARATIVE STUDY

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The inquiry into the creative experience was made through the construction of a three-part questionnaire that included questions about biographical background, different elements of the creative experience drawn from the reports of "creatives" and researchers, and the effect of responding to the questionnaire. The sample of 78 women and 25 men is divided by gender and into 3 age groups. The responses are tabulated and presented in chart form. A chi square analysis was made to determine the level of significance of apparent differences among the groups.

Some of the findings are: Men and women define creativity differently. The motivation for creative activity varies widely among the age groups both within a gender and between men and women. The middle group of women are the most highly motivated for creative activity, the oldest women the least. The relationship to others relative to the creative experience varies between the younger and the older as well as between men and women and affects the experience. The differences in the creative experience among the age groups seem to be related to differences in maturity rather than to the very different social and economic conditions in which each age group reached maturity.

Findings that seem important are: A higher percent of men than women define creativity as problem-solving, as producing a useful, concrete product, refer to creativity as exciting, and create for posterity or to make a contribution. A higher percent of women define creativity as producing an aesthetic product and refer to self-

development and aesthetic pleasure. The oldest women use their creative energy to connect with others. The older women find the execution stage of the creative process the most enjoyable. The completion and recognition stages are most enjoyed by younger men and least enjoyed by older women. Sharing and feedback are most enjoyed by older men and least by younger women.

These and other significant differences provide clues toward understanding the discrepancy in the creative achievement of men and women as well as clues for what is needed or might be helpful for greater access to creative potential.

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CHAPTER 1

INTRODUCTION TO A COMPARATIVE STUDY OF THE CREATIVE EXPERIENCE

Introduction

The creativity of the human being has had survival value for the species. In fact, given the premature birth, the long period of dependency, and the unarmored body, the species may have been crucially dependent upon creative invention to survive at all. The implication is that creative capacity is innately present within the individual. If this is true, an assumption made for this dissertation, why is creative production limited to few geniuses and is unpredictable and variable in time and place? Why have there been particular periods in western history characterized by extraordinary creativity in many fields such as in Classical Greece, in the Italian Renaissance, or in the time of the American Revolution that are followed by long irregular periods of relative absence of creative production? There has been a great deal of research and inquiry focused around these core questions, especially since 1950. Different investigators have concentrated on different aspects of creativity such as the creative person, the creative process, the creative experience, the creative environment, and the created product.

It is likely that creative ability and expression exist on a continuum from little expression or access to creative ability in some to a great deal of ability and its expression with recognition by society in others. Where on such a continuum an individual finds him or herself seems to involve a mixture of determining factors which range from native genetic endowment, to economic well-being, to stimulation and support in childhood and the educational system, to mentors and role models in adulthood and support from the surrounding society, to the cultural climate providing a milieu for creative activity. Inequality of opportunity and access to essential education and materials due to economic depression, racial or ethnic discrimination, and

discrimination against women undoubtedly have a depressive effect on the development of creative ability and creative expression. However, creativity is not a static condition. An individual may progress toward greater creativity along the continuum during a lifetime or regress because of personal problems, living complications, or conditions in the environment.

Paul Torrance, Carl Rogers, Frank Barron, Calvin Taylor, J. P. Guilford and many others have discovered and described conditions in which creativity seems to be enhanced. However, given all or most of all the positive conditions researchers have discovered enhancing creative behavior and expression, creative activity is not ensured. These conditions may be essential but they are passive, external factors and are not sufficient. Creative behavior cannot be guaranteed by external conditions nor can it be easily stimulated. The active elements determining creativity seem to be internal having to do with individual motivation, desire, and perseverance. It seems that the creative experience is essentially an internal, subjective, and personal experience.

Some basic beliefs and assumptions underlying the interest and motivation for research for this dissertation are:

1 - The creative experience is a common human experience.

2 - All people are potentially creative in some way.

3 - The potential for creativity is equal for men and women.

4 - Creativity is a valuable ability of the human species and is vital for the survival of the species and planet and therefore should be supported and promoted by society.

5 - Thought patterns and world views affect access to creativity and may block creative expression.

6 - The cultural heritage of philosophical thought affects the facilitating environment, the kind of of creative activity, and the expression of creativity itself.

7 - The major block preventing access to creative potential may be in the individual's negative self-image and in his or her belief that he or she is not creative.

There are many studies inquiring into the creative experience of well known people recognized as creative by having produced an original product of value. Seminal for the focus of this investigation were the generalities that Rosner and Abt [1970] delineated in their book The Creative Experience. They interviewed eleven well known creative scientists and eleven well known artists representing diverse fields. Twenty-one were men and one was a woman. Their goal was to study the phenomenology of the creative experience and their method of investigation was through open-ended, free-expression interviews which were relatively unstructured. They found elements of similarity among their subjects and came up with a list of generalities as conclusions.

Further reading in the field led to increased awareness of the great diversity of opinions, research focuses, theories, and conclusions about all aspects of creativity. Research and investigation has concentrated almost exclusively on individuals defined as exceptionally creative in one way or another and theories are created to fit the observations. Furthermore, research design and observations are usually based on and biased by a philosophical viewpoint. There has been little done to explore the creative experience of individuals who are not recognized as creatives by their society by having produced a creative product. Is the creative experience as reported by recognized creative people unique to creative people or widely experienced by individuals in our society? Would individuals not recognized as creatives agree or disagree with the experience as reported by recognized creatives? Would they be cognizant of their own creative experience and if so, report it as similar or different?

Another interesting question emerges from the realization of the major bias in the research and the literature. Men define creativity and set the criteria for what is considered creative and give recognition to those men who have created products that

meet those criteria. Men report the creative experience, analyze the creative process as experienced by men, write about, and research creativity using men as subjects. A preliminary examination of the literature, for instance, reveals a great inequality in the numbers of publications published or cited dealing with research and thinking about creativity between men and women writers. Examination of the bibliographies of the major books on creativity and its research reveals that only five percent or less of the references are authored by women and even fewer refer to women as subjects of inquiry. However, it is also a fact that the percentage of women writers and investigators of aspects of creativity and well known women creatives in every field is very small even in the United States where many of the passive external conditions for equality of opportunity are in place. Beyond the well recognized historical and cultural discrimination against women, it seems curious that this should continue to be so given the opening and expanding opportunities for women in our culture, especially in United States. The question is: What differences might be discovered if women defined creativity, reported the creative experience using women as subjects and recorded the results with the female voice? Perhaps answers given by women who are not recognized as creatives to a questionnaire on the creative experience could provide some clue toward explaining why the discrepancy in creative production persists.

Literature Review

Since the volume of writing and research about creativity is so large and increasing so rapidly, the literature review uses as a structure a focus on how several lineages of Western thought and the progeny of that thought affects the thought about and the investigation of creativity. Five important lineages of thought trace from Plato, Aristotle, Kant, Galton, and Freud. The literature review explores how these lines of thought affect research on the creative person, the creative climate, the cultivation of creativity, the thought about motivation and the mechanisms of creativity, the

definition, the created product, the creative process, and the creative experience. It is interesting to note how the philosophical heritage and/or belief system of the researcher determines what aspect of creativity he investigates, what questions he asks, and what he chooses to observe. Is there a similar effect in the way individuals not recognized as creatives respond both in their views about creativity itself in their answers to questions about the creative experience?

Purpose

The purpose of the research for this dissertation is to explore the creative experience of about 100 individuals who are not recognized as creatives by society by having produced a recognized creative product. The purpose is to compare the results with some of the research on the creative experience of well known recognized creatives and to explore the possibility that there may be important gender differences and differences related to age and maturity.

Significance

There is a general absence of investigation into the nature of the creative experience of the individual who is not a recognized creative. Research has focused on the study of the exceptionally creative person creating a dichotomy of thought categorizing people as creative or not creative. If creative ability is inherent in the human being albeit in varying degrees, then the creative experience is also universal. Is this in fact true? The dissertation research addresses this question by concentrating on individuals who are not recognized as creative and comparing their reports with those of recognized creatives.

For the respondents there may be a beneficial effect. The process of responding to the questionnaire increases personal awareness of the creative experience by focusing the individual's thought on the creative process and the experience, thereby perhaps,

increasing access to personal creative potential. Also, there may be a beneficial effect from the increased awareness of the relationship between personal creative activity and personal history. The reader of the dissertation also may become more aware of his or her own creativity and thus increase access to it.

There is something of a gap in the examination of gender differences relative to the creative experience. Historically, women were not thought to be creative or to have creative experiences except in the biological creation of children. The more recent assumption usually is that there is no difference. The results of the research with males has been, by and large, simply generalized to include women. There well may be some important gender differences. The data from this research may provide evidence for gender differences or suggest ideas worthy of further investigation. Another question that is addressed is: Are there differences in the creative experience that relate to age and maturity? The research intends to fill in a gap in knowledge about the creative experience of persons not recognized as creative by society by making some new discoveries and raising new questions for further research.

Methodology and Procedures

The study is exploratory. The search is to find patterns, similarities, and differences in creative experience among various age and gender sub-groups within the sample and to compare their experiences with the experiences of recognized creatives as reported in the literature. The source of data is the written responses of about 100 people to a three-part questionnaire.

Using some of the conclusions and generalizations that Rosner and Abt distinguished in their study of well-known creative people and ideas from controversies in the literature, a pilot questionnaire was constructed to explore the creative experience of individuals and to explore to what extent their experience is common to that of the recognized creatives. This original questionnaire was answered by a small

sample of classmates and revised several times. A biographical section was prefixed because many studies suggest the relevance and the significance of personal history, cultural background, family, teachers, and mentors on the expression and experience of creativity.

In the process of designing and piloting the questionnaire, there was some indication that for many individuals the very process of responding to the questions and thinking about personal creative experiences was stimulating to the process itself. Therefore a short third section was appended for reaction to the experience of responding to the questionnaire as well as for refinement of the questionnaire itself.

Definitions

The major definition problem involves the words creative and creativity. These words are given many definitions and a great deal of controversial discussion in the literature as discussed in Chapter 2. The definition "creative by having produced a creative product of value." is a definition used to distinguish the recognized creatives in the literature. However, if the creative experience is widely experienced and is an integral part of creativity, then creativity is perhaps not dependent on a created product. A consideration central to this proposed inquiry is that the definition of creativity provided by the respondent is, in itself, a focus of inquiry and is significantly related to the experience.

The Sample

The sample of respondents is drawn from faculty, graduate, and undergraduate students from the University of Massachusetts, some from classes and faculty in other schools, and from individuals from other walks of life. Anonymity and confidentiality is preserved. The sample is described and analyzed.

Analysis of the Data

How the respondents in the sample report their creative experience is compared with what some of the recognized creative individuals have said about the creative experience. The data also is examined for similarities and differences among the age and gender sub-groups within the sample. The quest is to see the patterns in the responses and compare and contrast the results to patterns distinguished in the literature.

Research Questions

The study is guided by the following research questions:

1) Is the creative experience as reported by recognized creatives wide-spread and commonly experienced, known, and understood by the respondents to the questionnaire?

2) Does the creative experience reported by "creatives" uniquely characterize them as experiencing creativity differently from the dissertation sample of respondents? What are the similarities and differences between the reports on the nature of the creative experience given by the recognized creatives and the respondents?

3) Are there major gender differences in how creativity is defined with consequences affecting the experience itself; and are there differences in the creative experience between men and women?

4) Is there a difference in the way creativity is defined that varies with age and does the way that the creative experience is reported vary with the age of the respondent, and if so, in what ways?

5) Are there differences in the creative experience that are characteristic of the various groups when divided by both age and gender?

6) What are the effects of responding to the questionnaire?

The questionnaire includes questions that are open-ended, gradational, multiple choice, and true/false. Statistical descriptive analyses are applied to those responses that are in a suitable form. The similarities and differences in the open-ended responses also are examined and analysed.

CHAPTER 2

REVIEW OF THE LITERATURE

A STUDY OF SEVERAL LINEAGES OF WESTERN THOUGHT

AND HOW THAT THOUGHT AFFECTS THE INVESTIGATION OF CREATIVITY

Creativity

> The search for knowledge about creativity is linked with magic, the demonic, and the divine, yet such knowledge is at the forefront of rational inquiry. Creativity is paradoxical and complex, and the most steadfast investigator is constantly beset with feelings of awe and a sense of mystery as he pursues his inquiry. ... It is a human capacity but it seems to transcend human capacities. On the one hand the investigator is lured and excited by a tantalizing paradox, and on the other, he is deterred by nagging doubts about whether he is naively trying to explore and rationalize an impenetrable aspect of human experience. [1976, p. 3]

Thus Albert Rothenberg introduces his book The Creativity Question. He continues by pointing out the need for rational understanding of creativity in such diverse fields as psychiatry and psychology, behavioral science, philosophy, education, business, art and art criticism, scientific endeavor, and for those involved in problem-solving in our complex world.

Investigators become enmeshed in a conflicting and often unconscious web of assumptions which skew both methodological and conceptual problem design. Rothenberg makes the initial assumption that creative activities share the essential attributes of both newness and value as intrinsic to the concept of creation. There are many in the field who define creativity differently who start with quite different assumptions and therefore ask quite different questions. There is wide disagreement as to 1) the universality of the creative capacity, 2) characteristics of the creative person essential for creative activity, 3) the identification and development of creative potential, 4) the role and effect of the social and organizational milieu, 5) the societal and the cultural influences, 6) what constitutes motivation with its concomitant controversial disagreement as to health or pathology as a significant driving force, 7) questions about

the source of creativity, 8) the process and its steps, 9) the nature of, reality of, or value of incubation and/or inspiration, 10) the necessity of a tangible product, 11) the criteria by which a product is measured and defined as creative, 12) the question of cultivation of creativity, and 13) how creativity itself is defined.

The process of bringing something into being involves a creator, a facilitating environment, a creative medium, the creative process, and a creative outcome. The aspect investigators choose as the focus of their thinking and research is influenced by the definition of creativity chosen and the assumptions made which in turn influences the questions asked, the methods used, the data accepted, and conclusions drawn. How the problem is formulated affects the outcome and resolution. There are a great multiple of complications and pitfalls.

Five Philosophical Origins of Thought about Creativity

> Man has a belief in seen and unseen nature. He is both a pragmatist and mystic. He has been so from the beginning, and it may be that the quality of his inquiring and perceptive intellect will cause him to remain so to the end. [Eiseley, 1960, p. 4]

Thought about creativity in the intellectual tradition of the Western civilization can be traced to two major, divergent sources: the philosophies of Plato and of Aristotle. These two men of great genius held attitudes and convictions which were diametrically opposed especially with regard to creativity. Their great and dominating influence has resulted in ramifications and controversy down through the centuries to the present. It is interesting to note how often modern writers throw an anchor line back to one or the other.

Plato believed that the source of creativity is external to the creator and divinely inspired. It is interesting to note that the root word of enthusiasm is 'en-theo' meaning 'in god.'

> The Muse ... She first makes men inspired, and then through these inspired ones others share in the enthusiasm ... have their excellence, not from

> art (skill), but are inspired, possessed ... are not in their senses ... a poet is a light winged thing, and holy, and never able to compose until he has become inspired, and beside himself, and reason is no longer in him ... for not by art do they utter these, but by power divine ... it is god himself who speaks, and through them that he becomes articulate to us ... the poets are nothing but interpreters of the gods, each one possessed by the divinity to whom he is in bondage. [The Icon, p. 218]

Aristotle believed that creativity is explicable in terms of antecedent conditions and that necessary resources are available and sufficient to account for the created product.

> ... everything that comes to be comes to be by the agency of something and from something and comes to be something ... all things produced by nature or by art have matter... all makings proceed either from art or from a faculty or from thought ... from art proceed the things of which the form is in the soul of the artist.
>
> Of the productions or processes one part is called thinking and the other making - that which proceeds from the starting-point and the form is thinking, and that which proceeds from the final step of the thinking is the making.
>
> ... it is impossible that anything should be produced if there were nothing existing before ... the product will always have to be divisible ... one must be matter and the other form ... for everything that is generated ... the begetter is adequate to the making of the product and to the causing of the form in the matter. [Metaphysics, p. 791]

Both Aristotle and Plato view the art product as a separate reality.

Rothenberg and Hausman [1976] include three other major thinkers as seminal and as powerful historical influences on current thinking about creativity: Immanuel Kant, Francis Galton, and Sigmund Freud. Each generate new hereditary lines of thought in that they diverged in quite different ways from Aristotle and Plato.

Kant's view is that only art is creative and aesthetic; and art does not imitate or represent reality. It is neither rational nor naturalistic nor found in science. Its source is not external but within the creative genius himself and is a spontaneous activity independent of all former rules and processes, is a radical leap into what is original and imaginably new. He assumed the existence of basic a priori concepts as conditions or categories or as deterministic causality. He believed that rather than the mind mirroring the world, the world is organized or actually created by the mind or by a system of abstract categories. Rollo May said:

> Kant proposed that our understanding is not simply a reflection of the objective world around us, but it also constitutes this world. It is not that objects simply speak to us; they also conform to our ways of knowing. The mind is thus an active process of forming and re-forming the world. [1975, p. 160]

Kant stands in contrast to both Aristotle and Plato. He believed that man creates his own reality, creates his world rather than is created by his world. He does not belong to the supernaturalistic, the naturalistic, or the rationalistic tradition. For him, genius makes the rules and thus cannot be explained by rules. Creation of art is not imitation of nature nor representation of a reality apart from the product and does not depend on priori procedures. He finds the locus of creativity in a unique and spontaneous act emerging from the creator's consciousness.

Francis Galton is a curious mixture of Aristotle's naturalism and Plato's theism. He believed that all life is single in its essence. Writing in the late 19th century, he applied and extended Darwin's theory of evolution. He believed that "a man's natural abilities are derived by inheritance." He was impressed by how many of the extraordinary geniuses in history are genetically related. He wrote in 1869:

> Nature teems with latent life, which man has large powers of evoking under the forms and to the extent which he desires. We must not permit ourselves to consider each human or other personality as something supernaturally added to the stock of nature, but rather as a segregation of what already existed, under a new shape, and as a regular consequence of previous conditions ... our personalities are not so independent as our self-consciousness leads us to believe ... the constitution of the living universe is a pure theism ... all life is single in its essence but various, ever varying, and interactive in its manifestations, and that men and all other living animals ... may contribute, more or less unconsciously, to the manifestation of a far higher life than our own ... [1869, p. 316]

Sigmund Freud used an Aristotelian, rational, naturalistic explanation for a Platonic concept of the unseeable and mysterious. The Muse is replaced by the unconscious mind to explain the source of creativity as being both unknowable affirming the mystery, but the mechanism is explainable in naturalistic terms. He thought fantasy intrinsic to creative thinking. He found the creative person a 'strange being' who could arouse emotions in the viewer that the viewer did not know he had. Freud said:

> The writer softens the character of his egoistic day-dream by altering and disguising it, and he bribes us by the purely formal - that is, aesthetic - yield of pleasure which he offers in the presentation of his phantasies ... our actual enjoyment of an imaginative work proceeds from a liberation of tensions in our minds ... and enabling us thenceforward to enjoy our own day-dreams without self-reproach or shame. [1908]

Freud believed creative and cultural accomplishments were the transformed, socially acceptable products of sublimation of sexual energies. Creative activity was the result of unconscious conflict of drives and needs. Man attempted to satisfy his erotic desires and assuage his guilt for aggressive and destructive impulses through fantasy, thus avoiding the hardships of reality. He believed that the origin of creativity is in the unconscious and that the creation is a mirror of the unconscious imagery that has been processed through the ego. He identified similar origins for both pathology and creativity.

Paradoxically, explanation, the goal of investigators from whatever hereditary line of thought, must either concede the infeasibility of research for causes and explanation since they are supernatural, mysterious and unknowable or, from the Aristotelian line, exclude unprecedented, genuine originality in the product because explanation implies antecedent causes or predictable future possibilities. Undaunted by the multitude of difficulties and obstacles, hundreds of investigators, increasing in geometric proportions since 1950, have taken the challenge to understand and/or explain some facet of the question of creativity.

Plato's Progeny

Plato's philosophy provided a basis for several lines of thought which still have progeny today. In contemporary thought the Thomist, Jacques Maritain follows along a Platonic line with some infusion of Freudian thought. The Muse becomes creative intuition, born in the unconscious, out of reach. Maritain identifies the 'Illuminating Intellect infused with Spirit' as the supernatural and divine source. He wrote

> I think what we have to do is to make the Platonic Muse descend into the soul of man, where she is no longer Muse but creative intuition; and Platonic inspiration descend into the intellect united with creative imagination, where inspiration from above the soul becomes inspiration from above conceptual reason, that is, poetic experience ... unconscious activity is spiritual ... poetic intuition is born in the unconscious, but it emerges from it; the poet is not unaware of this intuition ... it is his most precious light ... the activity of the intellect takes definite form and shape, is preceded by the hidden workings of an immense and primal preconscious ... develops in a night which is translucid and fertile, and resembles that primeval diffused light which was created first, before God made ...'lights in the firmament of heaven to divide the day from night'... we possess in ourselves the Illuminating Intellect, a spiritual sun ceaselessly radiating, which activates everything in intelligence, and whose light causes all our ideas to arise in us, and whose energy permeates every operation of our mind. And this primal source of light cannot be seen by us; it remains concealed in the unconscious of the Spirit. [1953, pp. 90-100]

Stanley Krippner and Gardner Murphy [1973] and many others following Plato's belief in an external source and transmission of thought investigated extra-sensory perception and its relationship to creativity. They found that both paranormal perception and creative conceptualization occur in rapid movement between associated and dissociated, relaxed and active, and motivated and unmotivated states. Honordon, Davidson, and Bindler [1971] investigated further using biofeedback and studying alpha brain wave activity. Driestada [1971] collected testimony of Galois, Kepler, Pascal, Faraday, and many others who attributed many of their discoveries to a source beyond themselves. Researchers in psi phenomena use Aristotelian logic, scientific method, and documentation to try to explain phenomena often described as supernatural and defined as beyond the senses and beyond the Aristotelian sensible, knowable world.

Plato's belief that creativity is 'a gift from the gods' and mysterious is echoed by Rollo May in his instructions to the creator to listen.

> The receptivity is the artist's holding him- or herself alive and open to hear what being may speak. Such receptivity requires nimbleness, a fine-honed sensitivity in order to let one's self be the vehicle of whatever vision may emerge. It is necessary that the artist have this sense of timing, that he or she respect these periods of receptivity as part of the mystery of creativity and creation ... It is active listening, keyed to hear the answer, alert to see whatever can be glimpsed when the vision or the words do come. [1975, pp. 91-92]

Plato believed that creative insight emerged from a prophetic madness representing deeper-than-normal levels of consciousness, an altered state of

consciousness. Many people, such as Masters and Houston [1968], Huxley, [1963] Krippner [1968] Tart [1969] and Arieti [1976], have investigated the effect of drugs and other conscious altering methods relative to creativity. Kamiya [1969] and H. A. Murray [1938] studied and experimented with alpha states of mind and with trying to induce altered consciousness and creative behavior by artificially controlling alpha brain waves.

Meditation is often cited as a successful technique to enhance creativity. Alan Watts [1957] said "it is only when there is no goal, and no rush that the human senses are fully open to receive the world." Michael Hutchinson writes

> ... humans generally emphasize half their brains at a time, dominance flickering back and forth between hemispheres depending on the task at hand. But studies by neurologists have now proved that in certain extraordinary mental states, such as deep meditation or intense creativity, both hemispheres shift into a single, coherent rhythm, operating in unison. [1986, p. 6]

MacCallum [1975] thought that regularly practiced meditation would increase fluency, flexibility, and originality of creative solutions. Rollo May disagreed. He sums his experience:

> When I am engaged in writing something important to me, I find that if I engage in the customary twenty-minute meditation period before writing, my universe has become too straightened out, too orderly. Then I have nothing to write about. My encounter has vanished into thin air ... I prefer to endure the chaos ... [1953, p. 107]

Maslow [1963] describes a peak experience, as an altered state of consciousness like that experienced in creative moments, as a moment of ecstasy, rapture, bliss or greatest joy.

Creativity and Pathology

Plato's 'divine madness' led to research into the often observed association of creativity and pathology. Lombroso related genius to insanity, a form of degeneration. "the coincidence of genius and insanity enables us to understand the astonishing unconscious, instantaneousness, and intermittence of the creations of genius." [1891, p.

351] but he distinguished the insanity of genius, as did Plato, from ordinary insanity. Jung wrote "the divine frenzy of the artist has a perilously real relation to morbid states without being identical with them." [1923, p. 226] Otto Rank wrote of the morbid crises of a neurotic nature that are connected to productive work. Maslow wrote

> It was ... obvious that some of the greatest talents of mankind were certainly not psychologically healthy people, Wagner, for example, or Van Gogh or Byron. Some were and some weren't. I had to come to the conclusion that great talent was not only more or less independent of goodness or health of character but also that we know very little about it ... It seemed clear that health and special talent were separate variables. [1968, p. 135]

Barron found a high degree of psychopathology as well as ego strength in creative persons.

> ...creative groups consistently emerge as having more psychopathology than do the more representative members of the same profession.... creative individuals are much more troubled psychologically ... [1969, p. 75]

Lawrence Kubie , opposing the association Freud found with a source of creativity in unconscious pathology wrote

> Neurosis corrupts, mars, distorts, and blocks creativeness in every field. ... No one need fear that getting well will cause an atrophy of his creative drive. ... This illusionary fear rests on the erroneous assumption that it is our unconscious in us which makes us creative. [1958, p. 143]

Silvano Arieti writes

> ... mental illness has not been a deterrent in outstanding cases ... originality may lead us astray if not corrected by self-criticism. Divergent thinking may even bring us to psychosis, if not matched by logical processes. (1976, pp. 358-359)

Rothenberg points out

> Shared in common between psychological illness and creativity is the factor of conflict, but, the relationship is complex. ... Creating does involve high degrees of anxiety and it can intensify psychological illness, because the unconscious material unearthed and the kind of insights achieved during the creative process are not of the sort to produce permanent relief of symptoms. [1979, pp. 135-136]

Rollo May ponders the riddle and speculates

> ... that genius and psychosis are so close to each other... that creativity carries such an inexplicable guilt feeling ... that so many artists and poets commit suicide, and often at the very height of their achievement. (1975, p.

23) The troublesome paradox confronts us in that both the Greek and the Judeo-Christian myths present creativity and consciousness as being born in rebellion against an omnipotent force." [p. 26] The second commandment adjures us, "You shall not make yourself a graven image, or any likeness of anything that is in the heavens above or that us in the earth beneath ..." The creator needs "... courage to encounter again and again ... to confront the jealousy of the gods. This is why authentic creativity takes so much courage: an active battle with the gods is occurring ... (1979, pp. 20-22)

He points out that the struggle of the creator puts him or her under great and many stresses. May's existential mode of thought may give the best explanation for the association between pathology and creativity.

> ... the creative act is ... an encounter between two poles ... MacLeish describes the two poles of the encounter as 'Being and Non-being' ... and quotes a Chinese poet: 'We poets struggle with Non-being to force it to yield to Being. We knock upon silence to an answering music.' He says that 'the 'Being' which the poem is to contain derives from 'Non-being,' not from the poet, and the 'music' which the poem is to own comes not from us who make the poem but from the silence; comes in answer to our knock ... The poet's labor is to struggle with the meaninglessness and silence of the world until he can force it to mean; until he can make the silence answer and the Non-being be. [from MacLeish, Poetry and Experience, 1961, Boston, pp. 8-9.]
>
> ... the hopeless discrepancy between the conception and its realization explains the anguish which seem an inescapable component of the experience ... the impossibility of making concrete, the abstract without changing its essence ... reality vanishes each time you concentrate on it. [1979, p. 96]

He points out an additional stress that the creator assumes and the effects on him or her of persisting.

> The creativity of the spirit does and must threaten the structure and presuppositions of our rational, orderly society and way of life. Unconscious, irrational urges are bound by their vary nature to be a threat to our rationality, and the anxiety we experience thereupon is inescapable. [1979, p. 78]
>
> ... anxiety is ... a concomitant of the shaking of the self-world relationship that occurs in the encounter. Our sense of identity is threatened; the world is not as we experience it before, and since the self and world are always correlated, we no longer are what we were before. Past, present, and future form a new Gestalt ... The anxiety we feel is temporary rootlessness, disorientation; it is the anxiety of nothingness. [1979, p. 107]
>
> Creative people ... can live with anxiety, even though a high price may be paid in terms of insecurity, sensitivity, and defenselessness for the gift of 'divine madness' ... They do not run away from Non-being, but by encountering and wrestling with it force it to produce being. They knock on silence for an answering music; they pursue meaninglessness until they can force it to mean. [1979, p. 108]

> The boundaries of our world shift under our feet and we tremble while waiting to see whether any new form, will take the place of the lost boundary or whether we can create out of this chaos some new order. As imagination gives vitality to form, form keeps imagination from driving us into psychosis. [1979, p. 146]

The association between creativity and pathology may be the effect of the creator's passionate struggle with nonbeing and his or her own mortality, with meaninglessness, inadequacy for the task, the rootlessness, the disorientation of change, of growth, and the radically new; in short, from the great stress and anxiety of the creative effort on a more sensitive, open, and aware creative individual.

The Progeny of Aristotle's Rationalism and Naturalism

Aristotle's conception of art as preformed and imposed on matter generated two schools of thought traceable to modern times: naturalism and rationalism. Those who investigate the problem of creativity assume the Aristotelian mode - that creativity can be studied and knowledge can be discovered by rational, objective, scientific methods. Creative acts are considered natural events which are therefore as lawful, predictable, and intelligible as other events in nature. Everything is explicable in terms of discoverable antecedent conditions and principles about the structure of relationships. Rothenberg writes:

> Aristotle, unlike Plato, views the resources with which the artist begins as both necessary and sufficient to account for all that is found in the created product. Since Aristotle rejects any supernatural agency of mystery in creativity, his work is seminal to the rationalist as well as the naturalist tradition of interpretation. [1976, p. 28]

In Platonic thought, man is not the creator but does the bidding of the divine Muse, is passive, and receptive. In contrast, in Aristotelian thought, man is the creator, the discoverer, is an active force in action in a knowable universe. Those who adhere to Aristotelian thought, armed with Aristotle's assurance that whatever is asked can be answered, whatever is looked for can be discovered, tend to focus on the creative individual and his characteristics in the pursuit of knowledge about creativity.

Clearly the Galton line originates in Aristotelian thought. Francis Galton (1869), one of the earliest of modern researchers of the phenomena of creativity, undertook the study of famous geniuses. He believed in and proposed genetic inheritance of mental and creative abilities which followed certain laws of transmission. (The root meaning of the word 'genius' is 'to beget.') Galton's work and thought were generative both to those who followed his beliefs and to those who, challenging his belief that 'geniuses are born and not made', went on to investigate the personal history and personality, the social climate and the culture in which the creative person functioned. There are a large number of investigators with the Aristotelian-Galton cast of mind who tried to identify personality traits that are distinct and to distinguish characteristics of the creative person using quantitative, statistical methods. The assumption is that traits and talents are inherent and inherited, objectified in a production of substance and can be measured by tests. The cause and explanation lies in the genetics.

Terman [1906] found that his tests of ingenuity did not differentiate between the bright and the dull and he excluded creativity from his research and measures of intelligence. He concluded that inventive qualities were outside the realm of intelligence. Thorndike [1929], Thurstone [1950], Getzels and Jackson [1962], Wallach and Kogan [1965], and others confirmed that the IQ tests are not a good measure of creativity.

Guilford [1967], a major researcher, took up the challenge of the relationship of creativity to intelligence and the problem of the many aspects of human abilities that did not seem to be measured by IQ tests. He undertook a trait-factorial approach to creativity. He assumed and then demonstrated that intelligence is not single and monolithic. He distinguished 120 primary and independent factors involved in intellectual ability. He fitted these factors into a Structure-of-the-Intellect-Cube and proceeded to create tests to measure the many factors. He found the traits related to creativity were sensitivity to problems; fluency of thinking with words, of associations, of expressiveness, and of ideas; flexibility of thinking, involving spontaneity and being

figurally adaptive; originality; redefinition including figural, symbolic and semantic factors; and semantic elaboration. He considered these traits key to creative ability and called the cluster of associated traits 'divergent thinking.' He believed creative talents were widely distributed in the population. His discoveries and measurements were germinal to much subsequent research. Mednick [1967], diverging from Guilford's findings, felt that convergent thinking ability, as the ability to think creatively by associating remote ideas, distinguished creative ability.

Myers Briggs Type Indicator [1962], based on Jung's psychological types, is a test of cognitive styles which distinguishes 16 personality types and has been used extensively in research. The question remains as to whether types are determined genetically or in the early psycho-social relationships and/or if types can be modified by different kinds of interventions later in life. MacKinnon [1978] has found that certain personality traits are associated with those individuals he defined as highly creative.

Another line of research uses the mind-as-computer as metaphor, takes up the challenge to create artificial intelligence and many try to design programs to use the computer to problem-solve, to find new solutions. Newell, Shaw, and Simon [1962] relating creativity to high level problem-solving, used a heuristic approach based on known and presumed patterns of mental functioning to design a computer program for problem-solving. Corvitz [1970] crystallized the mechanistic approach to creativity by making algorithmic models for computer creations. He tried to generate all possible solutions through relating things to other things by using the 42 connecting English words. e.g. about, at, for, of, after, against, etc., as a way of changing relational-filters for problem-solving.

Brain research has led to a better understanding of the bioneurological functioning of the brain and to the structure and function of different parts of the brain (research in the Aristotelian naturalistic, deterministic, and rational-scientific

tradition, of course), stimulated several lines investigation. Jerre Levy [1980] working on the frontier of brain research discovered statistical differences in abilities between men and women. She says

> We know, or think we know, that the brains of men and women are rather differently organized. In right-handed males, visual spatial skills, in which they are superior, are organized in the right hemisphere; verbal skills, in which they are not, are organized in the left. The male brain seems to be laterally differentiated and highly structured, as against the female brain, which is more symmetrically organized and less tightly structured. Their ability to shift between and use the two hemispheres is different. [Durden-Smith, 1980. p. 93]
>
> Males are good at maps and mazes and math: at rotating objects in their minds. They seem to be more narrowly focused, less distractible. Females by contrast, are sensitive to context, good at picking up information that is incidental to a task set before them, and distractible. They have superior verbal skills. [Durden-Smith, 1980. p. 17]

She attributes differences to both differences in the hormonal environment of the developing brain in the womb and to the survival value of differing abilities of men and women during the long evolutionary process.

There is a long tradition of thought around the idea of a duality of mind. Croce believed

> Knowledge has two forms: It is either intuitive knowledge or logical knowledge; knowledge obtained through the imagination or knowledge obtained through the intellect... productive either of images or of concepts. [1909, p. 1]

J. Bruner using the left hand, controlled by the right side of the brain, as a metaphor for right-brained thinking, said

> ... a medium of exchange seems to be the metaphor paid out by the left hand. It is a way that grows happy hunches and 'lucky' guesses, that ... generate a grammar of their own - searching out connections, suggesting similarities, weaving ideas loosely in a trial web ... [1965, p. 74]

Richard Konicek said

> By and large, when an idea or a breakthrough comes out of the left-hand, it must be made legitimate by letting the right hand state it logically - formulas, words, syllogisms. Such is our nature - we are a people ruled by a scientific epistomology. [1976, p. 30]

Jaynes' [1976] made an influential study of evolution of the bicameral mind. There has been a great deal of research dealing with the lateralization of the brain and speculation about the relationship between this biological, evolutionary phenomena and creativity. It has been suggested that the locus of creativity and consciousness is in the more obscure functioning of the right brain and much research has been focused on uncovering its mysteries and designing tests to measure its capacities, its relationship to the left hemisphere, and to creativity. Bogen and Bogen studied patients who had had the corpus callosum severed to control epilepsy. Their findings suggest that

> ... integrated use of verbal and visuo-spatial thought may be dependent on interhemispheric communication, including an important contribution from the corpus callosum. [1969, p. 200]
>
> Creativity requires more than technical skills and logical thought; it also needs the cultivation and collaboration of the oppositional mind. [1969, p. 217]

Levy writes

> There is no evidence that either creativity or intuition is an exclusive property of the right hemisphere. Indeed, real creativity and intuition, whatever they may entail, almost certainly depend on an intimate collaboration between the hemispheres. [1985, p. 44]

The history of the idea of the existence and awareness of a duality of mind is a long one which has been brought into scientific validation with brain research. It is interesting to ponder the complementarity of Eastern and Western thought in this context. Pertinent to the subject of this writing is the duality of thought in the Platonic and Aristotelian modes as also reflecting something of the right-brain left-brain asymmetry.

As the field of psychology expanded, behaviorism and biological determinism seemed insufficient to explain creativity. The research became more qualitative. Subjective reports began to be taken seriously. Personality characteristics were recognized as distinctive in the more creative people. Galton stimulated this line of research also when he observed that the majority of the scientists he studied were characterized by good health and energy, were steady and persistence in their pursuit, in

independence of thought, in their love of science, in their enthusiasm, in having rapid, fluent, mental associations, and in having vivid imaginations. He also observed that they were driven.

Creative ability was recognized in a broader range of the population. Researchers inquired about the effect of the environment on the creative behavior, the effect of the work place or school, the effect of culture and society. There were many who concentrated on personality traits. The conclusions are sometimes in accord and also often divergent. The results often reflected the bias inherent in the background philosophy and viewpoint of the researcher with perhaps the greatest contrast between those from the psychoanalytical frame and the educators. Nathaniel Hirsh [1931, pp. 321-331] found six personality traits that often seemed true of the genius. The genius tended to be bashful, oversensitive, sincere, melancholy, requiring solitude, and valuing friendship as a sacred relationship. Rank [1945] conceptualized a creative type man. Lee in contrast characterized the artist as having

> ... difficulties in working, lengthy inhibitions of inspired work, peculiar attitude to punctuality and to money, odd sense of humor, childish caprice and playfulness, penury, Bohemianism, flamboyance, impulsiveness, frequent despondent mood, moments of irascibility, extreme sensitiveness, paranoid tendencies, imperfect sense of reality, lackadaisical habits, isolation, self-absorption, spirituality, asceticism, and other temperamental 'traits..all seen to derive from either his special self-regarding and mother-ingratiating needs, from a limited satisfaction of these defense needs, or from mental depression sequel to rage upon some thwarting of their gratification. [1940, p. 285]

Anne Roe [1947] pioneered in examining distinguishing characteristics of eminent scientists and artists. She used tests such as the TAT and the Rorschach and biography to discover traits. She found, in support of Galton's observations, that highly creative persons were curious, persistently hard working, had a high energy level, were mentally healthy, and had a need for independence. A strong motivation to succeed she attributed to insecurity.

Arnheim felt that getting back to the roots of one's experience at the sensory level was vital for creativity. He felt that a creative contribution was made "...through

simplification, preference for balanced, regular, symmetrical patterns and enrichment of the structure." [1947] However Barron, out of his study of highly creative men and women, disagreed with Arnheim. He found that creatives prefer cognitive complexity and rich dynamic, asymmetrical information, that they reject suppression to control impulses, and may be healthier than average. They approve of the experiential, primitive and sensual and dislike the aristocratic, traditional, and emotionally controlled. They are able to avoid temporal distinction between self and object when desired. May wrote of Barron

> Frank Barron ... showed ... that the creative persons selected the chaotic, disorderly card - they found these more challenging and interesting. They could be like the God in the Book of Genesis, creating order out of chaos. They chose the 'broken' universe; they got joy out of encountering it and forming it into order. They could accept the anxiety and use it in molding their disorderly universe 'closer to the heart's desire.' [1975, pp. 106-107]

Paul Torrance [1962] drew up a list of 84 characteristics to try to distinguish highly creative from less creative. He found that the most creative were altruistic, energetic, industrious, persistent, self-assertive, and versatile. They were also attracted to the mysterious, defied conventions, were independent in thinking and judgment, had oddities of habits, were radical and discontented, disturbed organizations, were fault-finders, made mistakes, were stubborn and temperamental. Torrance stressed that creativity requires both sensitivity and independence.

The Institute for Personality Assessment and Research, IPAR, provided a stimulating and fertile milieu for research on creativity. The work of Barron, MacKinnon, Gough, Helson, Crutchfield, and others advanced knowledge about many aspects of creativity. The primary focus was on personality characteristics or traits that uniquely discriminated the more creative from the less creative. MacKinnon and his associates at the IPAR (1960's] studied highly creative people, especially male architects, intensively to isolate traits. He found the highly creative men characteristically are self-confident and self-accepting, flexible, lack concern with

social restraints or the opinions of others, are introverted, intuitive, strongly interested in aesthetic and theoretical matters, and are strongly motivated to achieve in situations requiring independent thought and action. They are better able to tolerate tension involved in finding creative solutions. Perceptual openness, as awareness and receptivity, to both the outer and inner world differentiated the more creative individuals. The highly creative persons stress their inventiveness, independence, individuality, enthusiasm, determination, and industry. The less creative stress virtue, good character, rationality and concern for others. He found no support for a necessary relationship with neurosis and confirmed that creativity was not correlated with IQ (.08).

Abraham Maslow studied people he regarded as psychologically the most healthy whom he called 'self-actualizing.' These were also characteristically creative. He concluded

> All my (self-actualizing) subjects were relatively more spontaneous and expressive than average people ... more 'natural' and less controlled and inhibited in their behavior, which seemed to flow out more easily and freely and with less blocking and self-criticism ... Self-actualizing people are relatively unfrightened by the unknown, the mysterious, the puzzling, and often are positively attracted to it. They do not neglect the known, or deny it, or run away from it, or try to make believe it is really known, nor do they organize, dichotomize or rubricize it prematurely. They do not cling to the familiar nor is their quest for truth a catastrophic need for certainty, safety, definiteness, and order... they can be comfortably disorderly, sloppy, anarchic, chaotic, vague, doubtful, uncertain, indefinite, approximate, inexact, or inaccurate ... The necessity for abeyance of decision ... can be for some a pleasantly stimulating challenge. [1968, p.140]
>
> ... they were less acculturated ... less afraid of what other people would say or demand or laugh at ... had less need of other people and therefore ... could be less afraid of them and less hostile ... they lacked fear of their own insides, of their own impulses, emotions, thoughts. They were more self-accepting ... made their behavior more spontaneous (less controlled, less inhibited, less planned, less 'willed' and designed)... the creativity of my subjects seemed to be an epiphenomenon of their greater wholeness and integration, which is what self-acceptance implies. [1968, p. 141]

Cattell [1968] studied eminent men and felt innate characteristics were more potent than social tradition or physical development. Using a factor analysis approach he found creative individuals demonstrate ego strength, dominance, self-sufficiency,

sensitivity, introversion, desurgence, and radicalism. Among the many other researchers are Crutchfield [1961], Wallach and Kogan, Witty, Conant, and Strang [1959]. Calvin Taylor [1956-1972] used a multitalent approach. Helson [1961-1968] investigated differences in creativity between men and women. Gary A. Davis in Creativity is Forever devotes a chapter to the many tests of Creativity [1983, pp. 85-115]. Doris Shallcross illustrating with the sign for infinity says

> Creative individuals stay open to all that is external, integrating what they find outside themselves with the internal. The most important element of this concept is that highly creative individuals respect themselves as a source as much as they respect external sources. [1981, p. 2]

Austin describes the creative person and sums up the difficulty in the research on creative traits when he says

> The investigator is forever in the quest of the new. He is always curious, unfulfilled, intellectually restless, not satisfied with what is already well known. Indeed, to the extent that the old constricts the new and prevents if from emerging, he finds himself in rebellion against it. [1978, p. 114]
>
> Many traits go into creativity. Therefore if you lack one ability, you can compensate for it with an excess of another. This slippery quality makes creativity an elusive target to define by psychological tests, because no one ability correlates with it 100 percent. [1978, p. 100]

Research results from many sources cross-fertilized and stimulated new research.

The Creative Climate

It is the Aristotelian naturalism that provides the framework for studying the environment as the milieu for creativity in the search to understand and to find the essential and sufficient conditions to explain, predict, and promote creativity. Arieti posited the environmental question as an unsolved puzzle.

> As is well known, (geniuses) are rare, and their appearance in given populations is extremely hard to predict ... creative people who reach the rank of genius appear in particularly large numbers in certain periods of history in given geographical area. This uneven distribution suggests that special environmental circumstances determine the occurrence of creativity, rather than exclusively biological factors. Four major examples ... the classical Greek period ... the Italian Renaissance ... the time of the American revolution ... and the years since the mid-nineteenth century, with the contributions of numerous Jewish geniuses ... show that ... geniuses appear in clusters that occur at

irregular and at times long intervals. [1976, pp. 294-295] The works of Kroeber and others have convinced me that individual potentiality for genius is much more frequent than the occurrence of genius ... some cultures have promoted creativity much more than others. [1976, p. 303]

Charles Edward Gray [1958, 1961, 1966] convincingly demonstrated that favorable economical, social, political factors promote creativity.

There is a paradoxical or ambiguous premise in Kroeber's and Gray's work. Although they seem to consider great men as the makers of clusters of high civilization, they see these men as having been shaped exclusively by economic, social, and political factors. And yet, even when the three cycles - economical, social, and political coincide as Gray described, only a few men rise to the ranks of creativity. [1976, pp. 298-299]

Arieti circles the paradox pointing out the diverse thought

Francis Galton [1870]... reached the conclusion that great men make great culture, and that greatness is a hereditary characteristic. Herbert Spencer [1873], on the other hand, concluded that before the great man can make society, society must make him ... William James [1880]... wrote 'If anything is humanly certain, it is that the great man's society, ... does not make him before he can remake it.'... James concluded that the occurrence of genius is determined by chance ... [1976, p. 299]

Arieti concludes

The significant synthesis is the creative process itself. It is so significant and unpredictable as to appear magic. Even when a culture is propitious, the significant synthesis occurs in a very small percentage of its people." [p. 302] "Rather than a single trait, it is a special combinations of several traits - in a special family environment, in some socio-historical situations, occurring at a given time and place - that produces the synthesis we call creativity. [1976, p. 359]

The behaviorist, Skinner, commenting on the Platonic miraculous and divine and assuming the ineffectiveness of the creator, extends the Galton line by applying the Darwinian theory, attributing creativity to chance with natural selection determining survival.

The poet ... does not know where his behavior comes from. Having a poem is like having a baby ... and both poet and mother are often surprised by what they produce. And because the poet is not aware of the origins of his behavior, he is likely to attribute it to a creative mind, and unconscious mind ... to a muse whom he has invoked to come and write his poem for him. The autonomy of the poet is the uncaused, and the uncaused is miraculous, and the miraculous is God.

"We 'have' behavior ... It occurs to us' to act in a particular way, and it is not any prior intention, purpose or plan which disposes us to do so ... I have served as a place in which certain processes take place. [1972, pp. 354-355]

Yet Skinner creatively suggests that we creatively change the environment to enhance creativity:

> By analyzing the genetic and individual histories responsible for our behavior, we may learn how to be more original. The task is not to think of new forms of behavior but to create an environment in which they are likely to occur... A culture evolves when new practices arise which make it more likely to survive. [1972, p. 355]

The creative climate is multidimensional. It includes the psychial, the social, and the cultural milieu as well as the smaller units within the school room, business, peer group, the family, and in all intrapersonal and interpersonal relations. The historical and cultural theorists are asking what ingredients are essential to the soil to provide that some seed will grow. Many researches have investigated the different dimensions and have discovered a multitude of influential ingredients. For instance, Taylor and Holland [1964] found certain biographical items and past achievements predictors of creative activity. Helson [1971] found that one third of the creative women mathematicians had Jewish parents, the rest were from mostly Protestant backgrounds, one half were born in Europe or Canada, one half of US born had one European born parent, and most had professional men as fathers with whom they identified.

Another perspective from which to look at the environmental question is from the point of view of the individual seed and what it needs in the environment to grow. Carl Rogers identifies and lists factors that he believes facilitates creativity. What is needed therapeutically is to set up conditions of psychological safety by:

> 1) Accepting the individual as of unconditional worth ...
> 2) Providing a climate in which external evaluation is absent ... Evaluation is always a threat, always creates a need for defensiveness, always means that some portion of experience must be denied to awareness ...
> 3) Understanding empathically ... In this climate you can permit your real self to emerge, and to express itself ... Psychological freedom ... fosters the openness, and the playful and spontaneous juggling of percepts, concepts, and meanings, which is a part of creativity ... it is complete freedom of symbolic expression... [1954, pp.250-258]

Jean Bolen, focusing on the interpersonal relationships involved in creative activity and the role of and importance of a mentor, wrote

> To make a dream come true, one must have a dream, believe in it, and work toward it. Often it is essential that another significant person believe that the dream is possible: that person is a vision carrier, whose faith is often crucial ... People speculate why there are so few famous women artists ... among the reasons given might be that women lack carriers of the Dream. Women have nurtured the Dream for men, while men in general haven't nurtured the Dream very well for women. [1984, pp. 229-230)

Arieti has distinguished nine factors for a creativogenic or socio-cultural society propitious for creativity:

1) Availability of cultural (and certain physical) means.
2) Openness to cultural stimuli.
3) Stress on becoming, not just on being.
4) Free access to cultural media for all citizens, without discrimination.
5) Freedom, or even retention of moderate discrimination, after severe oppression or absolute exclusion, is an incentive to creativity.
6) Exposure to different and even contrasting cultural stimuli.
7) Tolerance for and interest in diverging views.
8) Interaction of significant persons.
9) The promotion of incentives and awards.

> ... these nine factors are not sufficient to bring about creativity ... What are essential are the intra-psychic elements of the creative person. [1976, p. 313-325]

The Cultivation of Creativity

Almost all of the research has at least as a hidden agenda to influence creativity. With the confidence born with the Aristotelian cast of mind, the basic assumption , belief, or faith is in the existence of untapped creativity in people, and that if it can be identified, it can be promoted. James Adams says "for most of us, creativity is more of a dull glow than a divine spark. And the more fanning it receives, the brighter it will burn." [1974, p. 10] Even those who believe in a Galtonistic, deterministic, hereditary, and genetically endowed talent, and even Skinnerians, still sense that, if identified, creativity can be enhanced by improved conditions for its emergence. They

would argue with Maddi [1965] who believed that creativity occurs regardless of the setting. Rothenberg, much more pessimistic in stance, pointed out that

> ... creativity is clearly quite fragile and rather easily suppressed in individuals ... the converse is markedly apparent; it is difficult, if not impossible, to stimulate creativity ... The thought processes and acts leading to a creation must always be intentionally invoked ... creating is always motivated, strongly so, in fact. [1979, p. 45]

The question 'Can creativity be taught? and if so, how?' became a focal point of experimentation and research. Following Guilford's lead, many investigated and tested aspects of divergent thinking and used it as a basis for designing programs to enhance these abilities; to find ways of teaching creative behavior by directing and focusing on these factors consciously. They followed a practical course devising techniques that promote characteristics that the more creative have been discovered to have; or concentrated on parts of what is known about the creative process, trusting that it will work without it being necessary to understand why or how. Doris Shallcross [1981] believes that promoting this secondary creativity will evoke primary creativity and presents a series of exercises for the purpose.

For those interested in education and promotion of creativity in children, effort was expended for measures for early detection and effective techniques to evoke it. Paul Torrance developed many innovative tests for measuring different aspects of creativity. He worked toward giving educators the tools to recognize creativity and then to promote and reward creative growth through education. He pointed out that Plato said "what is honored in a country will be cultivated there." He encouraged educators to recognize and encourage the peculiar bent of genius of each person. His work was seminal to the work of many others. Aids were devised to help teachers deal with the more troublesome 'creatives' in their classes. Identifying the positive and negative conditions which influence creativity became the focus of research for Calvin Taylor, J. P. Guilford, Frank Barron, and a multitude of others. Getzels and Jackson [1959] and Torrance [1960] found that because creative children are not preferred by their teachers or

their peers, the creative potential is suppressed in the negative atmosphere surrounding these children. Torrance [1967] found the factors important in the educational environment to stimulate creativity and increase productivity were: respect unusual questions, respect unusual ideas, show that ideas have value, provide opportunities and credit for self-initiated learning, and allow performance to occur without constant threat of evaluation.

Working with adults in businesses and professions involved another large number of investigators. Calvin Taylor [1972] studied environmental factors. Andrews [1975] working with the problem of creative workers in business found ideas need to cross a hurdle-filled gap. He looked for and found factors that stimulate creative production and innovation, but were insufficient to predict it. Osborn [1953] has become well known for his successful 'brainstorming' technique. Arieti sums up his approach.

> Alex F. Osborn typifies the pragmatic approach ... Osborn believes that creativity will never be a science. Much of it will always remain a mystery. But certainly it is an applied, teachable, and learnable art ... He pioneered brainstorming principles believing that it was important to separate the creative mind from the critical mind and use them at different times ... In 1939 he devised the brainstorming technique laying down four rules to be respected: 1) criticism is ruled out, 2) free-wheeling is welcomed - the wilder the idea the better; 3) quantity is desired; and 4) combination and improvement are sought. Optimum group size is between five and ten ... [1976, pp. 367-368]

Gordon [1961], Prince [1973], Samples [1976] and Parnes [1975] have developed very effective techniques for using analogies and metaphors for problem-solving. Gordon observed that every problem has a paradox at its core. His Synectics program involves making the strange familiar by likening it to something familiar as an analogy; relating to the analogy empathetically; and finding the oxymoron, the compressed conflict or paradox in the problem; and then finding a new analogy to subsequently relate back to the original problem. Roger von Oech [1986] has developed his own program to promote and evoke creative behavior. DeBono [1970] has made a valuable contribution with his analysis of vertical and lateral thinking. Ned Herrmann runs a series of

Applied Thinking workshops (ACT) based on a quadripartitie model of the brain. Gabriele Rico [1973] teaches 'clustering' in Writing the Natural Way as help to access the associative, image-making right brain without engaging the judgmental, linear left brain. There are a great multitude of useful books in the field which focus on the techniques to promote secondary creativity with the faith that it will transform to the primary and higher level creativity.

The idea of stimulating creativity through altered states of consciousness has been explored through drug research, brain wave research, and meditation techniques. Hutchinson writes

> Biofeedback researcher Jean Millay pointed out that after the intense quiet focus that accompanies brain synchronization, subjects in her studies frequently reported flashes of intuition or creative insight. [1986, p. 91]

Some have explored psychotherapy, and greater psychological health to enhance creativity. The psychoanalysts promote the fine balance of sufficient and necessary tension and conflict to achieve creativity through contact with the primary processes in the service of the Id [Freud] or ego [Kris] and relieve tension and anxiety through the sublimation of the unacceptable sexual impulse. Freud, however, was convinced that psychoanalysis "can do nothing toward elucidating the nature of the artistic gift, nor can it explain the means by which the artist works." [1908, p. 48] Humanists, such as Maslow and Rogers, believe promoting self-actualization through psychological and physical health, improved self-image and self-confidence will promote creativity. Therapeutic interventions to reduce rigidity, blocks, etc... to work toward the discovered characteristics of the creative person and of the psychologically healthy person. James L. Adams in his book Conceptual Blockbusting has done a thorough job of analyzing the many emotional, social, environmental, and psychological blocks which inhibit creativity.

Others have concentrated on the personal conditions which stimulate or enhance creativity with often divergent conclusions. Irving Taylor [1972] believed that

intensive sensory stimulation facilitates openness and creative divergent production. Rollo May and Piaget, suggest that solitude and suppression of sensori stimulation is necessary for creative productivity. Arieti has delineated nine attitudes that he believes will foster creativity.

> The first, aloneness as partial sensory deprivation is necessary.
> The second condition ... to promote creativity is inactivity.... for long stretches of time for thinking and feeling.
> The third creativity-promoting condition is daydreaming ... similar to aloneness it promotes inwardness and introspection ...
> The fourth creativity promoting condition is free-thinking ...
> The fifth ... he must be in a state of readiness for catching similarities.
> The sixth condition is gullibility ... means a willingness to explore everything: to be open, innocent, and naive before rejecting anything.
> The seventh and very important condition is "the remembrance and inner replaying of past traumatic conflicts ... Rothenberg [1976] considers conflict 'one of the two great motivating forces for original work, the other being the desire for self-expression immanent in all of us.'...
> The last two conditions are alertness and discipline. [1976, pp. 373-378]

Motivation

Underlying the statistical and descriptive studies identifying character traits, personality types, environmental factors, psychological mechanisms, and the practical techniques to enhance and induce creativity is the question of motivation. Many of the findings have discovered necessary and associative factors but none have found sufficient factors to predict or guarantee creative productivity. The many ways different researchers and thinkers have answered the question "Why do individuals create?' throws light on the difficulty of the whole creativity question. One way to look at the great diversity of answers to the question is in the frame of the several lineages of thought traced here.

A duality of thought, determinism versus indeterminism, finds a common root in Aristotelian thought: 1) that there is nothing new under the sun but only the newly discovered or combined; or 2) that the natural world evolves and the creatively new emerges at its growing edge both in the natural world and in the consciousness of man.

The counterpart of the dualism is found in the controversy as to whether the creative person is a passive receiver or an active agent in the creative process. Some of the belief systems relevant to motivation are presented below.

1- The creator is passive, is a receiver or a medium without conscious control. Plato believed that the poet is passive and that he must be seized by a divine madness in order to create. It is as if the gods are motivated to use the poet as a medium because they cannot otherwise speak for themselves. The artist is put in a passive position helpless to speak for himself and required to do their bidding. Many creators report the sense that what they create seems to come from some external source and higher power beyond their control and will. The reported experience of submergence and fusion during creative activity may be supportive of this idea. Kant echoed Plato in that he believed that

> Spirit ... is ... the animating principle of the mind ... that ... animates the soul, the material which it applies to that purpose, is what puts the mental powers purposefully into swing ... [1952, p. 203]

Kant believed that a priori preexisting concepts or forms invested with Spirit become expressed through the individual without his conscious control or contribution. Jung [1971] also believed that man did not have conscious control and, with a variation of Kantian thought, believed that creation is an emergence and reproduction of archetypes buried deeply in the inherited psyche of man. Kant and Jung side step the question of motivation and also bridge to Aristotelian naturalism in the sense that a priori concepts and archetypes, are an innate endowment. Galton [1869] believed man's creativity emerged from his inherited genius. Galton carries on the naturalism of endowment finding creative activity consequent to talent and antecedent conditions.

Skinner believed that man is a product of the environment and antecedent events over which he has no control. Skinner [1971] creatively argues that there is no such thing as creativity and therefore no need for motivation because all our behavior is controlled by others, or based in antecedent personal history; or that motivation is

automatically based on the rewards and punishments dispensed. Man's motive for creating is to gain the rewards society offers him or to avoid its punishments. The individual does not control or have responsibility for a product. Snygg's and Comb's extreme basic postulate is "All behavior without exception, is completely determined by and pertinent to the phenomenal field of the behaving organism." [1949, p. 40] Freud and his followers also accorded no control to the creator. These theorists also share in the naturalism of Aristotle believing man is part of the natural order and is controlled by his environment and/or his heredity.

2 - The creator creates because it is natural and genetically innate. The other aspect of the dualism of thought from Aristotle's naturalism and rationalism is that the creator is the active agent and creates because it is natural for him to do so. Galton and others felt men of talent create because it is naturally, genetically in them to create. Jung [1923] believed man consistently strives to develop toward individuation, the integration and resolution of dichotomies and the fusion of primary and secondary sources. Mutussek believed "Creativity does not depend on inherited talent or on environment or upbringing; it is the function of the ego of every human being." [1974]

3 - The creator creates to relieve tensions and inner conflicts, to sublimate his unacceptable erotic desires, to escape shame and guilt, and/or to make restitution for his destructive impulses. Freud believed that man created because he was driven by inner conflicts and the need to reduce tension and maintain homeostasis. Concurring in Plato's belief in the relatively passive situation of the creator and Aristotle's naturalism as the innate state of man, Freud located motivation in the unconscious and interiorized it. He believed creative activity was the effort of the man to escape or to relieve conflict, that he is driven to creativity to relieve tension, to improve an unsatisfactory reality, to satisfy wishes through fantasy, to sublimate and divert sexual energy, to achieve homeostasis.

> Unsatisfied wishes are the driving power behind fantasies; every separate fantasy contains the fulfillment of a wish, and improves an unsatisfactory reality.
>
> ... a happy person never phantasies, only an unsatisfied one. The motive force of phantasies are unsatisfied wishes, and every single phantasy is the fulfillment of a wish, a correction of unsatisfying reality ... The motivating wishes ... fall naturally into two main groups ... In young women the erotic wishes predominate almost exclusively, for their ambition is as a rule absorbed by erotic trends. In young men egoistic and ambitious wishes come to the fore clearly enough alongside of erotic ones ... [Freud 1908, p. 150]

Kris and Kubie in the Freudian frame also believed the motivation for creative activity arises out of libido and repressed sexual impulses and is a way to escape from shame and guilt. Lee also sees the creator as deeply and inescapably conflicted and his creative activity is

> ... an effort to achieve ... the restitution to life and organic integrity of the particular person toward whom the artist ... experienced the impulse to destroy
>
> ... the motivation for free inventive creation is derived from "an internal compulsion to re-realize in a fragment of the world outside, i.e. the medium, a magical re-creation in symbol of the destroyed-thwarter-as-restored-and-loved ... as discharge of guilt and inflated ordinary tensions ... Free creativeness restores the artist to his former mental integrity, replaces at his command energies which he had short-circuited from the outer world to himself during a mobile depression, and returns him to his former level of adjustment to reality. The economic gains from the creative mental processes described lie in their efficacy for palliating quickly, once the optimum guilt is attained, the pain endured through and from a greatly extended identification with the damaged object; in affording ec-stasy to the despondent artist - the acute pleasure of winning again forgiveness, approval and love from the maternal root of conscience, as well as recapturing an experience of infantile magical omnipotence, and in relating him again to a salutary reality. [1940, pp. 288-292]

Weissman said the artist is

> "... driven by the nature of his artistic endowment to preserve (or immortalize) his hallucinated response to the mother's breast independent of his needs of gratification. [1968, p. 466]

Fairbairn [1938] and Grotjahn [1957] believed the creator created as restitution for destructive impulses and as atonement to aggressive trends, to alleviate guilt and anxiety. The audience joins in his emotions of destruction and restoration.

4 - The creator creates because he or she is driven to compensate for feelings of inferiority and insecurity. Separating from the Freudian core thinking, but retaining the inner psychic motivational drive and conflict are those who feel the creator is

driven, desires insight, or compensates for feelings of inferiority. Anne Roe [1975] thought the motivation to work hard to succeed was due to insecurity - that the individual was driven. Adler [1956] believed creative achievement was conscious and in compensation for specific and pervading inferiorities. Phyllis Greenacre combined a genetic and psychoanalytic theory when she wrotes that the gifted child would experience "a greater vibration and need for harmonizing the inner object relationships ... and the world of sensory impingement ... bringing about creativity." [1957, p. 52]

5 - The creator creates for the self-esteem enhanced in achievement. Rothenberg, Austin, and others observed that creating something feels like an achievement and enhances self-esteem. Enhancement of self-esteem becomes a motive in itself. Prince provides an example of a bridge from the pure Aristotelian cognitive orientation of problem-solving to the psychological orientation of inner psychic motivations. He said

> I believe learning is much the same as problem-solving and that both learning and problem-solving are necessary for achievement which in turn is necessary to human satisfaction and self-esteem This boils down to: creative activity is necessary to self-esteem. [1975, p. 249]

Arieti concurs saying "Creativity ... gives a feeling of satisfaction and may eliminate a sense of frustration, thus providing one with a basic positive attitude about oneself and the work of one's life." [1976, p. 10]

6 - The creator creates to grow and evolve, to self-actualize, to discover and use his or her potential, and for self-gratification. Differing sharply from the conflictual, erotically motivated psychoanalytical school, Maslow and Rogers and others in the humanistic school of thought join Aristotelian naturalism with the basic assumption that the natural, innate function of man is to evolve, to self-actualize, to strive to realizes his potentials and be creative. The motivational mainspring is innate; is internalized, conscious, and the creator can choose to be actively creative or to be helped to be so. Goldstein [1939] had preceded the humanists with being a proponent of self-

actualization which he considered the only drive. A continual change of tension enables and propels the individual to actualize. Adler [1959] felt the creator was striving for self-actualization and positive growth. For Torrance [1965] the motivation for creativity is a need for excellence and a strong desire to discover and to use one's potential.

7 - The Creator creates to experience the pleasure of the altered state of consciousness. Plato's poets are seized by divine madness and lose their reason. Neither Kant nor Jung give much significance to reason. The testimony of many artists is of the mystical and religious quality of their experience, especially during the illumination phase. May speaks of the experience of ecstasy as one where the creator feels beside himself and out of his normal state of being. (The root meaning of the word 'ecstasy' is 'to stand outside of.') Others report of an altered state of consciousness that is so pleasurable that addiction to methods of altering consciousness occurs. The altered state and the heightened awareness state become a motivation for the creative activity that produces it.

8 - The creator creates to find beauty, truth, wisdom, and/or order. Plato also perceived man as a lover, seeker, and appreciator of beauty and wisdom. The creation of beauty is considered a primary motive for artists and the scientist who often seeks the elegant and aesthetic solution. Barron [1953-1972] felt the motivation for creative work was moral: a personal commitment to the aesthetic and philosophical meaning of the work and the strong concomitant need to find order where none is apparent. Rollo May, throwing back a relational line to Plato, says

> Plato told us long ago how passion, or as he put it, Eros moves toward the creation of form ... moves toward the making of meaning and the revealing of Being ... the lover of wisdom, and the force in us that brings to birth both wisdom and beauty. [1975, p. 158]

9 - The creator creates to satisfy a need to find an harmonious and integrating form for the ideal, to create order out of chaos. The search for form is a motivation and a

goal for creators from several philosophical persuasions. Plato felt the search was for creating a form to hold the idea or ideal. Aristotle believed in two aspects: form and substance. Form was made out of substance. Kant and Jung believed the goal was to find and bring forth the inherent form in the preexisting a priori concepts or archetypes. Freud thought the creator sought an acceptable form for his sublimated, unacceptable erotic desires. Often the desire is to make tangible the intangible. Arieti [1976] believed motivation is both the conscious and the unconscious longing for the new object or state not easily found or attained. He writes of the creation of a form for the ideal as a primary motive for creative activity.

> In considering the ideal... (1) the ideal may be realizable; (2) the ideal may be realizable only as an artistic product ... (3) the ideal cannot be realized but nevertheless remains an incentive toward progress, motivates creativity, and is thus constructive; and (4) the impossible becomes actualized in dreams, superstitions, prejudices, decadent modes ... the impossible can occasionally be rescued by other mental processes and transformed into myth, religion, social customs ... The ideal thus actually becomes one of the strongest motivational forces in creativity. [1976, p. 94]

May believes the absorption of the creator is in a passion for achieving harmonious and integrating form in struggle against disintegration. Many comment on the creative person's fascination with chaos and his or her intense desire to create order out of chaos. May wrote

> Artists ... love to immerse themselves in chaos in order to put it into form, just as God created form out of chaos in Genesis. Forever unsatisfied with the mundane, the apathetic, the conventional, they always push on to newer worlds. [1976, p. 28-29)

10 - The creator creates to find meaning and to reach for immortality. For existentialists a primary motivation for creative activity is in the search for meaning and the desire for immortality. Rank finds the creative motivation a mixture of the Freudian unconscious conflict, guilt resolution for destructive impulses, the existential fear of death, and the struggle for immortality.

> ... the actual process which leads a man to become an artist is usually of the creative impulse ... manifested first in the personality ... the creative impulse in the artist springing from the tendency to immortalize himself, is so

> powerful that he is always seeking to protect himself against the transient experience which eats up his ego ... In creation the artist tries to immortalize his private life. He desires to transform death into life, as it were, though actually he transforms life into death ... For not only does the created work not go on living; it is, in a sense, dead; both as regards the material, which renders it almost inorganic, and also spiritually and psychologically, in that it no longer has any significance for its creator, once he has produced it. He therefore again takes refuge in life ... [1932, p. 48]

May found the motivation for creativity to be the existential concern with fear of death and desire for immortality but unlike Rank, the experience is one of ecstasy as well as pain and one could choose rather than be driven. Guilt and anxiety arose not out of the creator's destructive feeling toward his mother, but that he was confronting death and challenging the gods.

> The troublesome paradox confronts us in that both the Greek and the Judeo-Christian myths present creativity and consciousness as being born in rebellion against an omnipotent force ... The battle with the gods hinges on our own mortality! Creativity is a yearning for immortality ... We know that each of us must develop the courage to confront death. Yet we must also rebel and struggle against it. Creativity comes out of this struggle - out of rebellion the creative act is born ... married to ... the passion to live beyond one's death. [1976, pp. 26-27]
>
> Creativity is involved in our every experience as we try to make meaning in our self-world relationship. [1975, p. 161]
>
> The encounter is distinguished by its intensity, a quality of commitment ... The fact that talent is plentiful but passion is lacking seems to be a fundamental facet of the problem of creativity ... We worship technique - talent - as a way of evading the anxiety of the direct encounter. [1979, pp. 100-101]

Barron attributed the creative act to the need to make contact and meaning. Austin suggests that the creator's

> ... internal quest is for a highly personalized, idealized interpretation - one that brings order and meaning to their own universe ... must satisfy their own symbolic needs and aesthetic concepts. [1978, p. 112]

11 - The creator creates to satisfy his curiosity, to find novelty, or to avoid boredom. Very Aristotelian is the belief that curiosity is a part of man's nature and motivates man to explore and discover his world. Maddi [1965], interested in the motivation of creative people, focused on curiosity, novelty-seeking, and avoidance of boredom but realized that the strenuousness of creative work was not adequately acknowledged.

12 - The creator creates to solve problems. Along the rationalistic, scientific line are those such as Osborn, Gordon, and Parnes who believe the motivation for creative behavior is problem-solving.

13 - The creator creates to control, predict, understand, and improve his or her world. For an Aristotelian, the universe exists, is lawful, and contains what is sufficient for the making. It is not irrational, supernatural, nor dependent upon an unknown and unknowable source for making and discovering. A major motive that has great survival value is to invent, observe, organize, categorize, etc. in order to control, predict, understand, and improve one's environment. Aristotelian George Kelly wrote "Mankind ...[is] in search of prediction and control of surrounding events. The aspirations of the scientist are essentially the aspirations of all men." [1955, p. 42] Along a similar line is the thought of I. Taylor when he says

> Motivation arises out of the discrepancy between the inner world of personal perception and the perception of the outer world producing organismic tension ... reduced by altering self to conform or altering the environment creatively ... What is creative is not the solution of the problem so much as the reorganization of the environment in accordance with personal patterns of perceptions and motivations." [1975, p. 304-5]

Schachtel believed

> The main motivation at the root of creative experience is man's need to relate to the world around him ... is apparent in the artist's lifelong effort to grasp and render something he has envisioned in his encounter with the world, in the scientist's wonder about the nature of the object with which he is concerned ... in all who do not remain in a closed, familiar, labeled world but that they want to go beyond embeddedness in the familiar and the routine ... [1959, p. 238]

Jung believed the creator was trying to compensate for an inadequate present. He said "The unsatisfied yearnings of the artist reach back to the primordial image in the unconscious which is best fitted to compensate the inadequacy and one-sidedness of the present" [1923, p. 231]

Arieti and Rothenberg have collected the attributed motivations of many theorists finding them all valid. Arieti, in summary, writes

> There are a multitude of motivations, conscious and unconscious ... such as the awareness of the discrepancy between the real and the ideal; to relate to life from an introverted or alone, detached state; to find meaning; to regain the feeling of his childhood omnipotence; out of intense imaginative powers; out of a state of turmoil, restlessness, deprivation, emptiness, unbearable frustration; to substitute a new object for inner fantasy or unrest. [p. 30-31] ... The searching itself created the object that was searched for. [1976, p. 33]

Rothenberg adds

> ... the motivation is to experience an alerted awakened state ... as a factor of control ... one of the (usually unconscious) universal motives for engaging in the creative process is to gain some personal understanding, or, at least, to impose some order on inner confusion and chaos. [1979, p. 48]
>
> "The heightened state of consciousness is highly pleasurable." [1979, p. 132] "Competition also plays a role ... Vying ... for personal recognition and achievement and for gratification of discovery itself, is a strong motive in creative people ... Discovery in conjunction with creation ... is gratifying for all types of creators." [1979, p. 134]
>
> The process of moving toward insight or uncovering unconscious material is gratifying in itself, regardless of the outcome ... Reassurance, identification, and insight, as well as a stirring of basic wishes, motivations, and emotions, seem to play a role. [1979, p. 347]

The several schools of psychological thought form a body of diverse thought about motivation. Historically, behaviorism emerged first in the evolution of American psychology as a separate and distinct discipline. It was firmly rooted in Aristotelian objective naturalism and with motivation simply the result of Skinner's conditions and antecedent conditions in the environment, or contained in Galton's innate, hereditary drive. The new science observed and measured what could be seen and measured, discarding all that was not. Since motivation was internal and subjective, it was not considered pertinent or susceptible for study.

With the growth of the psychoanalytical school of thought, questions of motivation and inner mechanisms became a question to be answered. With the subsequent birth of humanism and existentialism and decline of determinism, the subjective experience of creative people was newly attended to. Gheislin [1953], Rosner and Abt [1970], Arieti

[1976], Roe [1975], and many others set out to collect subjective reports and searched to find answers to the questions of motivation and to find commonalties in the inner psychic life of creative individuals.

The conclusions from the collection of subjective reports and the theoretical explanations of motivation often are closely connected to or are enmeshed in the assumptions in each psychological school of thought. Theories from the various schools diverged not only from each other but, as time went on, diverged widely within each school. Especially was splitting evident among the followers of Freud within psychoanalytical thought. And Freud was, in fact, the primary oppositional stimulus for the origin of the other major schools.

In general behaviorists believe that creative activity is controlled and determined by the environment and personal history. Psychoanalytical theory attributes motivation to the need to escape, to neurosis and pathology, to conflict, guilt, and unconscious libidinal forces requiring sublimation or repression. Gestaltists believe the motivating force for creativity is the need to relieve the stresses and strains in a situation by arriving at a new structualization in a gestalt, to find or make order out of chaos, to synthesize. Existentialists believe the motivating force for creative activity is man's striving for meaning, order, and immortality. The stress is to overcome is his anxiety and guilt aroused by his confrontation with death. Humanists believe creativity emerges with psychological and physical health and is motivated by the innate drive to grow, to realize one's potential, to self-actualize. Pragmatists believe the motivation for creativity lies in the need for self-esteem which creative achievement provides, in the need to problem-solve for control in the world or to improve the quality of life, and in the innately curious, exploratory, restless nature of man.

Mechanisms of Creativity

Theories of the mechanisms involved in creativity are anchored in the divergent schools of thought. Each school devised unique and characteristic explanations for how creativity 'worked.' The explanations also relate to the several philosophical traditions that are being followed here in a variety of ways.

Aristotle's naturalism assumes that man is by nature a maker, an explorer, and a discoverer. The natural world provides all that man needs to create. Rationalism provides the basic assumption underlying the scientific method even when applied to the irrational. Rothenberg adversarially opposed to the other modes, puts creativity squarely within the Aristotelian mode when he says

> ... creativity is not regressive, irrational, a concrete type of thinking, or even a radically altered state of consciousness. The creator in full consciousness, purposefully attempts to produce the most socially-valuable products possible and he uses the highest mental functions he possesses. [1979, p. 52]

George Kelly (1955) exemplifies the Aristotelian thought with a touch of Kant when he says:

> ... our formulation emphasizes the creative capacity of the living thing to represent the environment, not merely respond to it. Because he can represent his environment, he can place alternative constructions upon it and, indeed, do something about it if it doesn't suit him. To the living creature, then, the universe is not inexorable unless he chooses to construe it that way. [1955, p. 8]
>
> The three prior convictions about the universe ... are that it is real and not a figment of our imaginations, that it all works together like clockwork, and that it is something that is going on all the time and not something that just stays put. [1955, p. 7] The universe ... is open to piecemeal interpretation. Different men construe it in different ways ... it is always open to reconstruction ... through a series of successive approximations. [1955, p. 42]

Arieti wrote

> ... human creativity uses what is already existing and available and changes it in unpredictable ways... if his activities are mediated by cognitive processes, they generally follow what has been called Aristotelian or ordinary logical thinking, or, in Freudian psychoanalysis, the secondary process. [1976, p. 4]

Kant in contrast to Aristotle believed that the process, the mechanism, was unknowable and unteachable. Revealing the influence of Platonic thought, he wrote

... genius is entirely opposed to the *spirit of imitation* ... learning is nothing but imitation ... it follows that ... teachableness cannot avail for genius ... The Ideas of the artist excite like Ideas in his pupils if nature has endowed them with a like proportion of their mental powers. Hence models of beautiful Art are the only means of handing down these ideas to posterity ...

The poet ventures to realize to sense rational Ideas of invisible beings ... he tries ... to go beyond the limits of experience and to present them to Sense with a completeness of which there is no example in Nature. [1952, p. 197]

It cannot describe or indicate scientifically how it brings about its products, but it gives the rule just as nature does. Hence the author of a product for which he is indebted for his genius does not know himself how he has come by his Ideas; and he has not the power to devise the like at pleasure or in accordance with a plan, and to communicate it to others in precepts that will enable them to produce similar products ... Nature by the medium of genius does not prescribe rules to science, but to Art; and to it only in so far as it is to be beautiful Art. [1952, p. 199]

Rogers also describes the creative act as indescribable.

But we cannot expect an accurate description of the creative act, for by its very nature it is indescribable. This is the unknown which we do not recognize as unknowable until it occurs. This is the improbable that becomes probable ... From the very nature of the inner conditions of creativity it is clear that they cannot be forced, but must be permitted to emerge ... [1954, p. 257-258]

Fox confirming the mystery but reserving the Aristotelian faith that it may be discovered, said "not until we understand the basis mechanisms and elements of thinking itself will we be in a position to understand the creative process." [1963, p. 152]

Arieti, with a curious mixture of ideas born in the psychoanalytical, gestaltic, and more modern psychological thought, writes of the aesthetic unity in a way that harkens back to Kant.

... the aesthetic unity often pre-exists in us in a state of potentiality, as an unconscious endocept or as a loose aggregation ... Artistic inspiration is perhaps the sudden discovery of a way to translate an endocept and disparate elements into an aesthetic unit ... is a strong emotional experience ... the new unity created seems to have incorporated the universal, to have become a 'concrete-universal' that transcends space and time ... The creation of the aesthetic unity thus results from a reservoir of unpredictable and incommensurable imagination, and also from an understanding that seems incommensurable and unpredictable because it derives from the potentially infinite symbolic process of man ..." significance of the whole. It is inherent in the aesthetic experience to recognize the affinity and interrelation of the parts, how each part affects the whole, and, finally, how the whole affects each part ... [1976, p. 186-187]

Kant's creativity also consisted in seeing a similarity (or identity) between objects as they appear to us, and the transcendental a priori conditions or categories that make us see objects in a certain way ... Kant believed he had

> reversed the position between the world and the mind (or an abstract system of categories) ... the world is organized or actually created by the mind - or ... by the system of abstract categories. [1976, p. 287-288]

Freud and his followers and divergers thought the mechanism of creative activity resides in the unconscious, is invisible, and arises out of the primary processes. Psychoanalytical Theory is the theory most interested in psychological mechanisms and explanations. It tends to be reductive and to believe the unconscious primary process dominates and expresses neurotic patterns. Freud thought creative activity is an act of sublimation and avoidance of reality via phantasy which is then transformed into symbol, made conscious.

Freud's thought is an imaginative and creative transformation of the thought of Plato, Aristotle, and Kant. Freud believed the mechanism (Aristotelian) for creative activity resides in the unconscious. He substitutes the invisible unconscious for Plato's divine Muse and shifts the source for creativity from external gods to the internal primary process. He observed the similarity to pathology. He developed his theory with Aristotelian rationalism and found creativity explainable in terms of a subjective naturalism. He did not believe in the exclusive genetic base of Galton except that he believed that women are biologically inferior and not creative. He believed artistic formulation is a restructuring of archaic unconscious images or reformulated symbols, perhaps not unlike Kant's a priori concepts. The reformulated symbols are archetypes of unconscious images reformulated by the ego to be acceptable. Sublimation, the process by which sexual energy is transformed into socially acceptable forms, provides the energy for creativity and phantasy provides the means to avoid reality. The creative product is the resolved, transformed and reformulated unconscious archetypical image-symbol made conscious mirroring the unconscious imagery which has been processed through the ego. However, in the end he said that ultimately creativity is a mystery, not to be explained or understood. Freud asserted that there is no difference between the preconscious and the unconscious.

Some of the progeny of Freud extended his thought and many diverged. The concept of the collective unconscious and Freud's concept of archetypes dominates the thought of Jung [1971]. Jung presents a distinctive and curious melding of parts of Freudian, Platonic, Aristotelian, and Kantian thought. He affirms the mystery in the Freudian unconscious with an antirationalistic approach and the Aristotelian with the naturalistic preexisting archetypes not unlike like the Kantian a priori concepts. As in Platonic thought, the artist, as vehicle, is dominated by an alien will over which he has no control. The artist transcends the Aristotelian world. Jung wrote about the process

> the creator raises his images from the deepest unconsciousness, racial memories stored in the collective unconscious ... The creative process ... is the ... integration and resolution of dichotomies and the fusion of primary and secondary processes. ... between the conscious which holds the unconscious in check, and the unconscious which prevents the conscious from drying up in banal rationality." [1923, pp. 225-231]
>
> ... an invariable nucleus of meaning ... unilateralness ... exhumed treasure ... In the visionary mode, the artist is at the mercy of reemerging content, is passive ... an autonomous complex ... as work brings its own form, has a sense of an an alien will or intentions beyond comprehension ... an unconscious animation of the archetypes ... and transcends place and time and culture and personal history ... participates in the mystical participation with ancient sources ... The collective unconscious is ... quite incapable of consciousness ... it is inherited in the structure of the brain. It does not yield inborn ideas, but inborn possibilities of ideas, which also set definite bounds to the most daring phantasy. It provides categories of phantasy-activity, ideas a priori ... the existence of which cannot be determined without experience ... They are the psychic residua ... of human psychology and human destiny, a relic of suffering and delight which has happened countless times in our ancestral story ... like a deeply graven river-bed in the soul ... Every relation to the archetype ... is "stirring," i.e. it is effective, it calls up a stronger voice than our own ... The creative process ... consists in an unconscious animation of the archetype, and in a development and shaping of this image till the work is completed ... thus enabling every man to be stirred again by the deepest springs of life which would otherwise be closed to him. [1923, pp. 225-231]

Jung conceived of the role of women in the creative process as

> A man brings forth his work as a complete creation out of his inner feminine nature ... The inner masculine side of a woman brings forth creative seeds which have the power to fertilize the feminine side of the man. [Jung, 1934 p. 209]

Rank diverging from Freudian theory believed in a consciously willed control over the creative act of sublimation of the sexual impulse.

> I am of the opinion that ... positively willed control takes the place of negative inhibitions, and that it is the masterful use of sexual impulse in the service of this individual will which produces the sublimation. [1932, p. 47]

Rank agreed with Freud that the creative process was not conscious and believed it involved feelings of guilt and inferiority and a conflicted relationship to female muse.

> ... the actual process which leads a man to become an artist is usually one of which the individual is not conscious ... The self-labeling and self-training of an artist is the indispensable basis of all creative work ... the creative impulse itself is manifested first and chiefly in the personality, which, being thus perpetually made over, produces art-work and experience in the same way ... the feeling of guilt arising from the creative process itself ... is capable of engendering a feeling of inferiority ... even though the primary result may be a conviction of superiority.
>
> To make a women of his Muse ... often amounts to transforming a hindrance into a helper - a compromise which is usually in the interest of productiveness, but renders no service to life. [1932, pp, 47-49, 59-60]

Lee diverging somewhat from Freud took sharp issue with the concept of sublimation as responsible for the production of art. He has created a complex and elaborate mechanism to explain creative activity.

> ... the artist must deal chiefly with ... a dread of the loss of love from the maternal representative in conscience, and the unconscious fear that his generative function is damaged. These tensions are markedly increased, and in addition an unconscious need for punishment is activated, whenever thwarting excites his rage inordinately. He succeeds in liquidating moderate increases in these tensions by exploiting further his environmental reservoirs of love and reassurance; particularly does he draw closer to his substitute mother, toward whom he now resolves guilt by ingratiating himself through making reparations, ... and by self-punishment ... a relatively small thwarting ... reactivates deeply repressed hatred of the mother due to her original thwarting of his erotic demands and his self-esteem during the Oedipal period ... In phantasy, he has attacked the thwarter whom he hates, whose love he urgently needs, and whom he now possesses, but only intrapsychically , and in damaged form. The artist's guilt over hostility is experienced particularly toward the maternal representative in conscience because his impulse to attack is regarded unconsciously as the equivalent of an attack on the maternal reproductive function, or of some member thereof ...Inspiration is an unconscious mental process dictated by the dynamic needs and quantitative relationship which comprise the emergency situation described and intended to relieve it ... [1940, pp. 283-292]

It is interesting to note the mixture and entanglement of the many threads of thought in psychoanalytical theory: The role of fantasy in creating the mechanism that explains what goes on in the unknowable, uncontrollable, unconscious; the female as Muse; the Aristotelian rationalistic and scientific research stance and method to explain the predetermined, hereditary mechanism of the unseeable and unknowable psyche out of the creator's reach with which he nonetheless is locked in battle. Yet creativity is acknowledged as being forever a mystery.

All the theorists and philosophers written about here have been men who, realistically observed, are writing to other men about men. To include the female or substitute the female pronoun would create some major difficulties for the theorists. The female voice is absent.

Kris and Kubie believe that the mechanism of creativity is based in the primary process. They substitute ego for id and hypothesize a creative source in the preconscious rather than the unconscious. Creation comes out of the interplay between the conscious and the preconscious. Kris took a large step away from Freud. He believed that creative people use regression in the service of the ego. Regression is relaxation and a temporary, controlled reduction of the ego to release fantasy and to allow the free play between the conscious and the preconscious. The regression in the creative is not out of control as it is in pathology but is an active and autonomous function. Kris correlates passiveness and receptivity with creativity.

> ... The relationship between creativity and passivity exemplifies once more one of the leading theses of this presentation: the integrative functions of the ego include self-regulated regression and permit a combination of the most daring intellectual activity with the experience of passive receptiveness. [1952, p. 318]

Kris believed that the creative process is hindered by both the conscious and the unconscious and he conceived a complex explanatory mechanism to explain creativity.

> The reverse (unconscious material becomes preconscious) occurs when id derivations as cathected (that is invested) with ego energy and become part of preconscious mental processes. [1952, p. 542]

> The inspirational phase is characterized by the facility with which the id impulses, or their closer derivatives, are received ... One might say that countercathectic energies to some extent are withdrawn, and added to the speed, force, or intensity with which preconscious thought are formed. During the 'elaboration' phase, the countercathectic barrier may be reinforced, work proceeds slowly, cathexis is directed to other ego functions such as reality testing, formulation, or general purposes of communication ... Alternations between the two phases may be rapid, oscillating, or distributed over long stretches of time ... the shift from consciousness to preconsciousness may account for the experience of clarification that occurs when after intense concentration the solution to an insolvable problem suddenly presents itself following a period of rest ... the hypercathexis of preconscious mental activity with some quantity of energy withdrawn from the object world to the ego ... accounts for some of the extraordinary achievements of mentation ... the entry into awareness from preconsciousness to the consciousness tend to be experienced as derived from outside, as passively received, not as actively produced. [1952, pp. 310-318]

Kubie believed there is neurotic distortion in the creative process but that creative production is incompatible with psychopathology. He believed that the preconscious ego functions occupy a central place between the rigid, distorting, obstructing influence of the unconscious and the pedestrian limitations of the conscious in artistic creation. He believed that the concept of sublimation is neither necessary nor helpful to explain creativity. [1958, pp. 137-143]

Followers of the psychoanalytical school use the frame of their psychodynamic theory to explain the mechanisms of the creative process. Koestler with this cast of mind says that

> ... in the truly creative act ... underground levels of the hierarchy which are normally inhibited in the waking state play a decisive part." (the German word for creating 'schopfen' means 'to scoop') "The Creator is thus visualized as creating the world out of his own depth ... the inner "sources are in the phylogenetically and ontogenetically older, underground layer of his mind. He can only reach them through a temporary regression to earlier, more primitive, less specialized levels of mentation ... The emotional manifestations of the Eureka act - sudden illumination followed by abreaction and catharsis - also testify to its subconscious origins ... The restructuring of mental organization effected by the new discovery implies that the creative act has a revolutionary or destructive side ... [1964, pp. 657-660]
>
> ... the creative act ... always operates on more than one plane ... a double minded, transitory state of unstable equilibrium where the balance of both emotion and thought is disturbed ... independence of mental skills or universes of discourses which are transformed and integrated into the novel synthesis of the creative act ... [1964, p. 33]

Phyllis Greenacre [1957] suggests that the ego of the artist is capable of dissociating itself from real objects and may have a much greater sensitivity to sensory stimuli - intensifying and widening experience from early childhood. Weissman with a psychoanalytical filter explains the process.

> The creative person by dissociating may partially decathect the external object (mother's breast) and hypercathect his imaginative perception of it. He may then further elaborate and synthesize these self-perceptions as analagen or precursors of creative activity which must then await full maturation and development of his ego and talent for true creative expression. [1968, p. 465]

Arieti (1976) identifies a tertiary process as the process whereby the primary and secondary thought processes are synthesized. He discusses his concept of the mechanism of the creative process.

> The primary process offers the artist imagination ... as well as a loose form of organization such as the emergence of similarities, suggestions, and partial representations. The secondary process provides the screening and elimination of many suggestions and partial representations, whether in verbal, pictorial, or other forms. The tertiary process ultimately comes into being as a 'click' or match, between the primary and secondary processes, which brings about an accepted emerging representation. Eurekal The new unity is created. [1976, p. 186]
>
> Barron's "the creative's 'need for disorder' is the acceptance of primary process and immature forms. The 'need for order,' for the purpose of removing the disorder, is the need to use the secondary process. The tertiary process, or the matching of the secondary and primary process, will bring about a new schema or a new order. [1976, p. 348]
>
> The tertiary process, with specific mechanisms and forms, blends two worlds of mind and matter, and, in many cases, the rational with the irrational ... in a 'magic' synthesis from which the new, the unexpected, and the desirable emerge. [1976, p. 13]

The Gestaltists believe that the creative process crosses or closes a gap. The Gestaltic orientation focuses on cognitive processes such as insight and understanding, and perception and learning as a unified brain functioning. Duncker [1926] was one of the earliest investigators to adopt a holistic view. Kohler [1929], Koffka [1935], Wertheimer [1945] and Lewin [1935] related creativity to insight. Wertheimer believed creative thinking occurs focally but not isolated in a field of a problem. A deeper structural view results in changes in functional meanings, groupings, and organization until gaps in the problem are resolved; a closure is completed

restructuring a field, restoring harmony and equilibrium. The creative process crosses or closes a gap between an unsatisfactory situation and a more satisfactory solution. Lewin [1935] saw the whole situation as involving the self and the world without fixed divisions. May in speaking of the mime:

> The human imagination leaps to form the whole, to complete the scene in order to make sense of it ... to fill the gaps is essential if the scene is to have meaning. Our passion for form ... is wholistic. [1975, p. 128-129]

Torrance viewed creativity

> ... as the process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so on; identifying the difficulty; searching for solutions, making guesses, or formulating hypotheses about the deficiencies; testing and retesting these hypotheses and possibly modifying and retesting them; and finally communicating the results ... a natural human process. [1965, p. 663]

Creativity in existential thought occurs in the encounter and interaction of the creator with the world. Schachtel [1959] adversarily opposed to Freud, Jung, and Kris saw the creative person as open to the world rather than captive to personal history, primary processes, collective unconscious, or impelled by instinctual discharge. Schachtel thought is holistic by being eclectic, by including elements from the psychoanalytical, humanistic, and cognitive schools. He saw creativity as two stages: autocentricity, the self-centered stage of the infant; and allocentricity, the object centered stage of the mature adult. Openness to the objective outer world is a prerequisite of creativity and is the key organizing concept for Schachtel. He was critical of Kris's concept "regression in the service of the ego".

> ... openness toward and interest in the object is part of the phenomena of creative experience which takes place in the whole human being ... The problem of creative experience is essentially ... the problem of the open encounter of the total person with ... some part of the world ... What distinguishes the creative process from regression to primary-process thought is that the freedom of the approach is due not to a drive discharge function but to the openness in the encounter with the object of the creative labor. [1959, pp. 237-238]
>
> What has been learned in such unfettered and open intercourse with the world may enlarge unnoticeably and gradually the person's experience and contribute to his growth, or it may crystallize suddenly in an insight, or in a new vision of something that seemed long familiar, or in an 'inspiration.' But it is truly assimilated and becomes consciously and freely available to the person only

if it is either fashioned into an objective work, as in artistic or literary creation, or is otherwise elaborated by connecting it with, and making it part of, the conscious total life and experience of the person. This is usually a more laborious process than either the long incubation period of the many encounters between person and object or the subsequent flash of insight, vision, or inspiration. [1959, pp. 248-248]

Rollo May (1975), a dominant figure in existential thought, writes

> A continual dialectic process goes on between the world and self and self and the world ... one can never localize creativity as a subjective phenomena ... What occurs is always a process, a doing - specifically a process interrelating the person and his or her world. [1975, pp. 51-52]
>
> The creative act arises out of the struggle of human beings with and against what limits them. [1975, p. 135]
>
> It is an encounter ... Artists ... are absorbed in it ... with a specific quality of engagement. [1975, pp. 41-42]
>
> Ecstasy is the accurate term for the intensity of consciousness that occurs in the creative act ... it involves the total person, with subconscious and unconscious acting in unity with the conscious ... it is suprarational. It brings intellectual, volitional, and emotional functions into play all together. [1975, p. 49]
>
> Rilke's "You must change your life"... is the call of passionate beauty, the demand that beauty makes on us by its very presence that we also participate in the new form ... an imperious demand which grasps us with the insistence that we take into our own lives this new harmonious form. [1975, pp. 120-121]

Roe also believes that the creative process is intimately tied to interaction with the world.

> It would appear that the creative process is not unique to a few individuals possessing only one or a limited number of specific capacities. Rather, it would seem as if this is one of the ways in which humans interact with their environment, perhaps the most intricate way of all. It would appear to be a form of behavior of which all normal humans are capable to some degree, but one which is clearly manifested more often and more effectively by some persons than others and more easily under some circumstances than under others ... The creative process is probably closest to problem-solving ... but in creative process there is no such clear goal as a rule, and illogical modes of thought are common. [1963, p. 180]

Another aspect of existentialism is the struggle that the creator has with being and finding meaning. May instructs one to listen, as if to Plato's divine messages from the gods.

Humanists believe self-actualization is the motivating drive for creativity. The Aristotelian naturalism supported the behavioristic psychological paradigm. Freud, by way of the Platonic mystery and association with madness, created the psychoanalytical

paradigm. Another paradigm finding its voice in the humanistic school of thought grew in reaction to and in opposition to the negative world view of the psychoanalytical model. Humanists believe that the energy of the creative impulse is in man's health, not his pathology.

Adler and many others, in contrast to Freudian thought, believed creativity springs from man's consciousness rather than his unconscious. Fromm [1941] wrote about productive orientation with the experience of creativity appearing only with inner maturity, when projection and distortion are reduced. He believed creativity requires flexibility between rational and emotional, objective and subjective experiences. He felt it is important to accept the self at face value, human sensuality as the capacity to be alive and creative, and that one should not judge experiences.

Maslow [1954] believed creativity results from psychological health and as a part of positive growth and personal evolvement; that creative potential exists in all, as a native human capacity and given a supportive environment, creativity results as part of the drive to achieve one's full potential. He felt people are afraid to learn about their inner processes which stops their self-actualization. He equated creativity with health and fullest humanness. The mechanism for self-actualization is in a process of realizing and completing oneself by an integration within and between oneself and the world, becoming more open to experience and more fully functioning. Self-actualized people are characterized by boldness, courage, freedom, spontaneity, perspicuity, and self-acceptance and are also independent, autonomous, and self-directed. Taking a stance unique for his time he decided achievement and creative products are secondary to self-actualizing creativity of the personality.

> There is ... a more wide spread kind of creativeness which is the universal heritage of every human being that is born, and which seems to co-vary with psychological health. Furthermore, I soon discovered that I had, like most other people, been thinking in terms of products, and secondly, I had unconsciously confined creativeness to certain conventional areas only of human endeavor, unconsciously assuming that any painter, any poet, any composer was leading a creative life ... Unconsciously I had assumed that creativeness was the

prerogative solely of certain pprofessionals ... I found it necessary to distinguish 'special talent creativeness' from 'self-actualizing creativeness' which sprang much more directly from personality, and which shows itself widely in ordinary affairs of life. [1954, p. 140]

With self-actualizing creatives

> I had to give up this (dichotomous) Aristotelian style of logic ... many dichotomies resolved into unities, cognition vs. conation (heart vs. head, wish vs. fact) became cognition "structured with" conation as instinct and reason came to the same conclusions. Duty became pleasure, and pleasure merged with duty. The distinction between work and play became shadowy. How could selfish hedonism be opposed to altruism, when altruism became selfishly pleasurable?... These same people, the strongest egos ever described and the most definitely individual, were precisely the ones who be most easily ego-less, self-transcending, and problem-centered ... The great artist is able to bring together... dissonances of all kinds into a unity. All the great theorists ... statesmen ... therapists ... philosophers ... parents ... inventors ... are integrators, able to bring separated and even opposites together into unity. [1954, p. 143]

Rogers [1959], with similar beliefs, uses the term fully functioning person. Rogers says that the mainspring for creativity is self-actualization, openness to experience, internal locus of evaluation, and the ability to toy with elements and concepts. The external facilitating conditions are acceptance of the individual as of unconditional worth, absence of critical evaluation, and support for psychological freedom.

> ... man's tendency to actualize himself, to become his potentialities ... may become deeply buried under layer after layer of encrusted psychological defenses; it may be hidden behind elaborate facades which deny its existence; by this I mean the directional trend which is evident in all organic and human life - the urge to expand, extend, develop, mature - the tendency to express and activate all the capacities of the organism ... it is my belief ... based on my experience, that it exists in every individual, and awaits only the proper conditions to be released and expressed. [1959, p. 255]

Others in the humanistic mode of thought include Lecky [1945] who wrote about a unified and self-consistent personality, the self's seeking integrity, and the urgent need for the maintenance of structure as regards himself; Snygg and Combs [1949] who wrote about the preservation and the enhancement of the phenomenal self; Horney [1950] who thought the realization of the self was central to creativity; Reisman [1950] who wrote about the autonomous person; Allport [1955] who wrote about

creative becoming and functional autonomy. Moustakas wrote "The creative person leads his life in the present with a forward thrust into the future, experiencing change and transformation in a state of 'becoming,' or a basic drive to create one's own life through self-determination." [1967]

The Problem of Definition

There is greater diversity of thought about motivation and mechanisms of creative activity than agreement and unity. This is also true for definitions. Definitions of creativity imply causality, motivation, product production (or not), quality of a product, criteria for judging a product, values about subjectivity or objectivity, differences for science and art, the nurture-nature controversy, talent versus what is characteristically human, etc. The consequences are apparent in the diversity of research and its conclusions. Defining what is creative and what is not delineates the area for study, limits what questions are asked, what hypotheses are constructed, what research is done, the methods used, and the results observed and achieved. Aristotle would suggest that one way to organize this diversity is to separate them into categories. It is also fruitful to examine them from the perspective of the various lineages of thought followed in here.

1 - Creativity in terms of a creating a product is Aristotelian and the simplest, most direct definition. Webster defines creativity as "The process of making, of bringing into being." Herbert Fox eliminated defining creativity altogether by claiming "It would seem, then, that there is no unique entity identifiable as the creative process. All we can identify is the product. And it is from the product that we infer the existence of a process." [Kai A N 1968 p. 20]

2 - Creativity requires creating an original product. Kant said "originality must be its first property." Rhodes said "Creativity ... is a noun naming the phenomena

in which a person communicates a new concept (which is the product)." [1961 p.305] Barron said "Creativity may be defined quite simply, as the ability to bring something new into existence."

3 - Creativity as creating a product having originality plus value is a narrower definition. Stein [1956] defines a creative product as "a novel work that is accepted as tenable or useful or satisfying by a group at some point in time." MacKinnon felt that the product had to be novel and usefully adaptive for the goal and it must be brought to realization. It is characterized by originality, adaptiveness, and realization. Rothenberg [1976] insists that a creative product must be original and have value.

4 - Creativity is an universal genetic endowment and manifestation characteristic of the human being. For Aristotle creativity was innately given: "... the begetter is adequate to the making of the product ... Man is created by his world." Gheislin [1958], Maslow, [1954] the humanists, and many others distinguish between talent-type as a special hereditary gift and a complex and unique drive towards a self-actualized creativity as a human potential. May felt creativity involved the ability to see and respond. "... ones who enlarge human consciousness. Their creativity is the most basic manifestation of a man or a woman fulfilling his or her own being in the world." [1975, p. 38] Mutussek [1974] "Creativity does not depend on inherited talent or on environment or upbringing; it is the function of the ego of every human being." [Arieti 1976 p.10]

5 - Creativity is the combining of ideas and finding new relationships. Mednick believed that the creatively new emerged from the association of disparate things or ideas. "the forming of associative elements into new combinations which either meet specified requirements or are in some way useful ... The more mutually remote the elements of the new combination, the more creative the process or the solution." [1962, p. 221] He suggested that there are three types of creative associations: serendipity, similarity, and mediation. The variation in the degree of creativity varied with the

number of ideas brought into contiguity, the associative hierarchy, and selection of creative combinations. Creativity becomes a novel arrangement of temporarily contiguous unusual associations in response to a stimulus or problem. Osborn [1953] felt the value of brainstorming was that collaboration tends to induce effort and spur automatic power of association which is the ground for creative thought.

Gordon [1961] stressed both problem-formulating and problem-solving as integral parts of the process to achieve artistic or technical inventions. I. Taylor agreed that creativity was an innate capacity of man. It "entails the capacity to transform or find new unexpected relations between bits of information, may allow men to transcend the usual view of psychological behavior as a Stimulus-Response function. This ability to solve problems may be characterized by novelty, unconventionality and persistence." [1975, p. 16] Arieti identifies his heritage "... human creativity uses what is already existing and available and changes it in unpredictable ways. ... as a means of liberating himself from his [Skinner-like] filters of conditioned responses ... if his activities are mediated by cognitive processes, they generally follow what has been called Aristotelian or ordinary logical thinking, or, in Freudian psychoanalysis, the secondary process." [1976, p. 4]

Ivey in the context of psychotherapy wrote

> Creativity can be thought of as finding new and unexpected connections, unifying differences, or integrating life's incongruities. [1980, p. 24)
>
> Creativity is the result of the unconscious, thorough efforts of the preconscious, to reach and influence decision making by the conscious. Creativity relies on the irrational elements of experiences co-existing with the rational view of reality. True creativity requires two dimensions: 1. obtaining a clear picture of knowledge of the facts of a situation; and 2. learning to develop a reliance on intuitive irrational thought. [1980, pp. 26-27]

Max Ernst wrote "Creativity is the marvelous capacity to grasp two mutually distinct realities without going beyond the field of our experience and to draw a spark from their juxtaposition." [1968 KAN p. 6]

6 - Creativity is invention or discovery or both. All the above definitions are rooted Aristotelian thought. Aristotle believed that man can make something out of something that exists, give form to substance, and could invent. He believed man was part of the natural order and that his creativity was innate, that his mind had the power to develop something unique. He believed the universe existed, was lawful, and that man could discover its secrets. Kant extended the idea of giving substance form to giving form to that which has no substance, yet what was to be given form preexisted as innate to man. For Aristotle, man was created by the world (naturalism) and acted on the world with his making. For Kant, man created the world though his perception and discovery of his own innate a priori concepts. Creativity is the rediscovery or the emergence of a priori concepts or forms. Jung [1946], very like Kant, believed that creativity in the visionary mode was rediscovery of archetypes buried in the psyche of man. Jung distinguished between creativity which transcends the boundary of psychologically intelligible material and that which does not. In the same vein Arieti [1976], adding the nebulous Platonic world of ideas which exist apart from man, said that a discovery

> ... may be a rediscovery of the preexistent truth in a platonic world of ideas ... My opinion is that in the realm of physical reality, creativity can consist both of a rediscovery of what already existed in hidden form, and of the emergence of something new. In both cases it does deal with the new. [p. 406]

7 - Creativity, relying on innate capacities, is defined in terms of a new concept or idea. Spearman defined creativity as "the power of the mind to create new content - by transferring relations and thereby generating new "correlates" - extends its sphere not only to representations in ideas, but also to fully sensuous presentations." [1931, p 149] May , akin to Platonic ideas and tuned to the mystery in creation and man's involvement with the gods, refers more often to ideas than objects. "The process of bringing something new into being." [1975, p. 37] "Something is born, comes into

being, something that did not exist before - which is as good a definition of creativity as we can get." [1975, p. 88] Gestaltists define creativity as an action that produces a new idea or insight though imagination rather than through reason or logic.

8 - Creativity as mysterious - beyond the knowing and control of the individual is a definition with Platonic roots. Plato wrote "It is god himself who speaks, and through them that he becomes articulate to us.." Galton's genetic determinism of creativity as a more or less random natural segregation becomes a meld of the two lines of thought: that the source of creation is natural but is not knowable nor controllable. Skinner takes one step farther on by claiming that not only is creativity beyond control, it is not innate either but determined totally by the milieu. He has assimilated Aristotle's naturalism but given it to the society and evolutionary forces instead of to man - Plato's creator-as-helpless to act, to direct, or to control. Skinner [1972] wrote

> The poet is also a locus, a place where certain genetic and environmental causes come together to have a common effect ... The act of composition is no more an act of creation than "having" the bits and pieces composed ... It was the contingencies of survival which create new forms. Selection is a special kind of causality. [p. 350]

Arieti provides another variation of the milieu theme. "Within the realm of indeterminacy and probability, structures and systems and patterns emerge." [p. 407]

9 - Creativity is sometimes defined as involving different levels. Irving Taylor [1965] distinguishes five levels or dispositions related to development: expressive, technical, inventive, innovative, and emergentive. Koestler's biosociation is the intersection of ideas from different levels of thought.

10 - Creation is a synthesis. Hegel's 'thesis - antithesis' leads to synthesis. Allen wrote "Creativity is the production of meaning by synthesis." [1962, KAN p. 3] Maslow, in an adversarial relation to Freud, equated synthesis with integration, believes

synthesis as product is dependent on the integration of the person. "To the extent that creativeness is constructive, synthesizing, unifying and integrative, to that extent does it depend in part on the inner integration of the person." [1954, p. 141]

Arieti showing strains of Aristotle, Galton, and Freud defines creativity as a synthesis emerging out of the combination of an individual's traits and his society and transforming both.

> Rather than a single trait, it is a special combinations of several traits - in a special family environment, in some socio-historical situations, occurring at a given time and place - that produces the synthesis we call creativity. [1976, p. 359]
>
> The creative person is able to transform the sea of irrelevancy in which he find himself into a vision of order and beauty, or he sees how a tiny fragment of seeming cosmic futility collides and coincides to transform randomness and disparity into organized structure. [1976, p. 405]

Gordon and Prince, taking an Aristotelian pragmatic approach and convinced of the wisdom of Aristotle's words "The greatest thing by far is to be master of metaphor; it is the one thing that cannot be learnt from others; and it is also a sign of genius, since a good metaphor implies an intuitive perception of the similarity in the dissimilar" [Poetics, 1459a] worked with metaphors and analogies as a way of synthesizing a solution out of their juxtaposition. Varela's Star* [1976] concept combines synthesis and levels in a recursive process which leads to higher levels of unity.

11 - Creativity emerges in the encounter with the world. This definition found its voice in the separation from the Freudian paradigm where the concentration is on the individual man and his inner workings to a more gestaltic approach seeing man wholistically and enmeshed in and interactive with his world. It is also Aristotelian in that man is interactive and lives in the world that exists. Chambers [1969] defined creativity as the process whereby new products emerge out of the interaction between the organism and the environment. May writes "Creativity is the encounter of the intensively conscious human being with his or her world." [1975, p. 56] Austin

writes "Creativity is... a long and complex series of interactions between an individual and his environment that culminates in something new." [1978, p. 100] Irving A. Taylor summarizes the wholistic view.

> The thrust has been toward viewing creativity less as a singular concept but increasingly as a complex multidimensional set of related components or areas interacting to produce various patterns or styles of behavior that can be called creative. Increasingly, creativity has been seen as a function of different personality dispositions in interaction with various types of climates or environments. [1975, p. 297]

12 - Creativity is defined as self-creation, self-development, and as beingness. This definition emerges out of the humanistic school in opposition to the psychoanalytical paradigm which considers man a victim of his heredity, his inherent conflictual drives, his uncontrollable impulses, and his lot. Maslow concluded from his study of healthy creative individuals

> Self-actualizing creativeness stresses first the personality rather than its achievements ... It stresses characterological qualities like boldness, courage, freedom, spontaneity, perspicuity, integration, self-acceptance ... which expresses itself in the creative life, or the creative attitude, or the creative person ... I have stressed the Being quality of self-actualizing creativeness rather than its problem-solving or product-making quality. Self-actualizing creativeness is 'emitted' or radiated ... [1954, p. 145]

May wrote

> Sartre's argument that we invent ourselves by virtue of the multitude of our choices may be overstated, but its partial truth must nevertheless be admitted. Human freedom involves our capacity to pause between stimulus and response and, in that pause, to choose the one response toward which we wish to throw our weight. The capacity to create ourselves, based on this freedom, is inseparable from consciousness or self-awareness. [1975, pp. 116-117]

13 - The characteristic psychoanalytical thought defines creativity as the means to release tension, resolve conflict and guilt, sublimate sexual drives, fulfill fantasized desires, control or make retribution for aggressive and destructive impulses.

The Creative Product

There is a fascinating divergence of thought about the creative product. The definition of creativity is often tied to the production of a product and criteria for the evaluation of the creative product. However, some theorists define creativity as independent of a product and find a product unnecessary. Some define a product as intangible. Some have made the creator the product. Some make the process itself, the product. Some deny any connection between the product and the creator.

1 - A concrete product that, by meeting certain criteria, is considered creative. Arieti broadly defines the creative product

> ... the creative work may make us laugh, offer aesthetic pleasure, ... may give us a feeling of transcendence ... or may provide qualities of usefulness, understanding, or predictability ... It enlarges the universe by adding or uncovering new dimensions, it also enriches and expands man ... a creative work being something differentiated from what existed before it. [1976, p. 5]

Kant diverges from Aristotle's making from what exists in nature, and seems to reach for the Platonic source beyond the concrete world. He writes

> ... the truth that is discovered and seen new was actually either hidden in our mind, our unconscious, or in a part of the universe that is unknown to us. Any form of creativity would be the transformation of a piece of transcendence into a piece of immanence ... Genius is the innate mental disposition through which Nature gives rule to Art ... beautiful Art is only possible as a product of genius....Genius is a talent for producing that for which no definite rule can be given ... originality must be its first property. ... its products must be models. i.e. exemplary; and they consequently ought not to spring from imitation, but must serve as a standard or rule of judgment for others ... The poet ventures to realize to sense rational Ideas of invisible beings ... he tries ... to go beyond the limits of experience and to present them to Sense with a completeness of which there is no example in Nature. [The Critique of Judgment, 1952, pp. 188-192]

Moore writing about art poses criteria. "All good art has contained ... order and surprise, intellect and imagination, conscious and unconscious." (Rothenberg, 1976. p. 259) Newell, Shaw, and Simon suggest the essential criteria for the product are 1) has novelty and value for the thinker or culture; 2) is unconventional requiring modification or rejection of previous ideas; 3) is the result of high motivation and persistence; 4) is a result of the formulation of a previously vague problem. "...

creative activity appears simply to be a special class of problem-solving activity characterized by novelty, unconventionality, persistence, and difficulty in problem formulation." [1958]

The criteria that Jackson and Messick [1965, p. 18] use to judge the creativeness of a product are 1) novelty - newness, originality 2) correctness and goodness 3) relevancy, the need to fit context and make sense for the demand 4) power to transform 5) hedonistic 6) value 7) condensation, the unification and condensation of information

Sprecher believed that a very important criteria was that the product had the power to generate creativity . He pointed out that many creative findings generate by divergent production, new discoveries, new problems, and new solutions. "A truly creative product or contribution has the characteristic of being itself creative in the sense that it generates additional creative activity" [1959, p. 294]

2 - The product is separate from the creator is the view of Plato and Kant. Jung follows their thinking.

> Personal causality has as much and as little to do with the work of art, as has the soil with the plant that springs from it ... the work of art is ... a thing which has no personality, hence for it the personal is no criterion ... it has successfully rid itself of the restraints and blind alleys of the personal ... No creative mind can penetrate the inner soul of Nature ... The work exists as an 'autonomous complex' ... and cannot be subject to conscious control ... is independent of the option of consciousness. [1923, p. 219]

Roe along the same line wrote

> The process itself, that is, what goes on within the individual, is not directly related to any value which may - then, at some future time, or never - be placed upon the product. It is not related to the absolute uniqueness of the product or even to its adequacy. [1963, p. 154]

Arieti observed as have many creators in subjective reports "During the creative act the artist sees his work as independent of him and as already having a life of its own." [1976, p. 156]

3 - The product is seen as inseparable from the creator. Many attribute the uniqueness of the product to the individuality of the creator, to his or her encounter with the world, or the medium. Freud found the creative product's peculiar characteristics in the personal history - especially in the childhood experiences of the creator. He said that Leonardo Da Vinci added St. Anne to his Madonna painting 'because he was raised by two mothers.' Rogers accounting for originality said

> Creativity always has the stamp of the individual upon its product, but the product is not the individual, nor his material, but partakes of the relationship between the two ... In almost all the products of creation we note a selectivity, or emphasis, an evidence of discipline, an attempt to bring out the essence ... This is the influence of the specific person, of the "I." "I" bring a structure to my relationship to reality; I have my way of perceiving reality, and it is this (unconsciously?) disciplined personal selectivity or abstraction which gives to creative products their esthetic quality.
>
> ... for me as scientist, there must be something observable, some product of creation ... must be novel constructions. This novelty grows out of the unique qualities of the individual in his interaction with the material of experience ... the creative process is ... the emergence in action of a novel relational product, growing out of the uniqueness of the individual on the one hand, and the material, events, people, or circumstances of his life on the other ... it makes no distinction between 'good' and 'bad' creativity ... "the product must be acceptable to some group at some time ... makes no distinction regarding the degree of creativity ... when the individual is open to all of his experience ... then his behavior will be creative, and his creativity can be trusted to be essentially constructive. [1954, pp. 250-258]

4 - The product is an expression of the mind. Ghiselin with a touch of Kantian thought writes the creative product

> ... is intrinsically a configuration of the mind, a presentation of constellated meaning, which at the time of its appearance in the mind was new in the sense of being unique, without a specific precedent [1958, p. 36)
>
> The mind in its major creative action assumes responsibility for making and remaking the universe of meaning sustained by the culture in which it moves. [1958, p. 43]

Bateson wrote

> ... there are bridges between one sort of thought and the other, and it seems to me that the artists and poets are specifically concerned with these bridges. It is not that art is the expression of the unconscious, but rather that it is concerned with the relation between the levels of mental process. From a work of art it may be possible to analyze out some unconscious thoughts of the artist, but I believe that, for example Freud's analysis of Leonardo's 'Virgin on the Knees of St. Anne' precisely misses the point of the whole exercise. Artistic skill is the

> combining of many levels of mind - unconscious, conscious, and eternal - to make a statement of their combination. It is not a matter of expressing a single level. [1972, p. 464]

Rothenberg [1979] believes that creativity is based on janusian and homospatial thinking and emerges out of the capacity to conceive and utilize two or more opposite or contradictory ideas, concepts, or images simultaneously in space or time.

5 - The product is seen as the product of the challenge and struggle with limits. May, in writing about the product, believes it emerges out of the tension between spontaneity and limitations. Its form provides the essential boundaries and structure. It expands the creator and his audience, is generative in time, and creates knowledge. It contains a spiritual quality resultant of the

> ... union of form and passion with order and vitality ... called ecstasy [1975, p. 48-49] and the result of confronting limits ... knowledge itself arises out of the dynamic encounter between subjective and objective poles. [1975, pp. 97-98]
>
> Confronting limits for the human personality actually turns out to be expansive. Limiting and expanding thus go together ... conflict presupposes limits, and the struggle with limits is actually the source of creative productions ... Creativity arises out of the tension between spontaneity and limitations, the later ... forcing the spontaneity into the various forms which are essential to the work of art ... [1975, pp. 136-138] The controlled and transcended tension present in the work of art is the result of the artists' successful struggle with and against limits. [1975, p. 139]
>
> Form provides the essential boundaries and structure for the creative act ... there is in this limiting a nonmaterial character, a spiritual character if you will, that is necessary in all creativity. Hence, form, and similarly, design, plan, pattern all refer to a non-material meaning present in the limits. [1975, p. 140] ... organic ... or inner form grows on its own down through the ages revealing new meaning to each generation ... the very necessity of fitting your meaning into ... a form requires you to search your imagination for new meanings ... In your forming, you arrive at new and more profound meanings than you had even dreamed of ... Form is an aid to finding new meaning, a stimulus to condensing your meaning, to simplifying and purifying it, and to discovering on a more universal dimension the essence you wish to express ... all carries with it its own form ... The juxtaposition of spontaneity and form are, of course, present all through history. It is ... the struggle of the Dionysian versus the Apollonian ... If form were to vanish, spontaneity would vanish with it. [1975, p. 142-144]

Arieti feels that the longing quality characteristic of the existentialist is fulfilled in the creation and when incorporated in the product enhances it.

> The creative process is a way of fulfilling the longing or search for a new object or state of experience or existence that is not easily found or attained ... Especially in aesthetic creativity, the work often represents not only the new

object but also this longing, this indefinite search, this sustained and yet never completed effort, which has a conscious and an unconscious motivation. [1976, p. 6] ...

Dante and Petrarch had a conscious motivation: expansion of their own self through the search for an ideal ... The searching itself created the object that was searched for." [1976, p. 33]

... though a new object has been found, the longing and searching continue. The finiteness of the new object contrasts with the indeterminacy of the search. And yet the search itself becomes part of the newly created work, of the new unity - an aesthetic entity that appears in its totality for the first time in the universe ... the unfinished statement of the work of art. [1976, p. 141]

Rothenberg also speaks of tension embodied in a work as vital to its value.

Both scientific and artistic creations retain an element of conflict - psychological, aesthetic, and/or intellectual - in their substance and structure ... janusian thinking ... helps produce the sense that we treasure so highly in art of both tension and conflict together with balance and harmony. In science it produces both intellectual discovery and resolution together with a sense of discrepancy, an intellectual tension and conflict that propels the creative scientist to search further. Formulating two or more specific opposites or antitheses coexisting simultaneously embodies and expresses conflict ... it is a form of secondary, or primary, process cognition. [1979, pp. 261-262]

The art product is virtually a living breathing object, fully formed and distinct with all its parts interacting, nourishing, and enhancing each other ... has 'organic unity.' ... Through the homospatial process, discrete entities are fused and superimposed without losing their distinctiveness; they continue to interact and relate to one another. [1979, pp. 364-365]

6 - The product is the construction of a new unity and enlarges our world. Arieti writes

Only the creative person could fit all the elements together in order to create the new unity. Once unity is formed by the artist, it is easily apprehended by others. The concordance of various elements, or the confluence of the various levels of cognitions and affects, makes it easy to grasp the unity or at least respond aesthetically to it. The new unity enlarges our world and our capacity for experience. Without it life seems impoverished ... the artist wants to offer a special feeling: aesthetic pleasure." [1976, p. 185] ... the psychologically oriented student of creativity does not deny that the work of art constitutes a unity, where the content is indissolubly intertwined with a particular form. [1976, p. 135] ... at the same time as it enlarges the universe by adding or uncovering new dimensions, it also enriches and expands man, who will be able to experience these new dimensions inwardly ... it is the perennial (and almost always unverbalized) premise of creativity, to show that the tangible, visible, and audible universe is infinitesimal in comparison to the one that awaits discovery through exploration of the external world and human psyche. A new painting, poem, scientific achievement, or philosophical understanding increases the number of islands of the visible ocean of the unknown. These new islands eventually form those thick archipelagos that are man's various cultures.... a creative work being something differentiated from what existed before it. [1976, p. 5]

> These words and concepts sound strangely similar to those of Herbert Spencer, who speaking ... about the universe, saw it moving from 'an indefinite, incoherent homogeneity to a definite, coherent heterogeneous, passing through a series of integrations and differentiations.' (First Principles, 4th edition). Can't we add that every time a creative product is completed, a new, coherent heterogeneity (after passing through a series of integrations and differentiation) is added to the many already existing, so that the world as a whole becomes more heterogeneous? [1976, p. 409]

7 - The self is a creative product; the self is self-forming. Maslow, Rogers, and most humanists, and Piaget, Ivey and many psychotherapists take this viewpoint. Rollo May writes

> The self is made up, on its growing edge, of the models, forms, metaphors, myths, and all other kinds of psychic content which give it direction in its self-creation ... the self is only that which it is in the process of becoming ... self-directing, self-forming. Thinking and self-creating are inseparable ... fantasies ... we pilot ourselves ... [1975, p. 116-117]

Rogers said "Intimate knowledge of the way in which the individual remolds himself in the therapeutic relationship, with originality and effective skill, gives one confidence in the creative potential of all individuals." [1954, p. 252] Johnston writes

> ... a piece of art is ... a living cross section through who we are as patterned transformation. As process it involves myriad levels of who we are, from the most germinal to ones much more conscious and manifest. Furthermore it is a function, not of just one whole, but wholes within wholes ... a statement of its creator's evolving aliveness, and ultimately the aliveness of each of its concentric contexts ... it touches us as it challenges and animates at the edge of who we are as creative entireties. [1984, p. 47]

8 - The product is sometimes considered consciousness. May writes "Consciousness is the awareness that emerges out of the dialectical tension between possibilities and limitations ... is born in the struggle against a limit." [1975, p. 134]

9 - The product is the creative process itself. Arieti writes "The significant synthesis is the creative process itself. It is so significant and unpredictable as to appear magic. Even when a culture is propitious, the significant synthesis occurs in a very small percentage of its people." [1976, p. 302]

10 - The product is symbol and/or metaphor. Jung said

> The picture is accessible to analysis, just in so far as we are able to appreciate it as a symbol ... a symbolic art-work ... whose source is not to be found in the personal unconscious of the author, but in the sphere of unconscious mythology whose primordial images are the common heritage of mankind. [1923, p. 226]

Arieti wrote that "symbol and reality hold hands"; that in art there is an almost perfect welding of the abstract concept and the concrete example. The object is replaced by its metaphor, a symbol which participates in its effect and its presence is felt in its absence.

> "The successful metaphor, even when it seems to subtract from reality, adds to our understanding and confers aesthetic value ... where the real and unreal unite to give us a vision of unsuspected depths and dimensions ... The metaphor seems to transport us closer to a world of absolute understanding that is more real than reality ... The metaphors have enlarged the realm of possibilities within our understanding." [1976, p. 144-145]

May believes that

> A symbol or a myth acts like a projective screen in drawing out insight ... a screen that stimulates wonder and calls imagination into action ... The screen is not merely a blank mirror. It is, rather, the objective pole necessary for calling forth the subjective processes of consciousness ... [1975, p. 128-129]

The Creative Process as Steps or Stages

Illustrative of the linearity of the Aristotelian cast of mind theorists have conceived of the creative process as series of stages. Ribot in 1900 distinguished four phases. Wallas in 1926 also found four somewhat differently delineated stages. Rossman in 1931 studied 710 inventors and expanded Wallas's stages to seven. Osborn in 1953 modified Rossman's seven stages. Stein in 1956 distinguished three stages. Torrance [1962b] spoke of five or six steps. I. Taylor chose to distinguish five stages and Fabun, seven. There are parallels and overlappings. One way to gain a meta-perspective is to superimpose the various steps distinguished.

The first stage is distinquished as a diffuse sensing of a problem or a need. The earliest stage is often described as one in which the person is perceptually open to the

external environment and receptive to inner thought processes, is openly accepting without judgment or cognitive closures. It is a state of receptivity. It is characterized by a diffuse quality. The existence of a problem is sensed but not clearly defined. Torrance saw creative thinking in the first phase as the process of sensing gaps or disturbing, missing elements. The mind is free to wander and play with spontaneous associative ideas. Roger's openness is a state of deferred judgment, of open acceptance to information, cognitive complexity, and a set for unexpected or serendipitous findings. There are no coordinates. Rothenberg says that intentionality is the first and essential prerequisite. James Austin wrote

> ... the investigator begins his journey not realizing its full implications ... In the risking he is most alert, most alive; in the seeking, he has found. He needs to take a chance ... his innate curiosity ... is insatiable ... involves a voyage of self-discovery." (p. 66) "... the posture of creativity is forward-leaning. A certain basal level of action 'stirs up the pot,' bring random ideas that will collide and stick together in fresh combinations, lets chance operate. [1978, p. 73]

The earliest stage merges into a problem-finding stage. There may be a convergent tendency toward a central reformulation. Parnes, Noller and Bondi [1976] call it the time of the problem mess. Discovery and formulation of the problem may provide half of the solution as the problem formulation determines the formulation of the answer. It can be seen as a time of circling around and gathering up in order to find a focus.

A preparation stage follows. Ideas are generated and manipulated. A critical analysis and evaluation of ideas is part of the process. Poincare [1913] believed that the conscious mind mobilizes only those ideas that have something to do with the object of research. Mary Henle [1962] speaks of becomming immersed in one's subject matter, of having the ability to see the right questions, to use errors, and to have detached devotion - both passionate interest and a certain degree of detachment. It is an ideation phase where the creator plays around with materials or ideas, arrangements and

combinations or elements. Torrance describes a stage of forming ideas or hypotheses. Hemholtz [1896] describes the preparation stage as an initial investigation carried on until it is impossible to go further.

A crisis stage is reached that is characterized by frustration and saturation, of being overwhelmed with information. There seems to be a transitional barrier as perhaps a zone of quiet desperation with a build up of tension behind it. It is the time when the creator must let go of his persistent effort and do something else or work in another discipline. Some would say that the creator must turn off the left brain and let the right brain to its magic wholistic, intuitive synthesizing work. It is the crisis state experienced before a transformation or stage shift in Piaget's or Land's theories.

Ribot [1900] first described an incubation stage, a commonly, but not universally, discriminated stage. This stage can be considered the black box between all the preparatory work and the inspiration, solution, or resolution. Poincare [1913] believed that useful and valuable combinations occur in the unconscious or subliminal self, and offered the hypothesis that the subliminal self is in no way inferior to the conscious self and acts as a sort of filter allowing through only the aesthetic and elegant solutions. He wrote:

> Does it follow that the subliminal self, having divined by a delicate intuition that these combinations would be useful, has formed only these, or has it rather formed others which were taking an interest and have remained unconscious? [Arieti 1976, p. 269]

May writes

> Creativity goes on in varying degrees of intensity on levels not directly under control of conscious willing ... but unconscious insights or answers do not come hit or miss ... they pertain to those areas in which the person consciously has worked laboriously and with dedication. [1975, p. 46]

Roe describes the creative process at this stage:

> ... it emerges from a background of absorption in a topic and begins in a state of imaginative muddled suspense' ... There seems to be a vague sort of manipulative play with uncommunicable entities - sensual, muscular, rarely if at all verbal - in this stage. There is no known technique for speeding up or calling forth the coalescence of all this into a new configuration. It usually comes

> without an immediate voluntary effort and almost invariably during a moment of dispersed attention ... Too intensive a concentration of conscious attention upon the problem seems to prevent that recourse to the depths of the person that is required ... [1963, p. 180]

Oppositionally Rothenberg vehemently denies that the incubation stage exists

> ... moving away from thinking about a creative task ... there is no reason to believe that it instigates unconscious work on the problem. When ideas arise suddenly in a rested or distracted state of mind, they do not arise fully formed from the unconscious. Only the intention to solve the problem can be said to be unconscious at that moment; the creative thinking, however briefly it flashes, is conscious ... there is neither condensation nor displacement in creative leaps of thought ... creating moves from free, wandering thinking to fixated solutions and constructions within a product. [1979, p.130]

The stage described as inspiration or illumination is the core of the creative experience. There is a sudden and unexpected solution, insight, conversion, transformation, or synthesis. It is described by Roe

> The experience of insight may be a profoundly moving one, with a sense of great self-realization and intense aesthetic gratification. It is usually accompanied by feelings of certainty. [1963. p.180]

The phenomena is often experienced as a great mystery, as a divine gift from the unknown and unknowable source or process. May describes what for many is the creative experience.

> There is a curiously sharp sense of joy ... that comes when you find the particular form required for your creation ... it often seems out of proportion to what has happened ... When my 'insight' suddenly breaks through ... I experience a strange lightness in my step as though a great load were taken off my shoulders, a sense of joy on a deeper level that continues without any relation whatever to the mundane tasks that I may be performing at the time ... I propose we are participating in the myth of creation. Order comes out of disorder, form out of chaos ... The sense of joy comes from our participation ... the paradox is that at that moment we also experience more vividly our own limitations. [1975, pp. 147-148] (The root meaning of symbol is 'drawing together'.)
>
> ... insights emerge not chiefly because they are 'intellectually true' or even because they are helpful, but because they have a certain form, the form that is beautiful because it completes what is incomplete in us ... One can quite accurately speak of this unfinished pattern, this unformed form, as constituting the 'call' to which our preconscious, out of the maelstrom, gives an answer. [1975, pp. 159-160]

There always seems to be an element of surprise experienced at this stage. There are three variations of emotions involved. There is the "A-Ha" surprise of solution finding,

the "Ahh" of the experience of aesthetic beauty as in art or in the new synthesis and new simplified unity or the elegant solution, and the "Ha Ha" in the surprise of creative humor.

An evaluative stage, a time of elaboration, and a working out of the ideas follows the illumination stage with the execution of the work. It involves validating and varifying the insight, working out and elaborating the ideas and then evaluating them and testing hypotheses.

A polishing and finishing of the work follows that may include modifying and retesting the hypotheses and reprocessing through the cycle again. The stage usually requires persistance and painstaking work. Arieti writes

> ... intertwining is completed at the last stages of the process of creativity, and that these stages are preceded by many others - some conscious, others unconscious - that at times unfold in rapid and at other times in slow succession. [1976, p. 135]

Following the finishing of the work there is a communication stage. Parnes, Noller, and Bondi have an acceptance-finding phase in which the solution is implemented and put out into the environment for acceptance. Torrance wrote

> Strong human needs are involved at each stage. If we sense some incompleteness or disharmony, tension is aroused. We are uncomfortable and want to relieve the tension ... The tension is unrelieved until we tell somebody of our discovery ... the process is not complete until the results are communicated. [1965, p. 680]

Rogers explains this stage.

> Concomitant within the individual is the Eureka feeling, the anxiety of separateness; and the desire to communicate to "assuage the anxiety of separateness ... He does not create in order to communicate, but once having created he desires to share this new aspect of himself-in-relation-to-his-environment with others. [1954, p. 256]

Maslow summarizes the creative process and the experience, melding the stages into a single sustained process.

> The great work needs great talent ... needs not only the flash, the inspiration, the peak experience; it also needs hard work, long training, unrelenting criticism, perfectionistic standards. In other words succeeding upon the spontaneous is the deliberate; succeeding upon total acceptance comes

> criticism, succeeding upon intuition comes rigorous thought; succeeding upon daring comes cautions; succeeding upon fantasy and imagination comes reality testing ... Now come the comparisons, the judgments, the evaluations, the cold, calculating morning-after thoughts, the selections and the rejections. [1968, p. 145]

Patrick [1937] in her numerous studies of poets, artists, and scientists confirmed Wallas's steps but also found them more varied. Roe thought creative achievement was not the result of sudden inspiration but from the labor of a driven person. She found the stages not so neatly distinguishable.

> The total gamut of scientific thinking includes both the creative process ... the discovery or invention, and the verification, elaboration, and the systemization of the new product. These stages are not always neatly distinguishable ... invention and some verification may alternate rapidly until it finally takes shape ... [1963, p. 153]

Spearman [1931] thought creativity was displacing a relationship from one idea to another generating a further new correlative idea or a chain. Wertheimer [1945] felt the creative process was one long consistent line of thinking - when a whole solution is recaptured from a part. Vinacke [1952], critical of the theories that the creative process unfolds in a given sequence of stages, felt that the process consisted of a whole continuous series of incubations and illuminations, that it was a gradual, emerging process. Some saw the process as two large steps: a big idea stage involving the search for the new and exciting idea or something to discover; and then an elaboration stage where hard work develops and concretizes the idea, bringing it to realization.

Other Views of the Creative Process

Chance as Important in the Creative Process

How chance is woven into the creative process is illuminated by James Austin [1978] in his discussion of creativity.

> If you are completely candid with yourself, you will soon discover how much your discoveries hinge on contingencies ... To be fully creative you must respond positively to the risk and challenge of exploring new frontiers. [p. 63]
>
> Professor Houston Merritt use to say "Behold the turtle, he makes progress only when he sticks his neck out." [p. 63]
>
> Albert Pinkham Ryder said "Have your ever seen an inchworm crawl up a leaf or twig and there, clinging to the very end, revolve in the air feeling for something to reach? That's like me. I'm trying to find something out there beyond the place I have a footing." [p. 65]
>
> ... the investigator ... begins his journey not realizing its full implications ... In the risking he is most alert, most alive; in the seeking, he has found. He needs to take the chance ... his innate curiosity ... is insatiable ... involves a voyage of self-discovery. [p. 66]

There are four kinds of Chance involved:

Chance I: pure blind luck is completely accidental and completely impersonal.

Chance II: Motion is added.

> Keep on going and the chances are that you will stumble on something, perhaps when you are least expecting it. "I have never heard of anyone stumbling on something sitting down." [p. 72 Charles Kettering quote]
>
> "The dog that trots about finds a bone." says an old Spanish Gypsy proverb. ... the posture of creativity is forward-leaning. A certain basal level of action 'stirs up the pot,' brings random ideas that will collide and stick together in fresh combinations, lets chance operate. Motion yields a network of new experiences which like a sieve, filters best when in constant up-and-down, side-by-side movement. Consistent motion is what distinguishes Chance II; its premise is that unluck runs out if you persist ... The action is ill-defined, restless, driving ... It is ... the kinetic principle ... the Kettering Principle. [pp. 73-74] ...to evoke, Chance II, you will need a persistent curiosity about many things coupled with an energetic willingness to experiment and explore. [p. 77]

Chance III involves a special receptivity and discernment unique to the recipient.

> ... blind luck tiptoes in softly, dressed in camouflage ... Louis Pasteur characterized it for all time when he said: "Chance favors only the prepared mind." [pp. 73-75] To arrive at discernment involved in Chance III, you will need a sufficient background of sound knowledge plus special abilities in observing, remembering, recalling, and quickly forming new associations. [p. 77]

Chance IV favors the individualized action.

> Benjamin Disraeli said "we make our fortunes and call them fate."... we forget our own destiny ... to some degree. Chance IV comes to you, unsought, because of who you are and how you behave. It is one-man-made, as personal as

your signature ... it operates in an elliptical unorthodox manner ... the kind of personal behavior it requires - itself the key to the solution - lies hidden out of sight, unidentified, until the moment it is called into play ... links of Chance IV can be drawn together and fused only by one quixotic rider cantering on his own homemade hobby horse to intercept the problem at an odd angle ... it resists straight logic ... Chance IV favors those with distinctive, if not eccentric hobbies, personal life styles, and motor behaviors. The farther apart these personal activities are from the area under investigation, the more novel and unexpected the product of the encounter. Francis Bacon said "... it is a number of little and scarce discerned virtues, or rather faculties and customs, that make men fortunate." [pp. 75-77]

The Creative Process as Transformation.

Transformation is promoted as vital to the creative process applied to problem-solving. DeBono, Gordon, Prince, and many others include effective cognitive processes such as reversals, lateral thinking, contrasting, analogy and metaphor, transpositions, remote associations, and divergent thinking for problem-solving. Samples said about the creative process

> When the inventive qualities of the metamorphic mind are operative, all the formal and informal knowings of both the left and right cerebral hemispheres are engaged. Convergence, divergence, and non-vergence occur at once and none dominates. The mind gathers valid linearities and casts them into cyclic metamorphic thinking to seek out where they belong. They tumble and churn and, like magnets tossed into a whirlpool, gradually form patterns of meaning. [1976, p. 98]

The Creative Process as a Dialectic.

Many theorists do not conceive the process as a series of steps but in other ways such as, as a single process of rhythmic alteration, or a looping around, or switching between hemispheres of thought, or a dialectic. Barron writes

> In the sequence of related acts which taken together as a process result in the creation of something new, there occur consistently a rhythmic alternation and occasionally a genuine resolution or synthesis of certain common antinomies ... the dialectic leading at special moments to an unusual integration. [1964 , p. 81]

Ivey relates creativity to the Platonic dialectic and Hegel's thesis, antithesis, and synthesis as the creative process in psychotherapy and sees creativity as a process of framing and reframing and of gaining new perspectives.

> The short existence of a new synthesis may be considered analogous to the Platonic concept of epistome, or knowledge, and the movement toward truth represents noesis, or more elusive, changing truth ... Dialectics, which examines the confrontation of discrepancies and incongruencies, is a constantly moving creative process in which each synthesis leads to a new synthesis. [1986, pp. 185-187]

Rothenberg deals with Hegelian opposites and with the idea of synthesis in the creative process in quite a different and oppositional way. He suggests that the creative process involves integration rather than synthesis.

> Janusian thinking ... does not involve a synthesis ... it does involve simultaneity of opposites or anthitheses rather than sequence. The Hegelian formulation of synthesis is quite specific and clear: elements of the thesis and antithesis are combined to form another, presumably more valid, position. Such a combination brings about a reconciliation of opposites, because as the word reconciliation implies, opposing positions are brought into harmony with each other and conflicting aspects are resolved. ... Janusian thought may consist of positing a paradox which is intrinsically unresolvable, unreconcilable, and unsusceptible to synthesis. [1979, p. 256] ... opposites and antitheses are proposed as being simultaneously valid ... Being and Nothingness were essential and were irreducible in a meaningful ontology ... combining without reducing intrinsic quality is the essence of integration. In integration, elements retain their identity within a whole. [1979, p. 285]
>
> Fusing and superimposing because discrete entities ought to be together is a cardinal feature of the homospatial process. The creator ... willfully and intentionally brings them together ... Commonly, unexpected similarities are discovered after the specific homospatial conception. [1979, p. 291]

<u>The Creative Process as a Search in a Maze.</u>

Ehrenzweig says

> Undifferentiated perception can grasp in a single undivided act of comprehension data that to conscious perception would be incompatible ... let us ... pursue the smooth functioning of the creative ego and observe its fruitful alternation between differentiated and undifferentiated modes of functioning ... A creative search resembles a maze with many nodal points ... If we could map out the entire way ahead, no further search would be needed. As it is, the creative thinker has to make a decision about his route without having he full information needed for his choice. This dilemma belongs to the essence of creativity ... Each possible transformation opens up an unlimited number of new transformations, some fruitful, some ending in blind alleys ... [1967, pp. 35-37]

The Creative Process as a Structural Net

Rothenberg summarizes the creative process as both linear, but not straight-lined, and as a structural net.

> ... an inspiration is merely the stimulus for embarking on a process of discovering. Almost never does the creative artist know very much about the product he will eventually create ... the most crucial element will be discovered ... will be discovered during the process of creating. ... as he begins ... he discovers and develops the ramifications and the implications of the early ideas; then new ideas occur along the way that instigate new quests for discovery in their own right ... discoveries about the nature of experience and about the nature of the medium he is working with as well as discoveries about himself. [1979, p. 129]
>
> ... the creative process moves from disguise and disorder to illumination and order ... from personal preoccupation to generic and universal concerns ... it involves increasingly heightened states of consciousness and awareness ... [1979, p. 133]
>
> ... ordinary logical processes play a consistent and a crucial role. Deductive and and inductive logic, analogic, and dialectic thinking and other rationalizing processes enter into the overall construction of the creation and play some role in crystallizing creations into tangible forms.
>
> Much of the creative process consists of elaboration, execution, and the attempt to differentiate and to clarify through language, symbols, and tangible constructions. Much of creation arises from hard systematic labor, the drive to perfect an entity roughly produced. This aspect of the creative process derives from the creator's intense motivation to persist, to master reality, to discover ... The constant shaping, differentiating, and clarifying for the purpose of communication to others yields new discoveries to the creator himself. [1979, p. 134]

For Rothenberg, with an Aristotelian cast of mind, creative activity primarily involves secondary, conscious processes and results in improved adaptation to reality. The janusian process as the tension of simultaneously coexisting opposites and the homospacial superimposition of fused/not-fused discrete entities are built into the product. They have important functions in the linear aspects of the creative process and extend and enrich the concept of the creative process as structure.

> ... the homospatial process helps the creator to develop unities between abstract formulations and the world of concrete phenomena. Abstract ideas are translated into spatial or concrete terms, or spatial phenomena are fused to yield abstract ideas ... [1979, p. 368]
>
> In the process of creation, the progression from chaos ... to form a new and valuable entity, there initially is separation of specific elements and then a unification. in the overall sequence. Janusian thinking with its specification function bears the brunt of separating out specifics in the early phase. Next, homospatial thinking, through fusion and superimposition, effects a major

portion of the integrations and unifications. The janusian and homospatial process each also have both separating and unifying aspects; both operate independently and together as well as in somewhat different sequences. Symmetry and the encapsulation aspects of janusian formulations produce an aggregating effect that tends toward unification; the unifying function of the homospatial process serves to organize and thereby to give distinctness and boundaries to both portions and the whole created product. Boundaries and limits are also defined by the particular opposites and antitheses involved in janusian formulations ... the creative process in any field is best characterized in terms of bringing together and separating ... in many dimensions - affective, conceptual, perceptual, volitional, physical - at once. There is differentiation, diffusion, redifferentiation, connecting and unifying at every step of the way. All these functions produce entities that are independent and free from the initial chaos. [1979, p. 369]

Silvano Arieti's Sources of Originality

Arieti dealt with the problem of the source of originality and the paradox: if new, then the source cannot be determined. In his book Creativity. The Magic Synthesis [1976], Arieti isolated seven sources of originality and three modes of operation. He developed the idea of a Tertiary process as the process to synthesize the primary and secondary processes in the creative act. The seven sources of originality he distinguished are

1 - The Image re-evokes what is not present.

2 - Perception is a simplifying phenomenon that attempts to make us aware of a simple and stable picture of a very complex reality.

3 - The Endocept is a primitive organization of past experiences, perceptions, memory traces, and images of things and movements.

4 - Paleologic or Primary Thinking is a source of creativity. Paleologic thought does not follow Aristotelian logic, in which only like subjects are identified.

5 - The Primary Process is inexhaustible.

6 - The Secondary Process is a filter for creatibility.

7 - The Concept is a parsimonious device, inasmuch as it permits man to respond in similar ways to various facts that are included in the concept in question.

The three Modes of Operation for originality are

A) Originality by Contiguity:

The individual collects data and recognizes a lasting association between these data. The association is often based on contiguity in space or time. ... New concepts originate unexpectedly when apparently unrelated objects can be put into a new class by the discovery of a previously hidden attribute or predicate ... [p. 87]

Sense data experienced together, if they produced a single effect in the organism by the fact of being contiguous, tend to be reexperienced together ... when two mental processes have been active simultaneously or in immediate succession, the recurrence of one of them tends to elicit the recurrence of the other. The first mode abstracts unities and groups from the manifold of the universe ... and ... determines what is and what is not a unity. [p. 94]

B) Originality by Similarity:

The second mode is the mode of similarity ... by transfer... an acquired response is extended to similar situations ... and ... if two mental representations resemble each other - that is if they have one or more characteristics in common - the occurrence of one of them tends to elicit the occurrence of the other. The second mode abstracts the similar between different unities ... and .. identifies by discovering similarity, or identity, permitting class formation... [pp. 95-96]

C) Pars Pro Toto:

The third mode of operation is pars pro toto. The perception of a part has the effect upon the organism that is equivalent to that of the perception of the whole ... The third mode infers the not-given from the given ... The third mode abstracts (that is, infers) the not-given from the given; ... abstraction leads to symbolization." [p. 98]

"insight" happens because ... The identical elements stand for the total situation ... The few ideas that are associated by contiguity and similarity stand for whole constellations of ideas and tend to bring about the whole constellation ... A small cue may arouse a complex pattern. [pp. 97-98]

Irving Taylor - Creativity in Terms of Transaction and Hierarchy

Taylor with a quite Aristotelian cast of mind, describes the creative person as "being essentially transactive in the sense that his motivations which are autonomous are directed toward designing or shaping the external environment." [1975, p. 302]

He distinguishes three creativity styles:

Endogenous: ideas originate within, can initiate a creation but cannot develop it.
Epigenous creativity: creativity which expands on what has already been created.
Exogenous creativity: is manifest creativity in applying or utilizing developed ideas or products, creating upon external sources. [1975, p. 302]

Taylor distinguishes five transactional dispositions to creativity which have an hierarchial implication involving levels of processes:

1 - Expressive Creativity involves independent expression skills. "Originality and quality of the product is unimportant. It involves designing one's environment by spontaneously transforming problems at the somatic level into motor products stimulated by sensory inputs." [p. 318]

2 - Technical Creativity involves proficiency in creating products. "It is at the technical production level. Skill is emphasized It Involves designing a crafted product or outcome stimulated by resources such as good material or equipment..." [p. 318]

3 - Inventive Creativity is characterized by a display of ingenuity with materials. "It involves insight into new combinary relationships solving old problems in new ways. The creator acts as a mediator between externally defined needs and goals and adds little of himself in the product. Involves designing the environment by ingeniously transforming materials." [p. 318]

4 - Innovative Creativity is dependent upon ability to penetrate and understand basic principles. "It involves following established schools of thought." [p. 319]

5 - Emergent Creativity is the most complex form, involving the most abstract ideational principles. "It involves the assumptions underlying a body of art or science and results in a new paradigm. It is highly individualistic and generative. It involves through original transformation of basic assumptions into products in the form of a system in an ideationally stimulating environment." [1975, p. 319]

Models and Unified Theories of Creativity

Models are efforts to unify concepts, to create a larger frame encompassing the great divergency. A model does not have to strive to be complete and correct but to

provide a useful frame, map, point of perspective. Several such maps may evoke and illuminate ideas much as light directed alternately from different sources reveal an object newly. Models also serve to challenge the thinking adversarily. Piaget (1972) says

> "... I have always had in my head an adversary - that is, a school of thought whose ideas one considers to be wrong. Maybe one will do them injustice and deform them by taking them as adversary. But nonetheless, one's own ideas are always there as a contrast ... it serves a useful role for me." [1972, p. 222]

The adversary provided something to push against to define his thinking in the contrast. It was an essential element in his creative process. Jung and Adler and Rank all diverged from Freud adversarily. The several psychological schools of thought as models for psychology diverged centrifugally in opposition to each other, thereby each finding and defining its own unique paradigm in the polarization. This was particularly true for the humanists in their rejection of the psychoanalytical dogma.

The model in its failure to be structurally complete, expels data and ideas which do not fit. The data outside the boundaries of the model are the seeds for the crystallization of the next paradigm, the larger frame and model which can incorporate both the old model and all the new unexplained discoveries. Model-making for creativity revolves around the creative process. The incubation period and the experience of illumination provide the mystery and the challenge for the the model builders. Examples of several very different models follow.

George Land's General Systems Theory as Applied to the Creative Process.

Land [1973a,b] observes that there are two complementary laws which apply to parts of a whole: things go from order to disorder - toward deterioration and disintegration; and things go from disorder to order - evolving to a higher levels of order and complexity. The scientific method breaks things down into their component parts to study and analyze. The whole system is characterized by:

1) organization - interrelating connections between the various parts that affect each other;
2) having a boundary that sets it apart from its environment that is nevertheless somewhat permeable;
3) being synergistic - the whole system is more than the sum of its parts, not an additive sum, but a product, a multiplied compound effect of interacting, functional components.

Land compares six discrete functions of the creative process with six discrete functions of a biological whole system:

The Creative Process.....The Biological Process

1) Taking in information from the environment.....Taking nourishment.
2) Breaking it down and analyzing it.....Digestion
3) Reassembling it in a different configuration.....Assimilation
4) Evaluating the different ideas for best fit. .....Internal testing against genetic templates, evaluation
5) Taking action.....An action
6) Responding to the reaction of the environment to the activity.....Response to the environment

For effective growth these stages are accompanied

by memory.....storage
by discarding.....waste disposal

He says the system must go through stages, must receive positive feed forward as well as negative feedback with new intake from the environment. Whole systems must evolve or be extinguished. They must grow or die. All systems are related to one phenomena - growth, and all are guided by the same set of progressive internal forces. Growth is the process by which things have been connected with each other and operate at higher levels of organization and complexity.

Stage 1: A general system starts with a very high degree of polarity with great disorder and great order. There is a weaving back and forth between order and disorder until a pattern of order is found in the exploration that works to organize the disorder. Initial order, a pattern or identity, grows at the expense of disorder. Control and being controlled are natural and necessary.

Stage 2: The pattern is copied, either by connecting to or creating likenesses by replication. Rapid growth is possible since there is a pattern to follow. It will use up its environment, run out of materials. The relationship changes to influencing and being influenced and is adversarial.

Stage 3: The growing thing is forced to accommodate to differences in the environment in order to continue to grow. Relationships shift from influencing to mutual sharing because that is what works. The differences become shared and become a new sameness. The organism finds a new identity. The desire is for enrichment. Differences are appreciated.

Stage 4: This is the stage of transition to a new and higher form of development. The organism must relate to a new and broader environment which is, for it, a new disorder. A old paradigm dies and a new one is created.

While the cycle of growth is not linear but contains discontinuities from stage to stage and between cycles, we observe a simple and logical process where each stage naturally leads to the next. [1973b, p. 9]

Land's Model for Growth and Evolution as a Creative Process Model.

There are four different kinds of creativity related to the four different General Systems theory stages:

Stage 1: An idea or concept is enlarged upon or added to or some attribute is changed such as scale. Curiosity is the natural activity of the exploratory and acquisition stage searching for new information. Good feelings are generated with a sense of control.

Stage 2: Forms of patterns are modified but not the basic functioning. Divergent thinking (brainstorming) produces a large number of alternative solutions helping the organism to continue to fit with a changing evolving environment. Convergent judgment for best fit, viability, survival of the fittest, is the natural selection process.

Stage 3: High level combinations with other functional concepts are made by hybridization. This stage is characterized by synergy and requires innovation. Metaphorical, analytical, and morphological techniques force the combinations of ideas that are seemingly quite diverse. Appropriateness is critical. Diverse disciplines when brought into juxtaposition will cross-fertilize each other. The good feeling is less pure and more mixed as control and influencing power is diminished. Some parts must be relinquished in the mutual sharing stage. There is the stress of the separation and attachment vacillation.

Stage 4: The task is to invent, create, or recombine the old at a higher level relationship to the environment. This requires destructuring of what exists. The affect at this stage is one of discomfort because growth has been frustrated and blocked. There is a sense of loss in letting go of the known form and the fear in the need to risk the leap into the unknown, into disorder. The essential breaking of bonds, destructuring essential for new growth is painful and is a period of confusion with a feeling of disconnectedness. Yet breaking a bond may feel good as freeing. Making a bond, so pleasurable in stage 1, may feel restrictive with premature closing shutting off growth and alternative choices in stage 4. It is the stage where identity must be relinquished before a discovery or invention of a new order and identity is possible. The creative rebirth is always difficult and painful. This is a critical time. The feeling of discomfort, pain,

confusion, vulnerability may stop the growth and relegate the organism to the zone of quiet desperation behind the transition. It is the time of the agony and the ecstasy of the artist.

There is resistance at each stage shift. Land said

> Just as the process or ordering is complementary to that of disordering, and as both are necessary to each other, the many alternatives in uncertainty lead to its complement - the certainty that particular patterns of uncertainty will occur ... The certainty is that some seed will grow. [1973b, p. 18]

Some general relevant observations Land makes are

> Relative comfort and discomforts have to do with the phase of development. One can be very comfortable at stage one or two where dependence and support is the relation; one is either controlling or influencing or being controlled and influenced. The third stage of interdependency is more risky, less comfortable, but equally rewarding... The breadth of uncertainty has to do with the level of development. [p. 19]

> A person's behavior or personality may have parts operating at several different levels at the same time. Part may be operating in the control level of, for instance, ownership of clothes and home (1), and part in mutual sharing in family relations (3). Different behaviors and motivations operate at each level which explains paradoxical behaviors and varieties of motives. [p. 19]

> Relationships go through the same stages 1) sharing samenesses, 2) sharing likenesses, 3) reciprocal enrichment, sharing differences in mutuality. At this stage a person can relate across levels (mentor) and has the capacity to move the relationship to a higher level with change and growth in the relationship. Adler's 'will to power' is correct for stage 1 behavior. Rogers and Maslow ideas are correct for stage 3 sharing. The whole needs a growth framework. There are different growth needs at different levels. If stage progression is blocked, the process reverses and individual or system regresses to the next level below. If not sharing, then influencing. If not influencing, then it goes for control. [1973b, pp. 19-20]

Piaget and Ivey's Developmental Therapy Model as a Model for the Creative Process.

We are amnesic to stages we have passed through and beyond. The reality is forever changed. Yet we have incorporated the old stage within the new and therefore it is be potentially available to us. We have transcended the old but should therefore be in a position to operate upon it and even to recreate ourselves by changing what has co-created who we are. Ivey writes

> Perturbation, the engagement of discrepancies or incongruities, is a Piagetian construct that is regarded as necessary for growth. A system of knowledge must be perturbed, disturbed, or confronted ... if that system is to

change, grow, and develop.... Creativity may appear to occur alone and within one individual, but it ultimately involves a dialectic of some sort with the environment, even if that environment is an internalized part of the creator. [1986, p. 182]

The mechanism of creativity, and ultimately of stage transformation, is reflected in the simple model of person-environment interaction and the primary circular reaction. Creativity is not generated out of nothing; rather it is the synthesis of disparate parts into a new, whole, reflexive abstraction. [1986, p. 184]

A synthesis is a new gestalt that results from the reshuffling and reorganization of the "opposition" of thesis and antithesis. Something new has been created out of the formerly existing pieces. Ver Eecke describes the constant change and development in the dialectic as "existential movement.... the slide toward elusive truth." [1986, p. 188]

The Developmental Stage Models of Plato, Piaget, Land, Taylor, and Ivey Superimposed as a Creative Process Model

Although each model has a separate and distinct focus, the superimposition offers interesting parallels to stages in the creative process and enlarges the perspective in the reflection.

Stage 1 is the exploratory phase of the creative process. It is Plato's Images, Piaget's sensory motor and preoperational developmental stage, Ivey's therapeutic level of environmental structuring (behavior modification etc), I. Taylor's level of Expressive creativity (motor, sensory), and Land's assimilative and incorporative stage ... the formative stage. In conversation and relations it is an exploratory stage, a time of polarities, authorities; and awareness of separateness and self-centeredness.

Stage 2 is the preparatory, immersion stage of the creative process. It is Plato's Belief, Piaget's concrete operational stage, Ivey's therapeutic level of coaching, assertive training, Reality therapy, Taylor's Technical creativity, and Land's replication and accommodation stage.... appreciating similarities... the normative stage. In conversation and relations it is a time for distinct boundaries, of looking for similarities, and of influentiality.

Stage 3 parallels the incubation period and period of self-creation in the creative process. It is Plato's Abstract Thinking, Piaget's formal operational stage

involving pattern-finding and self-discovery, Ivey's therapeutic stage of consulting, Rogerian, Reframing, Taylor's Invention combinatory stage, and Land's cooperative, relational, social stage... appreciating differences ... the integrative stage. In conversation and relations it is a time of increasing empathy, weakening boundaries, affiliation, and sharing of ideas and feelings.

Between Stage 3 and 4 is the frustration phase just before illumination in the creative process. It is the transformation barrier, the transition from Plato's abstract thinking to knowledge. It is just where Piaget's late formal operational patterns of patterns are recognized. It is the transpersonal or existential crisis stage of meaning and purpose in therapy. It is Taylor's Innovative stage. It is Land's zone of quiet desperation before deconstruction. It may be a crisis stage in relationships.

Stage 4 is the illumination in the creative process which is transformative, an experience of interconnectedness, of new unity, of synthesis, an experience of co-creation and being created by the created, It is Plato's Dialectic and Knowledge, Piaget's late formal operations stage of thinking about thinking and finding patterns of patterns, Ivey's therapeutic level of Feminist, Family, and Lacanian therapy ... dialectic, Taylor's Emergent level requiring a new paradigm, and Land's transformative stage requiring deconstruction and restructuring and tranformation ... the transformative stage. In conversation and relations it is a time of the dialectic and the encounter towards evolving a new relationship. It is the interactively changing the other, giving up of cherished notions in new growth out of the dialectic.

Post Stage four in the creative process, the elaboration or testing hypothesis and the refining and polishing will repeat the stages several times before the finished product emerges or is launched where the created changes the creator... recycling again and again. It is Plato's slide to elusive truth, Intelligence (noesis). It is the return to the beginning to go through all the stages again at a transformed level.

George Land's General Systems Theory as a Model for a Meta-Model.

The first model emerges from the formative period. It is then made more substantial and structured as more relevant data and related discoveries are added enlarging the model in the second normative stage. In the third integrative stage the additive, linear development is transformed into a web-like structure of simultaneous interrelationships and interconnections. The fourth stage is the transformative stage and is a stage of crisis. The crisis is often precipitated by data from other fields only tangentially related, providing anomalous data and subsequent cross-fertilization of ideas creating the necessity for a new paradigm. The new paradigm must succeed in breaking the structure and the boundaries of the old paradigm to allow the new data in, or it must deconstruct the old and create, reconstruct a new model for a fit of all the old and new data and discoveries. Destructuring is always a crisis. The old is destroyed before any new organization is visible. There is a chasm to cross without a bridge and it is movement into the unknown by letting go the safety of the known. It is always a risk, a leap into the unknowable, a crisis of passage. It is the creative leap in science, in art, in therapy.

James Vargui's Model of the Creative Process as a Creative Field.

Vargui has conceived of a very different model for understanding the phenomena of creativity and its fundamental core. Whereas the previous models have concentrated on levels and stages, in a mostly linear mode, this model is based in a spatial and simultaneous mode, a creative field in which the creative process takes place. The creative act, Vargui says

> ... begins with conscious and purposeful manipulation of "cognitive elements," such as symbols, images, abstract concepts, etc., in an effort to combine them in a pattern having the desired properties. Yet ... as long as we use our habitual thinking mode, the solution does not appear. [1977, p. 2]

The solution appears as a flash, a fusion, a sudden appearance. Vargui describes the intangible as a mysterious principle "... acting simultaneously on all these elements, combines them in a pattern of meaningful harmony, great simplicity, and profound beauty." [1977, p. 2] The sense of simultaneousness suggests the key question to be answered. The answer is the foundation piece to Vargui's theory and model.

> We need to isolate the principle that can act on a large number of "substantial" elements, simultaneously and coherently, according to a single impulse, so as to combine and organize the elements into one coherent and meaningful pattern. Such a principle is an energy field. [1977, p. 2]

In the preparatory stage, the mental activity is like mechanically arranging the elements one by one without the influence of the creative field. The illumination is the sudden formation of the mental elements, like iron filings over a magnet, into the pattern of the creative field in a avalanching effect. The incubation period corresponds to the approach of the magnet after cognitive manipulation and control has been abandoned in frustration. Illumination comes as a surprise, as something new, because the creative energy field is out of awareness. The cognitive manipulation, though unsuccessful in achieving the gestalt, has never-the-less clumped the more important elements together by working on them longer, so that they collected more energy from the energy field when it became available. The nodal points having accumulated the greatest energy will have formed the boundary conditions of our original problem. They will have the greatest symmetry, and as seed crystals in a saturated solution, will be pivot points of the newly created pattern around which all elements form. The preparatory effort has provided seed material related to the problem, and material for the creative energy field to act upon. The pattern is the elegant solution.

There is an affective aspect of the creative process. The model can be expanded to include an emotional energy field which can also interact with the mental elements and be either in harmony - feelings of joy, elation, enthusiasm, sense of beauty, harmony, etc. or discordant - feelings of fear, anxiety, guilt, etc. with the creative field.

Feelings organize the mental elements into shapes that reverberate to their particular energy patterns and thus tend to produce a "channel," or path through which such negative emotional energy can flow and be dissipated. An emotional catharsis can be seen ... to be an explosive release of repressed, or stored energy.

When, instead, a sufficiently intense and stable harmonic relation exists between emotional and creative fields, the emotional field begins to resonate to the creative field, and therefore to act as a mirror. It reflects the energy of the creative field, and thus establishes between the two fields, a sort of standing wave of increasing intensity, in which most mental elements are immersed ... which then form a more highly tuned pattern, increasing even further the intensity of the standing wave and the positive quality of the emotional field. This can lead to a state of deep inner harmony, where feelings, mind and creative field are aligned with one another. It corresponds to those peaks of profound illumination that have been known to dramatically change a human being and his subsequent life. (p. 7-8)

The process can be conscious or unconscious.

What is the nature of the creative field? It can only be observed by the effects it produces. C.G. Jung stated that: "The psychological machinery which transmutes energy is the symbol." Roberto Assagioli says symbols are "accumulators, transformers, and conductors of psychological energies." [1977, p. 10]

In Vargui's model

A symbol is a pattern having a shape that reverberates to the creative field in a particular mode ... the symbolic pattern within our mind will absorb a portion of energy from the field, transform it, and let it flow to nearby mental elements and eventually to our feelings ... symbols have a transmuting ... and selective property ... and reveal ... the nature and quality of the creative field. [1977, p. 10]

Varela's Star* Model as a Model of the Creative Process.

Varela's [1976] model is not a model about creativity but, applied to creativity and model building, it provides an illuminating perspective. Varela uses the term Trinity to refer to

the contemplation of the ways in which pairs (poles, extremes, modes, sides) are related and yet remain distinct... The Trinity becomes a Star* statement about how to go from duality to Trinity.

The Trinity Star* is: The "it" "the slash /" "The process leading to it"

"(The slash "/" is to be read as "consider both sides of". Consider both the "it" and the "process leading to it" as a way of transiting to and fro.)"

The "it".....The slash .....The "process leading to it"

Any situation (domain, process,...../.....The corresponding process
entity, notion) which is holistic (constituents, generators,
(total, closed, complete, dynamic)
full, stable, self-contained).

For example:

being...../.....becoming
space...../.....time
context...../.....text
right intuitive ...../.....left logical
territory ...../.....map
simultaneous...../.....sequential
semantics...../.....syntax
analog...../.....digital

The dual elements become effectively complementary; they mutually specify each other. There is no more duality in the sense that they are effectively related; we can contemplate these dual pairs from a meta-level where they become a cognitive unity, a second order whole.

... this superation of duality is no synthesis, since there is really nothing "new," but just a more direct appraisal of how things are put together and related.

The basic form of these dualities is asymmetry: both forms extend across levels.

The nerve of logic behind this dialectics is self-reference: pairs of the form: it.../...processes leading to it.

Pairs of Hegelian opposites are in the same level, are symmetrical and stay in the same level as long as they are taken in opposition and contradiction. Their effective interactions are not (cannot be) specified.

Pairs of the form "Star*" bridge across one level, and this crossing is operational. They mutually specify each other. In natural systems nowhere do we find opposition apart from our own projections of values.

... the movement (across the Star* bridge) can move in both directions: upwards or downwards in the hierarchy ... evolution ... as time slow ... and de-volution ... as time fast. The key difference is time ... the component of an historical star*.

".. whenever a distinction is made between experience and description ... both sides belong to the most interesting Star*:

being - as sense-of-self, .../.....knowledge - description, nomological
or direct knowledge net, logical discourse.

Closely related to:
intuition...../.....rational
simultaneous...../.....sequential - piecemeal

John Wideman, in the context of psychotherapy, observes the great anxiety aroused with the threat or need for change. He suggests that

> we don't call it change because it poses a threat to one's integrity - that it is not okay to be who we are. We need continuity built in. .... the way to do this is to frame change with continuity, provide a thread from change to continuity. We have both a stable, non-changing aspect and a changing, fluid, flexible growing edge ... that are complementary and simultaneous and in equilibrium ... that one is still and the other is in movement and we are simultaneously both. Each aspect affects, changes, the other, changing the whole. (personal communication)

It is a Varela Star*. Creativity also involves change and Varela's Stars*.

Applying Varela's ideas to creativity, it is possible to make some interesting extensions. Varela said "It is out of the background of being that thought occurs, it is the archipelago of ideas in the giant sea of feeling and experience." [1976, p. 66] which, applied to creativity, is an apt metaphor for the unconscious mind enlivened by feeling and enriched by experience out of which ideas seem to emerge or erupt becoming island-like, as new territory to be explored, described, processed, found-out-about: the knowledge side of the Star*. The ideas emerge from the fertile ground and as figure for the focusing side of the Star*.

The creatively new emerges out of the dialectic, the spiraling helix of the interactive conversational domain weaving back and forth across the intuitive/logical, the simultaneous/sequential, the spatial/temporal, the territory/map, the context/text, the theorem/proof. Both knowledge and experiencing must evolve together. Experience gives knowledge in the processing; and the processing and collection of data, the drawing of distinctions prepares the ground for new experiencing, new perceptions. They are mutually dependent and dependent upon their interaction. The helix is cyclic. The figure returns to the ground to be dissembled, destructured, to make possible restructuring, metamorphism, or transformation into the creatively new when it emerges to be reworked, refined, polished, the new punctuation to be made clear, to be enriched and simplified, affecting and changing both the creator and his or her audience and environment and the affect returning to the being as new experience, feeling, enriched

ground from which new island-ideas may be born. It is the "transiting to and fro" across the slash sign in the Varela Star*. And it is moving both up and down the levels of Stars*.

The Hegelian dualities, Rothenberg's Janusian process, the contradictory pair in which each pole maintains its identity and the work is infused with the tension held, creating a kind of unity, fit into the stable side of the Star*. Rothenberg's idea of homospatiality, the superimposition of one concept, form, metaphor on top of another where each maintains its identity and also becomes fused or synthesized to something new, can be seen as either or both the stable side of the Star*, or the active vibrating, process side of the Star*, or perhaps both as spatially stable and active in tension and interactive tension. In the dialectic between the two forms they merge and separate at the same time crossing the slash sign to and fro to each side of the star. The Janusian process is also both stable as a unity and an active process as tension that enlivens.

Varela's Star*:

polarity...../.....tension (Janusian thinking)
fusion, assimilated...../.....maintained but alternating identity
(homospatial thinking)

Presenting another idea Varela says:

> ... there is an asymmetry between the consideration of <u>other's</u> minds and the consideration of my mind. Other's minds can be accounted for in some descriptive, nomological paradigm ... My mind is still a different affair which is not exhausted by that description; there is a residue left, a remnant that we may call the <u>experience</u> of the mind, the sense of self ... which evades any descriptive net. [1976]

The sense of self - that which will not fuse homospatially with its description, that which the description does not cover - is the unique, sensed, known but as yet uncreated, out of which the creatively new is born, is made known, verbalized, or given substance. The newly created is born out of the unrealized remnant and enlarged in the creative process.

The homospatial superimposition of a metaphor on a situation may be likened to Varela's "my mind" and "other's mind." There are remnants left out by the imperfect fit. The created product evolves to be a better realization, a better metaphor, a better fit, for the experience or the new idea; or as it utilizes the new organization, new pattern, or the new punctuation in the creation of a new figure out of the ground. It is out of the dissatisfaction, the imperfection of fit, that the effort for the better fit, the better understanding, the better analogy, or paradigm, or the better description is made and the new is created or found in the effort. And yet it is the residue, the imperfection of fit, of metaphor, of realization that provides the vital life and generative power for the work and in the work. The work is a node in the net... becomes nodal... bound in space and time... resists change.

The new arises out of the sense, the growing awareness in time, of the uniqueness of the undescribed self - biologically, environmentally, culturally, and historically unique. It arises out of conversation with itself and emerges in the effort to describe, to express the sense of uniqueness, to describe what hasn't been yet described (the "process leading to it"). Creating the work is also the creative experience as birth, emerging from some subterranean place or externally spiraled down from some mysterious external source, outside of knowledge but made evident in what is not known, the edge of the known, the frontier.

Out of the dialectic, something new is born, created, not predicted, not predictable ... because of the uniqueness of the encounter, the interaction between the participants: the experience and the knowledge; the being and the thinking. A new synthesis can be formed, or a new Star* evolving or by devolution destructing the old paradigm so that the new can be constructed ... exploding or imploding ... or breaking open the egg to find new life ... or the rock to see what has never been seen before.

Our gaze never takes in everything. There is always something beyond the focus, the awareness, the conscious, the ground of that which is not conscious, not seen, not

perceived. But focused, the gaze is linear, sequential, existing in time, and is on the process side of Varela's Star* but it is directed across the bridge to the stable state of the ground of being, scanning the vast sea, waiting for an island to emerge, the unseen to become visible...

Escher-like, what will emerge in metamorphosis is not known until it emerges. It can be read equally well in either direction. It is directionally symmetrical. The transition stage is where formlessness exists, where the chrysalis is neither caterpillar nor butterfly, where all is destructured - the nebulous cloud of the proto-solar system, or the void and chaos out of which the Judeo-Christian God created the Cosmos. It is ground, spatial, timeless, formless, directionless ... the end state of the devolution process. It is the Being state ... static, inactive, the still, unmoving center around which all revolves. Direction is undetermined.

But the center cannot hold. Balance can be maintained only in movement. A direction may be sensed. The cyclist takes off choosing, making the choice that excludes and breaks a trail that enlarges and deepens itself by use, reinforcing the choice made, the direction taken. There are nodal points, branching trails to be explored, where directional shifts can be made. But to go in a totally new direction it seems as if it is necessary to return to the pathless still point at the center where nothing is yet determined, choice is infinite, where there are no paths, and all exploration will be new. In reality there is no way back to the beginning. We make choices and chop out paths continually. We travel the net which has no beginning and no end but it has a multitude of nodal points from which we choose a direction, choosing a well worn path or bushwhacking to break a new trail, creating our lives. One does not become stuck in the void because there is no stillness in life.

The Hegelian duality is defined in the tension across the gap that the Gestaltic instinct desires to close. The tension becomes anxiety. Anxiety initiates a search for a way for closure. The Varela Star* is a way to reach closure and a way to root change in

continuity. The duality is incorporated as a unity, but it is self-referential and asymmetric. It bridges two levels and two states, one in motion and the other still. It is Hegel's thesis <--> antithesis <--> synthesis <--> breaking up to repeat. The parts have direction and so does the whole. There is movement through out.

And the paradigm will shift because there is fluidity across the slash signs, because the dialectic conversation between the "it" and the "process leading to it" changes both the "it" and the "process" informing and transforming both. The linear acts on the nonlinear, the experience on the knowing. The interacting continually creates the new evolving whole with new reality known and experienced, which becomes in its turn the stable side of a new Varela Star*. The process side repunctuates the whole, chunking out pieces, recombining, reworking. The movement back and forth across the slash, the bridge, and up and down the helix weaves a new reality. The system must oscillate, be in motion in order to reach and maintain stability. The earth-self cannot stand still. It ever turns and spins beneath the swinging pendulum.

The Creative Experience

The creative experience is the experience of the creator as he or she goes through the process if bringing something into being. Although the creative experience is all of the creative process it is the mysterious core of the creative process that is the focus and hub for the all the theorizing and model-making. The creative experience is brought into awareness at the moment of the creative insight or "A-Ha." It is an experience described through the centuries and across all fields of knowledge. Rollo May, incorporating some of what this paper has dealt with and much of the enticing, seductive challenge, describes the core of the creative experience.

> The moment of insight broke through, there was a special translucence that enveloped the world, and my vision was given a special clarity. I am convinced that this is the usual accompaniment of the breakthrough of unconscious experience into consciousness. Here is again part of the reason the experience scares us so much: the world both inwardly and outwardly, takes on

> an intensity that may be momentarily overwhelming. This is one aspect of what is called ecstasy - the uniting of unconscious experience with consciousness, a union that is not in abstracto, but a dynamic, immediate fusion ... an aspect ... of the experience is a sharpened perception, a vividness, a translucence of relationship to things around us. The world becomes vivid and unforgettable. Thus the breakthrough of material from the unconscious dimensions involves a heightening of sensory experience ... a state of heightened consciousness. Unconsciousness is the depth dimension of consciousness, and when it surges up into consciousness in this kind of polar struggle the result is an intensification of consciousness. It heightens not only true capacity to think, but also the sensory processes; and it certainly intensifies memory. [1975, pp. 64-65]

Poincare [1913, p. 36] said

> the creative experience is characterized by a suddenness of illumination, by an insight occurring against what has been clung to consciously in one's theories, by a vividness of the experience and its surroundings, and by a conciseness and brevity of the insight along with a feeling of immediate certainty. The experience requires prior hard work, a break or incubation period, and alteration between work and relaxation. The useful combinations that come through "are precisely the most beautiful.... only certain ones are harmonious, and, consequently, at once useful and beautiful. They will be capable of touching this special sensibility..." [1913, p. 36]

The creative act always involves a leap, a discontinuity, not connected stepwise to what preceded it even though it incorporates what went before. Einstein's physics was a leap from Newtonian physics creating a new paradigm not connected by addition or continuous steps, but which incorporated Newtonian physics within it. There is created space in the discontinuity which is not nothing but generative for the creative. It is the invisible out of which the visible can emerge, created. It is a metamorphoses, where all perceptions and concepts are irreversibly different. The reality is different.

The insight is experienced as an exhilarating creative breakthrough both original and valuable. It constitutes a new idea, a new vision, the forming of a new pattern of associations. It is the experience that something new has been created or achieved. It is accompanied by an emotion of joy, of a sense of certainty in its rightness, a knowing that it is precious, a sense of the mystery of not knowing the source. Yet experience precedes words used to describe it and will not last if words do not describe it. James G. Vargui summarizes the situation well when he says,

> Today we are learning a great deal *around* the creative process. We are finding out how to prepare for it, how to evoke it, how to utilize it. We know

what helps and what hinders it. Yet the central phenomena remains one of the mysteries of nature, just like the ultimate constitution of matter, or the ultimate nature of electricity. [1977, p. 1]

Is there a creatively fertile invisible ground or matrix as Vargui suggests out of which simultaneous ideas emerge and become visible? Is what is creative within the individual, within the matrix, or out of the interaction between the individual and the matrix, or common to some yet larger context? Arieti wrote

> ... it is in the essence of man that the root of creativity resides. This essence may be explained in terms of a complicated neurology susceptible of infinite combinations. It may be interpreted in Vico's terms, as the function of a finite center that tends toward infinity. Man alone is aware of his finitude and of the infinite; and of his need to cope with both. When he tries to decrease the unknown with his creativity, he remains surrounded by transcendence, mystery, and God's creation. He runs and runs toward an ultimate goal, which always escapes. [1976 p. 413]

The creative experience is as mysterious, ineffable and inexplicable as life itself. The Biologist is no less at a loss to explain what life is. Both are alive beyond what can be defined or explained. Although the definition of the creative product may not be agreed upon nor the creative process adequately described or understood, the "A-Ha" of the creative experience is experienced. It may not be possible to say just what or why or how it happened but it is always recognized. In the final analysis, all explanations fall short. We come full circle to the mysterious unknown and perhaps unknowable altered state of consciousness. Plato's ultimate explanation as "a gift from the Gods" may be as good as any.

A Few Final Comments

The creative experience focuses on the illumination that emerges from the mysterious process that goes on out of sight during incubation. The culmination of the Aristotelian naturalism for explanation comes out of the vast amount of research being done on the brain and its processes. The discoveries about human brain and the very different functions of the right and left brains may eventually illuminate what goes on in the brain during incubation and at the "A-Ha" moment. Can the moment of breakthrough

be the simultaneous firing of neurons in a new synthesized way? And if so can we find ways of causing this to happen? It is interesting to note when all is said and done, what creators say - how they describe their experience, even how they define creativity itself - still diverge in ways traceable to the several diverging lines of thought originating in Plato and Aristotle. It may be that the reason why these two men have been such a powerful influence in the western world is that each represents a half of the duality of man, of his rational, linear, temporal, causal, left brain and his intuitive, timeless, spatial, synchronous, simultaneous right brain. The duality may also play itself out in the duality of Eastern and Western thought, in the oppositional contrast between Eastern and Western religions, and in the dichotomy of attributed male and female traits. There always seems to be an unsuccessful struggle to synthesize and unify and we transit to and fro.

There does not seem to be a merging of thought about creativity even with the enormous quantity of research done. It is more that a network is being woven from the vast and diverse cross-disciplines which encompasses the divergencies. The contradictions are unresolved within schools of psychological thought, between diverse disciplines of knowledge or within the individual. It is janusian and homospatial. It is almost as if the very opposition of thought with the concomitant tension - compensatory vectors, is what holds the whole structure together. It is Hegel's thesis-antithesis synthesis, and Varela's Star*. It is Plato's dialectic. It is the evolutionary spiraling helix woven of multicolored strands that although intertwined remain distinct, so that nothing is ever lost. The new is continually added in the ever new. The spiraling helix, which returns again and again to the same place but each time as if for the first time.

> "We shall not cease from exploration
> And in the end of all our exploring
> Will be to arrive where we started
> And know the place for the first time."
>
> T. S. Eliot [1943, p. 39]

A Few Comments on the Literature Review Relevant to this Dissertation

It is important to note some of the curious juxtapositions of thought and major forces in the culture that interweave the history of thought about creativity discussed here. A powerful and profound influence on the western culture has been the Christian-Judeo belief system which has been overlaid on Platonic idealism and supernaturalism and Aristotelian naturalism and rationalism. A second more recent influence upon western culture is Eastern philosophical thought. The incongruencies and complexities among the four modes of thought and the incompatibility of the basic assumptions provide a fertile field for diversity of thought and controversy. Pertinent to this dissertation is not only how these several patterns of thought have affected ideas about creativity but also how they have impacted upon women.

It can be noted that the source of all the historical background of philosophical thought by the progenitors and their progeny and almost all of the researchers discussed in this chapter are male - mostly males over 40. The writing is addressed to a male audience. Furthermore, until very recently, all the subjects of study from which the theories are constructed and the results generalized to both genders are male. Does this bias cast doubt on the validity of the work? Does female thought fit the male mold? Is the female creative experience the same as the male's? Do the same theories fit? Would the theories be the same if the subjects of study were females and the researchers female? We simply do not know. It is only very recently that women have entered the field in very small numbers exploring some of these and related questions as researchers and as subjects.

Kohlberg's study from which he derived his theory of stages of moral development, developed from a sample of 84 boys and then generalized to both men and women, is not unlike many studies of creativity. Women were judged immature because they did not fit Kohlberg's theory rather than the theory being found inadequate.

Gilligan's relatively recent study [1982] challenged his conclusions by finding that the female equivocation is grounded in a different value system of care and interdependency, of empathetic connectedness. Judgment for women is not linear, separated, or objectified. Are there some similarly significant discoveries to be made about the differences between men and women in the field of creativity?

As background to the gender question addressed in this dissertation it is relevant to ask what has been said about the creativity of women by the progenitors and their progeny. Precious little. It does not seem as if Plato's, Aristotle's or Kant's thought encompassed women. Women seem to have been irrelevant. Yet there were female Greek gods - few in number but important. Curiously, the Greek gods are often born of men. It is interesting that Plato's Muse is female at least as preserved into modern times. Male artists often seem to be in a conflicted love relationship with their creative muse.

Galton studied only the male off-spring of the multitude of creative families he studied. The women did not have great creative achievements. Even if Mozart's reportedly more gifted sister had lived, she would not have been given the support needed for her great gift to unfold simply because she was female. Virginia Woolf in A Room of One's Own asks the provocative question 'What if Shakespeare had been a woman?' To read the plight of the Victorian woman is heart-rending. There is little doubt that a gifted woman had very little chance for the development of her creative potential and even less chance of achieving a recognized creative work before the latter part of this century. The culture effectively silenced the vast majority of women. As Tillie Olsen [1978] pointed out the handful of Victorian women writers were financially independent, almost all were unmarried, and if married, childless. Freud would have explained their creative work as compensation for being childless. It may be that not being subjugated to a husband nor being depended upon by needy children were the essential conditions.

Yet it is wondrous that in contemporary England where the female is still sorely discriminated against there is the powerful and repeatedly elected Margaret Thatcher. She is often attacked for her stands and actions but not because she is female. And it was England who had and have and supported the most powerful queens in the world. Why did England not insist on kings? In America, the land of freedom and equality, it will be many years before a woman will be elected to the presidency simply because she is female and not because she lacks the education, the ability, or because of her beliefs. She will not be supported even by women. The Black or Hispanic male despite the discrimination against him and his numerical minority has a much greater chance of reaching the presidency, perhaps within a generation.

Virginia Woolf's theme that a woman lacks a room of her own plays itself out in the American house. How many houses across America have a den or a study for the man but none for the woman? The woman is to have the rest of the house, rooms always to be shared, rooms always making demands on her both physically and psychologically. It is attested to repeatedly in the literature that creative work demands solitude and protected time. The American woman has no room of her own with her solitude inviolate or her presence there honored and served.

Freud believed that the woman's only creative ability was in producing children - a creative process not exactly under the power and control or often even the choice of a woman. Freud in discussing the motivating force for creativity said

> The motivating wishes ... fall naturally into two main groups... In young women the erotic wishes predominate almost exclusively, for their ambition is as a rule absorbed by erotic trends. In young men egoistic and ambitious wishes come to the fore clearly enough alongside of erotic ones. [Freud 1908, p.150]

Freud did not mention creatively raising children to be creative individuals. Creative parenting when done by a woman still remains largely unacknowledged though many

creative men acknowledge the value and importance of the influence of their mother without a similar acknowledgement of their male parent. Jung granted complete creation to man, seeds to a woman.

> A man brings forth his work as a complete creation out of his inner feminine nature ... The inner masculine side of a woman brings forth creative seeds which have the power to fertilize the feminine side of man. [Jung, 1934, p.209]

Although Harry Lee [1940] does not mention women, it is hard to believe that he was acknowledging the female artist or would say that she created because

> In phantasy, (she) has attacked the thwarter (the mother) whom (she) hates, whose love (she) urgently needs, and whom (she) now possesses, but only intrapsychically, and in damaged form...(she must) make reparations ... (for her) guilt over (her) ... hostility toward and impulse to attack ... the maternal reproductive function, or some member thereof... [Lee, 1940, p. 290]

Of the two hundred or so male writers referred to in this chapter, Rollo May is unique for his inclusion of the female pronoun in his writing.

It is interesting that in the creation story God created man out of nothing (not the Aristotelian declaration the everything is made from something) and that woman is made from the rib of the man ignoring Aristotelian naturalism that in fact both men and women are born of women, not ribs. God, the Creator, made man in His own image and thus, of course, creative; and God, therefore, is male and He made woman as an after-thought as a companion for man (not in God's image and perhaps, therefore, not creative?). Man was given dominion over all creatures including, of course, women. Yet it is woman who gave man the apple of the tree of knowledge - what a gift! Man has labored mightily to maintain his dominion and to discover the secrets of the Aristotelian natural world. It is not a very far leap to the thought that man made God in his own image to serve his purposes for power and dominion? Man killed nine million women as witches in the middle ages. Of what was he so afraid? One wonders how the Western world survived or how the little children left motherless grew to adulthood in that very brutal world?

The male Jewish prayer that starts "Thank God I was not born a woman" has had and still must have a profound effect on the culture as well as on both the female and the male child in the Jewish family. And what of the wife? How does she define herself? How does the husband look at his wife? As an inferior being? Someone to be ignored and neglected with impuny? With compassion and pity? How does he come to terms with his dependency on his mother and his wife? However he comes to terms with his daily prayer and declaration of his superiority, the impact is immeasurable. It is fascinating to observe that Jewish women anomalously are powerful women and do not appear to suffer from lack of self-confidence or a feeling of inferiority. Those few women who have made it to the upper ranks in every profession are most often Jewish despite the social and religious discrimination and being a numerical minority. She is powerful in her home, in the market place and has made it into the upper ranks of the creatives. How does this happen? And how does it happen that Israel elected and revered a Golda Mier as their head of state?

In contrast the native-born highly educated woman from the privileged white protestant majority is all too often meek and mild, the southern belle, the suburban housewife, the gracious host entertaining and promoting her husband's promotion and success in his profession. If she works or has a profession she will have chosen from the traditional approved fields such as teaching in secondary schools, nursing, or the other helping professions. In the business world she is most often the trusted efficient secretary who makes her boss's career succeed or if gifted she has reached a middle management position where it is likely she has fitted herself into a small secure nitch where she has become so competent and made herself so essential that she will never be promoted. She is rarely powerful in her home or in the market place. She rarely reaches the higher ranks of the creatives in any field even though she may in contemporary America have the time, the space, the education, the economic security, and the creative potential.

It is interesting to ponder Eastern thought about gender especially as it is filtering into the Western world as a powerful influence. The feminine is yin - as darkness, mysterious, passive, receptive, non-acting, non-agency, the moon shining by reflected light . The masculine is yang - as agency, as active, as light, as sun shining by its own power. The Eastern culture values both the yin and the yang as equal, inseparable, and essential for the whole. Darkness reveals the stars. When Eastern thought is imported into the Western culture the yin becomes translated from the feminine to the woman and she is then defined as weak, inferior, and passive. The yang becomes man who is then defined as strong, superior, and active. The stance that the female is inferior, perhaps even weak and/or evil as in the creation story is reinforced.

It is striking that Indera Ghandi in India becomes head of state and is honored, revered, followed by men, and respected by the outside world and different cultures. And recently a 36 year old woman, Benazir Bhutto, was elected to the head of her government in Pakistan. It is striking and curious that in countries in Africa where women are often brutally subjugated with no equality within the home, the woman can be powerful and successful in the market place and business world where she is often collegial with men.

Perhaps 95% of published work is authored by men. The dedication page is almost invariably dedicated to a woman "without whose help and loving attendance the work could not have been produced." That will be, however, the last and only reference made to her. No matter how important her ideas and contribution may have been, the work belongs to the male. Levinson [1979] observes in his study of the life cycle of men that there is always a mentor and a 'special woman'. Jean Bolen [1984] points out that women have always been the supporter and the carrier of the dream for men but that the women have seldom had a carrier for their dream or support for their achieving. Surely this has suppressed and discouraged women from creative achievement.

It is apparent that every achieving person has had sufficient support from the family, the school, the community, and society in ways essential. That support is more readily available for the male youth even in the classroom where the male is responded to first by the teacher and later by professors, and his ideas are given thoughtful attention and affirmation as he struggles to reach the verbal fluency of his female counterpart. The female verbal fluency is discounted as chattering and her ideas negated as thinking like a woman. The erosive effect of the overt and covert discrimination and discounting on the female psyche is profound.

There are a multitude of conditions and influences that go a long way toward explaining the enormous gender difference in the production of creative work. But are they sufficient to explain the discrepancy? Are there some missing pieces? In America there are many gifted women who have been given every opportunity, especially if they had no brother, to achieve and yet has not. Somewhere along the line she has made choices, has chosen not to develop her creative potential, not to create the great work, not to enter the market with her product, not to go for fame and recognition and monetary gain, not to reach and push back the frontier of knowledge. Why?

CHAPTER 3

METHODOLOGY AND PROCEDURES OF THE RESEARCH

The Questionnaire

The primary tool used for collecting the research data is a three-part questionnaire. The questionnaire begins with a request for personal statistics and biographical material. These questions include individual statistics such as age, gender, occupation or profession, educational level, marital status, etc. and questions about family of origin, early experiences within the family, school system, about mentors and role models, and about major events or situations. There are several reasons for including questions about the individual's background. Relevant to the results of the research is the character and bias of the sample. The biographical material provides the needed background for the findings. Secondly, personal statistics make it possible to divide the sample into sub-categories for analysis of variables such as age, gender, occupation, etc. for comparison within the sample itself and for comparison with recognized creatives. Thirdly there is evidence from the research that there is a connection between creative expression and biography. It was thought that the juxtaposition of thinking about one's personal history and one's creative experience, increasing awareness of the relationship, would be evocative and insightful for the respondents.

The central and core section of the questionnaire is concerned with the nature of the creative experience. The first few introductory questions are intended to help the respondent focus his or her thinking about creativity in subjective, personal terms. One of the first decisions made was not to define creativity but to let each respondent respond as to what creativity means to him or her without imposing another's definition. There is much disagreement among researchers and writers in the field as to the definition of creativity and what constitutes creativity. The choice of a definition would influence and

prejudice the answers of the respondents by directing their thinking and by restricting their freedom to respond. It was thought that in the respondent's definitions alone, significant differences might be found toward answering the question about the gender difference, for instance, relative to the production of a product. Since definitions of creativity are historically male, to impose a male definition on women respondents might cut off how women might define creativity from a uniquely feminine perspective; or it might impose a definition that may suit recognized creatives but not those not recognized as creative who may need to respond from their own private and perhaps different thinking about creativity and creative experiences. Or the effect might be to prevent access to what may be a clue to differences between recognized creatives and the respondents. Therefore creativity is not defined and the first question, "What does creativity mean to you?" was chosen as an open and unrestricted question. For similar reasons the creative experience is not defined. What is to be considered the creative experience for this dissertation is to be encompassed by the questions on the questionnaire.

The next group of the introductory questions is about the areas in which the respondents feel they are creative. These questions are meant to elicit responses related to and probably elaborating upon or illustrating the response to the first question. These questions serve to further focus the respondent's thinking in preparation for answering the experiential questions that follow.

The experiential questions are organized more or less sequentially from before the inception of the idea through the process itself. The questions and their multitude of distractors are gleaned from the literature and from a variety of self-reports by creatives. The sequence is divided into small segments of experience to facilitate analysis both by the respondent and by the investigator. The first few questions focus on the part of the creative process which concern getting the idea, facilitating the birth of the creative idea, and the experience before and after getting the idea (Figs. 26-30).

The next four questions ask about the form of the idea (Figs. 31-32) and ask about the experience during creative work (Figs. 33-34). The next several questions ask about environmental needs, how external conditions affect creativity and the creative experience, and blocks and obstacles to creative activity (Figs. 35-38). Several questions ask about mind styles and personal patterns relating to creativity and creative activity, creative style and emotional reactions to creative activity (Figs. 39-42). The final questions ask about the enjoyment of and/or difficulty with different stages of the creative process, motivations, goals, how the respondent views creativity in his or herself and in others, and attitudes relative to personal responsibility and/or contribution to society (Figs. 39-46). The third section of the questionnaire asks questions about the experience of responding to the questionnaire (Fig. 47).

Descriptive Analysis of the Sample of the Respondents

The figures relating to each category of discussion, collected at the end of the chapter, display in chart form the pertinent data in percent of the respondents who fit into or choose a particular sub-category. In each figure the top chart displays the percent of the respondents in each sub-category for the three age groups: Y/3, M/3, O/3. The middle chart displays the pattern of responses in percent of the responses of women (F), men (M), and the total (T). The bottom chart displays the pattern of responses for each group divided by both age and gender: Younger Females (YF), Older Females (OF), Younger Males (YM), Older Males (OM), Youngest Women (Y/3F), the Middle Group of Women M/3F, and the Oldest Women (O/3F) in percent of the total of each sub-group. The lines between the data points are tie lines for each group and have no additional significance. The divergence of the lines is a visual display of the differences among the groups. Where appropriate, a chi square analysis is made as a measure of the significance of the divergence.

Age and Gender

The sample consists of 25 male and 78 female respondents. The age distribution ranges from 13 to 76 (plus one female at 82 who partially participated). Fig. 1 presents the proportional distribution by decade divisions. The mean age is 43. The mode is 40. Dividing the sample by both age (younger than 40, 40 and older) and by gender yields four groups: 39 younger women with an average age of 30; 39 older women with an average age of 54; 12 younger men with an average age of 32; 13 older men with an average age of 56. There are thus 51 in the younger group and 52 in the older group. Dividing the sample into three parts, there are: 33 respondents (26F and 7M) between 13-33 with an average age of 27; 35 respondents (27F and 8M) between 34-49 with an average age of 40; 35 respondents (25F and 10M) between 50-76 with an average age of 60.

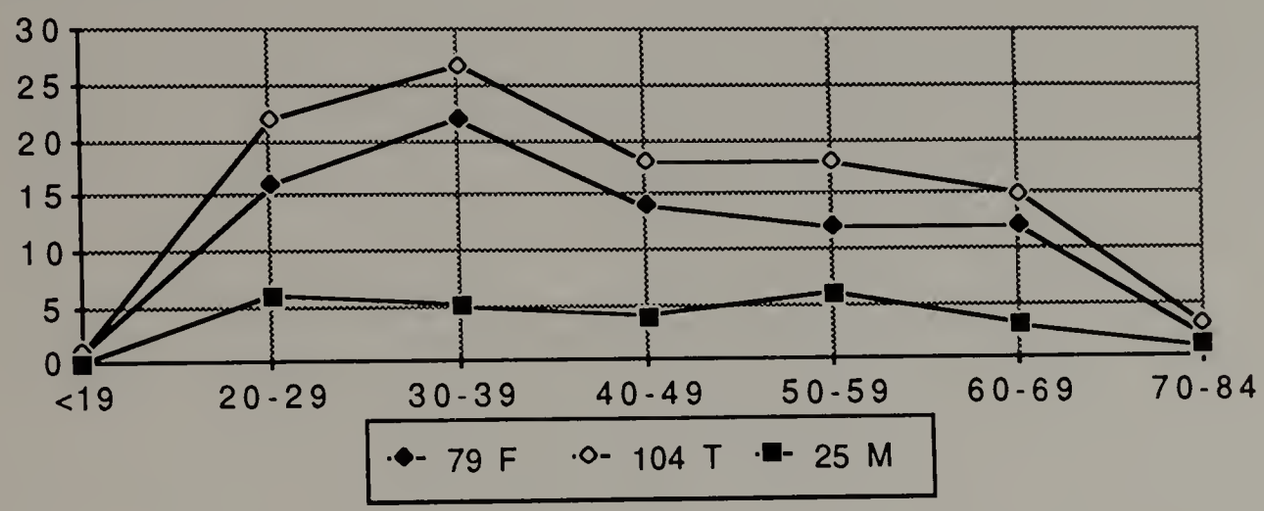


Fig. 1 The Age Distribution of the Sample of Respondents

Occupation

Seven occupational or professional categories are distinguished: 31% of the respondents are in secondary school teaching, 8% are college professors, 19% are administrators (two thirds are educational administrators), 11% are in business, 15% are in the helping professions (psychotherapy, counseling, and nursing), 11% in the

arts (writing, crafts, fine arts, music, theater etc.), and 6% are homemakers. The percent distribution of the respondents in the various groups sorted by age and gender are summarized in Figure 2. A significantly higher percent of the youngest group are secondary school teachers (64%), - a higher percent of the youngest women than younger men (65% to 42%). The youngest respondents are represented only sparsely in five of the other occupational categories. The occupations of the middle group of respondents are primarily administration (34%) - most are from the middle group of women; the helping professions (26%) - a somewhat higher percent of women than men; and some form of teaching (29%). The occupations of the oldest group are rather evenly divided among the seven occupational groups. However none of the older men are secondary school teachers and all of the older men who teach are college professors (38%). The occupations of the oldest women are most frequently in the arts (24%) and homemaking (20%).

In many instances there is a dual nature to the occupational categories. There are teachers who also do administration and teachers who also write or are active in a form of the arts. Two-thirds of the administration category still teach or have come from being teachers. All of the homemakers include the practice of some sort of artistic pursuit such as art, a craft, or in the interior design area as an avocation or work as volunteers in community organizations. Art and nursing are often combined with therapy. Business also sometimes includes involvement with the arts or with counseling.

Educational Level

Fig. 3 graphically presents the cumulative educational profile of the respondents. It is not surprising that a smaller percent of the youngest respondents have achieved each educational level, but it is perhaps unexpected that a higher percent of the middle group has achieved a higher level of each educational level except the

doctorate than all other groups. The age and gender division reveals that the older men are the highest achievers with the middle third of the woman as closely second. A much smaller percent of the youngest women have achieved each educational level than all others including their male counterpart.

Fig. 4 graphically presents the cumulative educational profile of the mothers of the respondents. Overall the educational level of the mothers is considerably lower than that of their children and of their husbands. The educational level of the mothers of the youngest respondents is highest at each level, and lowest for mothers of the oldest respondents. There is an age correlation at every level reflecting the increase over time in opportunity for higher education for women. There are no gender differences.

Fig. 5 graphically presents the cumulative educational profile of the fathers of the respondents. Again the overall educational level of the fathers is considerably lower than that of their children but is considerable higher than the educational level of the mothers of the respondents. The educational level of the fathers of the oldest respondents is the lowest for all levels but the educational level of the fathers of the middle and youngest respondents is more similar. The age correspondence is not as exact as it was for the mother's educational levels. It is interesting and perhaps curious that the fathers of the younger men achieved significantly higher educational levels than the fathers of other groups.

Religious Orientation

Fig. 6 charts the religious orientation of the various groups of respondents in the past and in the present. It is interesting to note, reflecting a changing culture, that there is an almost equal decrease in all religious categories from the past to the present. The Protestant group decreased from 56% to 39%, the Catholics from 30% to 15%, the Jewish from 9% to 4%. The number of respondents who have no religious affiliation rose from 4% to 22%. It is also interesting that a higher percent of the oldest

respondents than the youngest respondents are Protestant and a higher percent of the youngest respondents are Catholic in both the past and present. It could be speculated that this is an effect of the changing immigration pattern from the more Protestant countries in the far past to the more Catholic countries in the more recent past.

Among the Catholics the number of the older men who were Catholic dropped from almost 40% to none in the present yet in contrast the smallest Catholic decrease is among the oldest women (20% to 13%). The decrease in the Protestant affiliation is greatest among the youngest women (40% to 17%) and the smallest among the men (about 56% to 48%). A higher percent of the middle group of women than those in other groups identify a spiritual or alternative religious focus from the past to the present (0% to 30%). More of the men report no religious affiliation in greatest contrast with the middle group of women (32% to 4%).

Marital and Parental Status

Not unexpectedly a smaller percent of the youngest group of respondents are married (42%) and of those only 21% have children. Not unexpectedly a larger percent of the oldest group are married (62%) and 86% have children and have more children than the younger respondents. None have only one child. The respondents in the middle group are most likely to have two children reflecting the cultural change in family size. In this sample 92% of the older men are married compared to only 51% of the older women. A higher percent of the older women are divorced, widowed, or not married. It may be noted that in this sample 80% of the men are married, 60% with children, compared to only 49% of the women who are married, 57% with children (Fig 7).

Siblings and Birth Order

Fig. 8 plots the family size of the respondents and birth order of respondents. The family size of the youngest respondents is largest reflecting the baby-boom of the post-war years. More of the younger men come from families of 4 or 5 children with the greatest contrast with the older men (50% to 15%) and the smallest percent come from families with two children (8%). The smaller family size of the middle group of respondents is most commonly two reflecting the family pattern of the late years of the depression, WW II and early post war years. Almost 70% of the older men are only children or have only one sibling. Thus in this sample 62% of the older men are only children or first born with the greatest contrast with the oldest women (36%). There is evidence in the research that first born and only children tend to be high achievers correlating with highest educational level achievement among the older men (Fig. 3). A higher percent of the youngest group are middle children (41% compared to 20% of the middle group or only 15% of the older men). How these statistics bias the sample is not obvious.

Ethnic or Cultural Heritage

About a half of the respondents have an English, or Scottish, or Welsh heritage, 29% Irish heritage, about 33% have a German, Dutch heritage or Scandinavian heritage, and 14% French or Swiss. About 9% are Jewish, 4% Afro American, and 3% Hispanic or Asian. The shift in immigration patterns is somewhat reflected in the chart with more of the older than the younger respondents of English and Scotch heritage (59% to 42%). The pattern also probably reflects the New England area where most of the respondents live (Fig. 9).

Relationship with Parents

Fig. 10 displays how the respondents report their relationship with their mother. It can be observed that the relationship with the mother improved for all

groups from the past to the present. It is interesting and perhaps curious that there is no difference in the percent of the three categories of relationship in the past and the present that varies with gender. It is also of interest to note that the smallest percent of the middle group of women had good relationships with their mother in the past and in the present. It can be noted that in Fig.11 that a smaller percent of the middle group of women visit their mother and less often compared to other groups of women perhaps because the middle group of women are struggling to find their own way perhaps with a career and are parenting their own children in their own nuclear family geographically removed. The highest percent of the middle group of women feel that they are fulfilling their mother's goals.

The youngest women have the best relationship with their mother in the present (90% good), and have the most frequent contact with them compared to all other groups (100% visit more than once per year, 79% once a month or more). The smallest percent of the youngest women are married or have families of their own. The oldest women also reflect a good and a stable relationship with their mothers and maintain close and fairly frequent contact with those who are alive (93% more than once a year, 50% once a month or more). The men also had and have good relationships with their mother stable over time but they do not maintain as frequent a contact (44% more than once per year, 17% once a month or more).

Figs. 12 and 13 reveal a somewhat different pattern of relationships with the father. Overall the relationship is less positive with only 52% reporting good relations in the past and present compared to 64% and 78% for good relationships with the mother. There is also a higher percent of the mixed and bad relationships in both the past and present. There is greater variation among the younger and older, and male and female in the relationship with the father. The relationship improved for a higher percent of the oldest and youngest respondents but deteriorated for the middle group. The youngest women had and have the best relationship with their fathers and the

smallest percent who have conflicted relations. A smaller percent of the older men had good relationship with their father and the most bad in the past. The younger men have the worst relationships with their father in the present (20% good) and feel the most ambivalent (80% good and bad). The smallest percent of the middle group have a good relationship in the present and the highest percent have a good and bad and bad relationship. A higher percent of men had a bad relationship in the past and are the most ambivalent in the present.

A higher percent of women maintain closer ties with their father than do the men - 81% more than once a year, 48% once a month or more compared to 20% of the men who visit their father more than once a year, 10% once a month or more. A smaller percent of the middle group of women keep a close contact with their father than with their mother and a smaller percent than women in other groups - 58% more than once a year, 17% once a month or more. A higher percent of the youngest women compared to the oldest women (31% to 13%) feel that they are fulfilling their father's goals. These observations support Gilligan's thesis [1982] that women are more relational than men.

Significant Influences and Crucial Events

Fig. 14 charts the contrasts among the age and gender groups of significant influences and crucial events. About 74% of the respondents say that their mother was the most significant influence on their lives. About 29% say their father was a significant influence and 41% said some other family member was influential. It is interesting to note that the mother was the most important influence for more of the men than the women (83% to 70%) with the greatest contrast between the older men and the oldest women (85% to 67%). In reverse the father was important to 33% of the women and only 17% of the men with the greatest contrast between the oldest women and the older men (43% to 15%). Other family members were important influences for a higher percent of the older women and least for the younger women (50% to 30%)

probably a reflection the smaller nuclear family and increased mobility of our society resulting in separation of extended family groups. All of the oldest respondents had positive teachers and only 37% had negative teachers, and they remembered more good crucial events (75%) and remembered fewer bad crucial events (32%) than those in other groups. The youngest respondents remembered fewer good events (47%) and more bad crucial events (71%). Eighty-seven percent of the middle group of respondents had positive teachers, 64% negative teachers.

Childhood and the Educational Experience - School

Childhood is remembered as happy by 69% of the respondents, especially older women contrasting most with younger women (93% to 51%). About 59% of the respondents described themselves as shy and 44% as social with the greatest contrast between older and younger women (76% to 46%). About a 30% felt isolated and 28% were lonely as children. The greatest differences are: a higher percent of the older men than the younger men felt isolated (38% to 17%); and a higher percent of the older women than younger women remember childhood as happy (69% to 49%) (Fig. 15).

About 84% of the respondents found some aspect of their schooling exciting, challenging and expansive with the greatest contrast between the older men and the oldest women (100% to 72%). About 80% said school was fun and easy - more of the older than the younger men (100% to 67%). A higher percent of the men said it was also often hard work (86% to 54%) with the greatest contrast with the middle group of women (45%). A higher percent of the youngest respondents remember school as scary (56%) and stifling (54%) than the oldest respondents (20% and 23%). The smallest percent of older women report that school was scary, stifling, or exciting and challenging. Sixty percent of the youngest women found school scary and 67% of the younger men found school stifling.

Summary of Characteristic Differences by Age and Gender in the Biography:

It seems likely that the biographical background of the respondents may be relevant and related to their creative experience. A brief summary profile of each group is presented to provide a background frame for the data on the creative experience reported in the next chapter. Although the profiles focus on the differences among the groups in order to distinctly characterize each group it is also interesting to note the remarkable similarities in percents in many of the sub-categories.

The youngest group consists of those respondents younger than 34 and is made up of 26 women and 7 men. The average age is 27. Most of these respondents were born in the late 1950s and early 1960s reaching maturity in the late 1970s and 1980s. Almost two thirds of this group are secondary school teachers. As a group the educational level is the lowest of all groups and the educational level of their parents is the highest of all groups. Their fathers have achieved a higher educational level than their mothers. Compared to other groups a smaller percent are from a Protestant and a larger percent from a Catholic background. Only 42% are married and only 21% have children. The smallest percent of any group are involved in parenting. A higher percent come from larger families reflecting the baby boom following WW II. There are less only children and first born children among this group and the group has the greatest number of middle children (41%). Present relationships with their mother is better over all for this group than any other group. The respondents in this group report a lower percent of good (47%) and a higher percent of bad crucial events (71%).

The youngest women differ somewhat from the younger men. A higher percent of the youngest women are secondary school teachers (65% to 42%). A higher percent of the youngest women from Protestant backgrounds no longer consider themselves Protestant. About 42% of the youngest women are married, 23% with children, compared to (66%) of the younger men 50% with children. A higher percent of the youngest women have good relations with both parents than any other group and all of

them visit them more than once a year. The highest percent of younger women describe their school experience as scary and cite the greatest number of bad crucial events (75%) and least number of good crucial events (40%). This perhaps reflects the difficulties and conflicts involved when younger women tried to reject the traditional feminine roles to reach for equality of opportunity which seemed tantalizingly more available to the post-war generation. This generation had to come to terms with the realization of the many disadvantages of being born female into a society that no longer supported even the traditional female roles.

The younger men as a group have achieved a higher educational level than their female counterpart and have fathers who have achieved a much higher education level than the fathers of the youngest women. Forty-two percent are secondary school teachers, 25% are in business - the highest percent, and 18% are in the arts. None are professors, in the helping professions, or homemakers. Two-thirds are married or remarried and about 50% have one or two children. None have three. About 60% of the younger men come from families of 4 or more children. Eighty-five percent come from families with three or more children and about 40% are only or first born children. A smaller percent of the younger men have a good relationship with their father than any other group and the highest percent report a conflicted and ambivalent relationship. Only 40% visit their mother more than once a year and only 33% see their father more than once a year. A higher percent than in the other groups had a brother who was a significant influence. A higher percent of the younger men reported negative experiences with teachers and a higher percent than in the other groups reported school as hard work and stifling (89%, 67%) and the smallest percent said school was fun or easy.

The middle group consists of those respondents age 34-49 and is made up of 27 women and 8 men. The average age is 40. Most of the members of this group were born in the late 1930s to the early 1950s and reached maturity in the 1960s and early

1970s. The occupations of the members of this group are primarily administration (34%), teaching 29%, and psychotherapy (26%). As a group they have achieved the highest educational level of all groups at every level except the doctorate. About 60% are married and most have two children. They are most likely to have come from a family of two children reflecting both the family size of the depression and war years and the more recent trend toward smaller families after the baby-boom years. The smallest percent had good relationships with their mothers in the past and the highest percent of good and bad both in the past and the present. The smallest percent have good relationships with their father in the present and have the highest percent of good and bad, and bad relations. It is possible that the relationships with parents is more strained for this group because during their maturing years the family in the society was less stable with the smaller nuclear families and a higher divorce rate, and because there seemed to be a greater economic opportunity for women to work taking the mothers out of the home or making those mothers who remained in the home discontent. A higher percent of the group than those in any other groups had negative experiences with teachers. The members of this group report an equal number of good and bad crucial events.

The group of women in the middle group have achieved the highest education level of any group except the group of older men. A higher percent than any other group (26%) have turned toward eastern or a non-traditional spiritual practice. Almost 50% percent are not married. They contact their parents less frequently than women in other groups. More of them feel that they are fulfilling their mother's goals supporting the speculation that their mothers, having tasted the freedom and opportunity for women during the war only to see it vanish with the peace, were restless and discontent during the respondent's childhood years. More than 40% describe their childhood as lonely and said they felt isolated. The smallest percent described their childhood as happy. They were least apt to describe school as hard work.

The oldest group consists of respondents older than 50 and is made up of 25 women and 10 men. The average age of the group is 60. The members of this group were born during the first third of this century. Most were born in the 1920s and 1930s and reached maturity during the great depression or during WW II. The occupations of the members of the group are dispersed more or less evenly among the seven categories distinguished. The education level of their parents is lower than the level of parents of the younger respondents. The education level of their mothers is lowest of all. The highest percent come from Protestant backgrounds and the lowest percent come from Catholic backgrounds. At present a higher percent are Protestant than any other group. The ethnic background is predominantly Anglo Saxon. About 62% are married and 86% have children and have more children than those in other groups. Many come from large families. A higher percent report having positive experiences with teachers and a smaller percent say they had negative experiences with teachers than those in other groups. A higher percent identify positive crucial events and a smaller percent identify negative crucial events. The highest percent (93%) say their childhood was happy and the smallest percent say they felt isolated or lonely as a child. All the oldest respondents found school fun and easy. The smallest percent found school scary or stifling.

The oldest women are in a marked contrast with the older men. The most common occupation of the oldest women is in some form of the arts or in homemaking. The education level is lower than the middle group and the older men. Their religious affiliation tends to maintain a continuity with their past affiliation although they share in the overall decrease for all groups. Only 51% are married although nearly all have been married. Nearly 70% have two or more children. Only 36% of this group are first born or only children. The oldest women maintain close contact with their mother with 93% visiting their mother more than once a year. Half of the oldest women also visit their father more than once a year even though 60% feel ambivalent about their relationship with him. The smallest percent of any group (67%) say that their mother

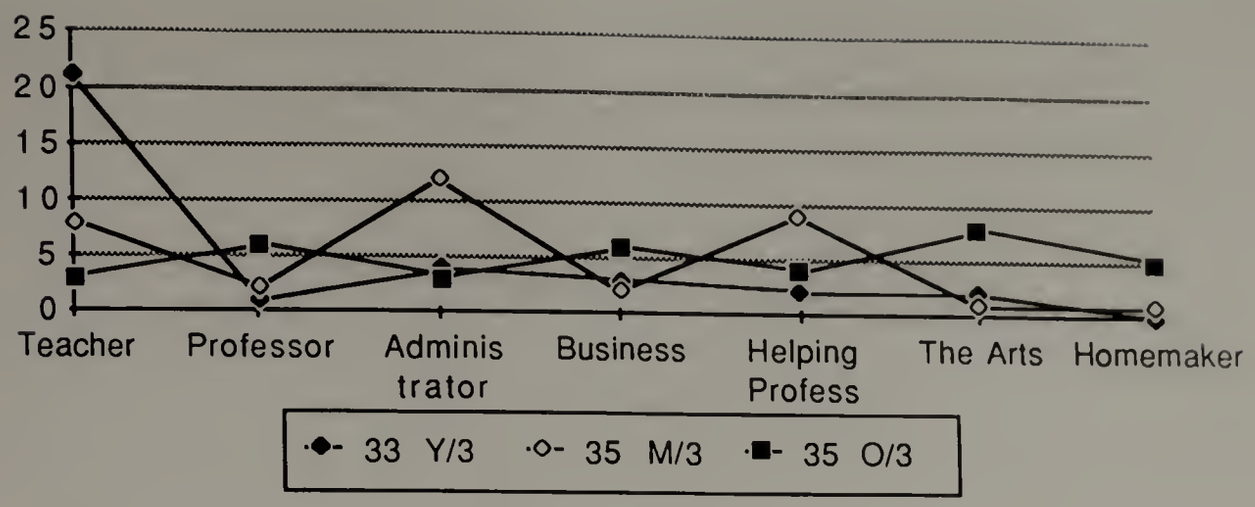
was the most significant influence in their lives and the highest percent (43%) said their father was an important influence. The highest percent remember having a positive experience with their teachers and the smallest percent remember negative experiences with a teacher. The lowest percent of the oldest women have had a mentor. Although more than 60% considered themselves shy as a child, the smallest percent of any group felt isolated or lonely. The smallest percent said school was scary or stifling but also the smallest percent experienced school as exciting, challenging, and expanding. The biographical statistics reflect the cultural differences of an earlier time. A smaller percent of the older women are or were career oriented than their younger counterparts reflecting the more restricted opportunities for women and the more strongly defined and supported feminine role. A greater percent of the older women as children apparently accepted the limitations society put on them and were less overtly rebellious. Their school experience was less conflicted and also less exciting, challenging, or expanding.

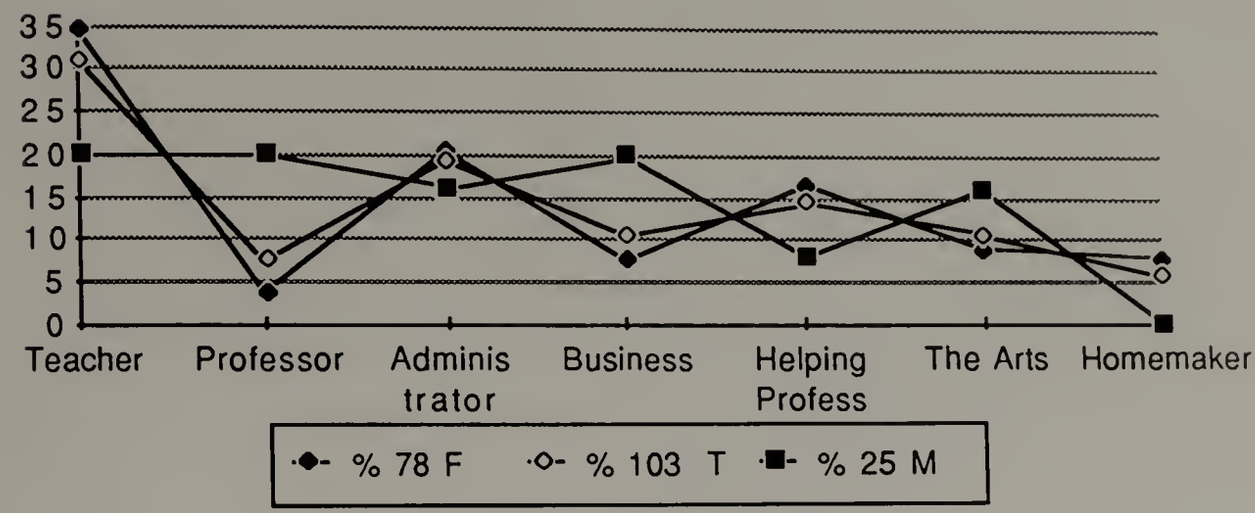
Of the older men who teach all are college professors. The education level is the highest of any group. None of the older men from Catholic backgrounds consider themselves Catholic in the present. A higher percent say they have no religious orientation (30%) than any other group except the younger men. Ninety-two percent are married or remarried. Two thirds have two or more children. The greatest percent came from families with only one or two children so that 62% of this group are only children or first born, 70% come from families of two children or less. The literature tends to support the idea that first born and only children are higher achievers. There are many indications that the older men in this sample are the highest achievers of any group. A higher percent of the older men (85%) say that their mother was the most significant influence in their lives and the lowest percent (15%) say that their father was important. Yet they have the least contact with their parents who are alive with only 26% visiting their mother and none visiting their father more than once a year. It

is also the group that is most separated from their parents and perhaps their past. The group of older men is the only group (0%) to not say that the biographical section of the questionnaire was valuable relative to their creativity. The highest percent of this group report a good crucial event and the lowest percent report a bad crucial event in their childhood. All of the older men say that school was fun and often easy, 82% say that school was often hard work, and all found school exciting, challenging, and expanding. The biographical portrait is of the group most supported and indulged by their mothers, the school system and teachers, and provided with the most opportunities and choice. It is not surprising that it is also the group that has the highest achievement in education, and success and recognition of achievement by society.

The gender differences unrelated to age in the biography are worth mentioning. Men have achieved a somewhat higher educational level at all levels and have fathers who have achieved higher levels than the fathers of the women. More women than men are in the helping professions. More men are in the arts or business. A higher percent of the Protestant men remain Protestant whereas a higher percent of the Catholic woman remain Catholic. A higher percent of the men have no religious affiliation. More men in the sample are married or remarried than women (80% to 49%). A smaller percent of men report a bad crucial event. A higher percent of men than women say that they found school hard work but also found it more exciting and challenging. The women visit both parents considerably more frequently than do men. A greater percent of women report that their fathers have been an important influence (33% to 17%) and a greater percent had good relations in the past and have in the present with their fathers whereas a lower percent of the men report good relations and a much higher percent report their relationship as conflicted. A greater percent of men report that their mothers have been the most important influence (83% to 70%) in their lives. If the task of men is to achieve separation from their family of origin as in the separation and attachment issue of Erikson's development model, the men in this sample seem to have achieved it. The

great contrast is with women who by and large tend to remain attached. Until Gilligan's work [1982], the woman was judged immature because she did not fit either the Erikson's developmental model or Kohlberg's moral developmental model both derived from the study of men. Gilligan's thesis that women are more relational is supported in the choices of professions, in the markedly greater effort by women to maintain relations with their parents, and in the significant importance of the mother.





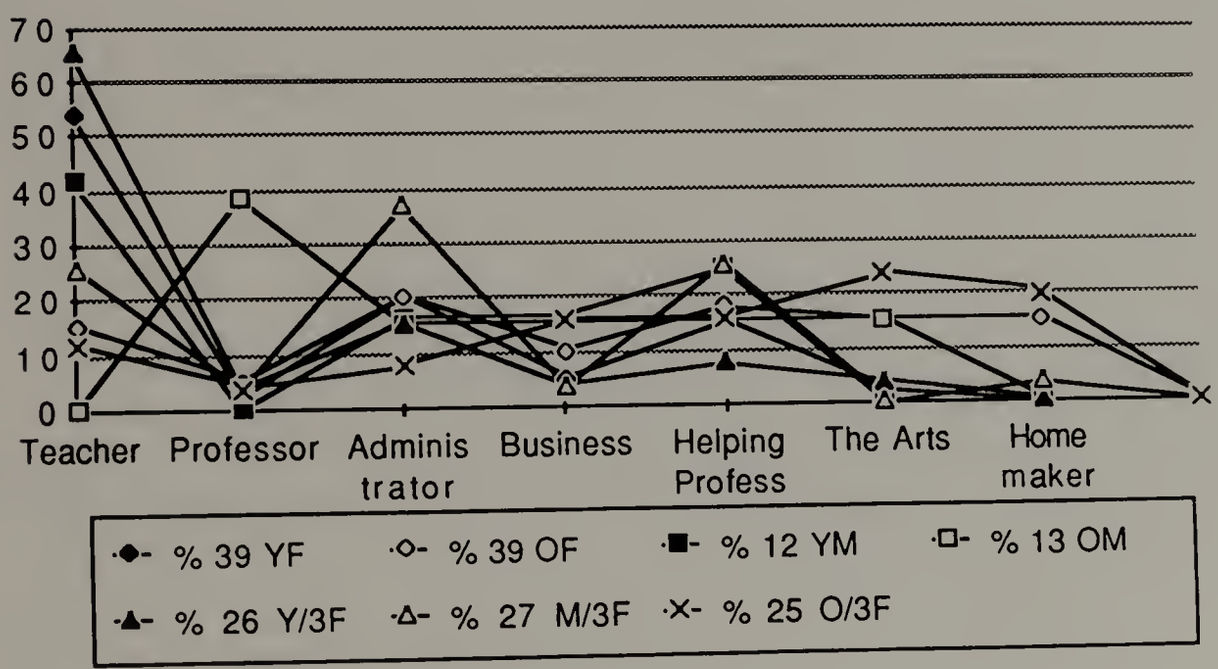


Fig 2 Occupations of Respondents.
Sorted by Age and Gender

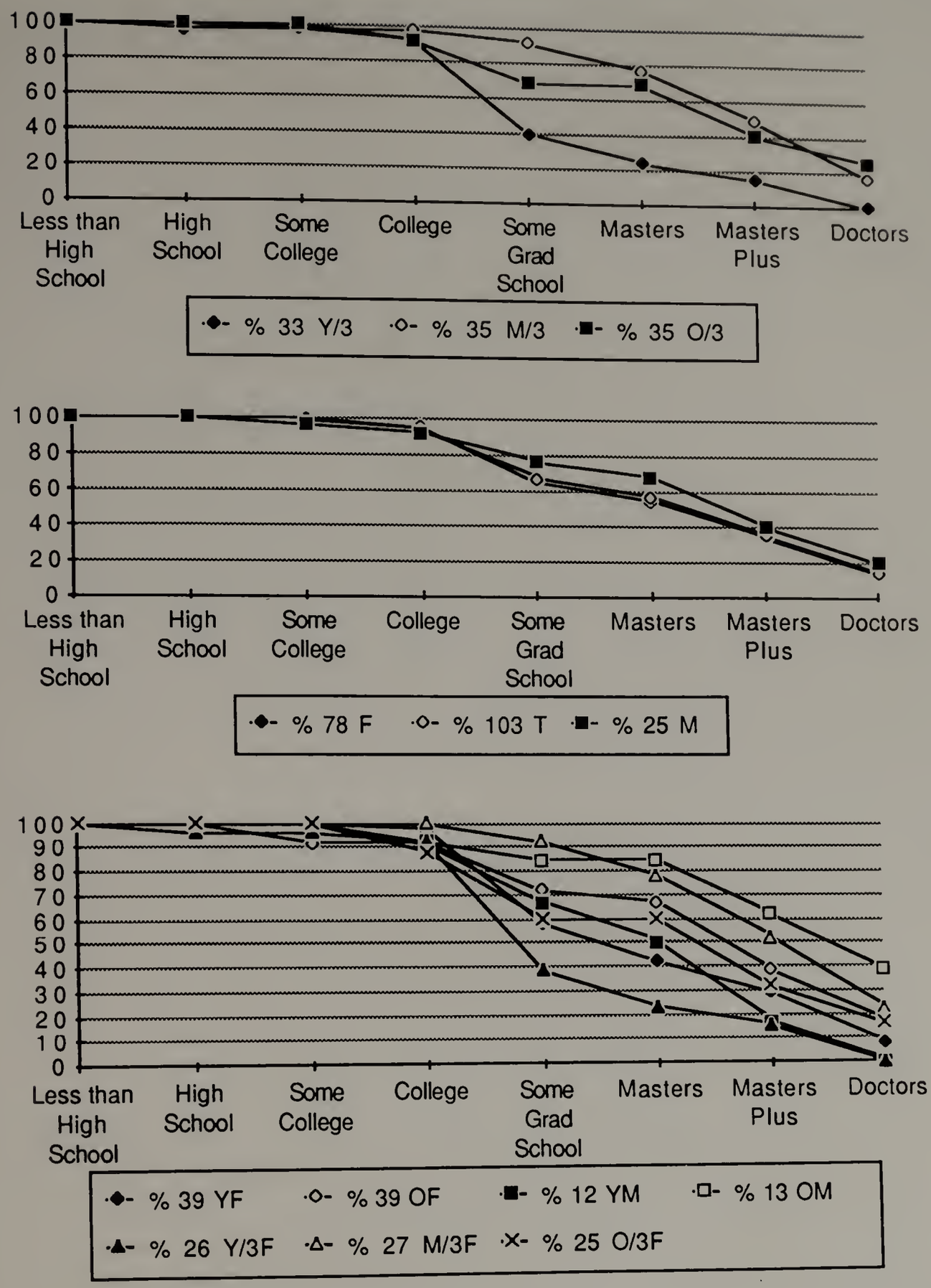


Fig. 3 Education Level of Respondents.
Cumulative Percent - Sorted by Age and Gender

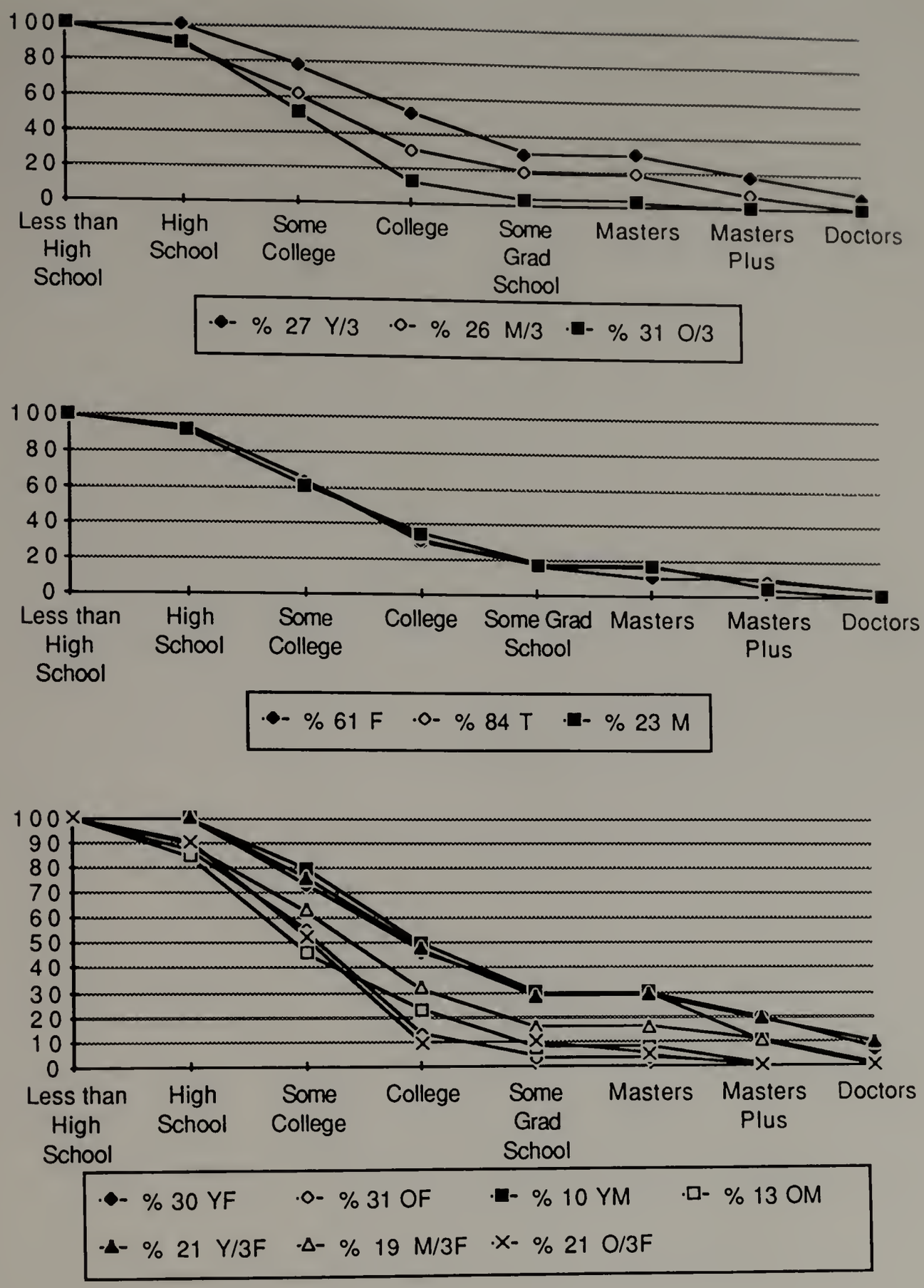


Fig. 4 Education Level of the Mothers of the Respondents.
Cumulative Percent - Sorted by Age and Gender

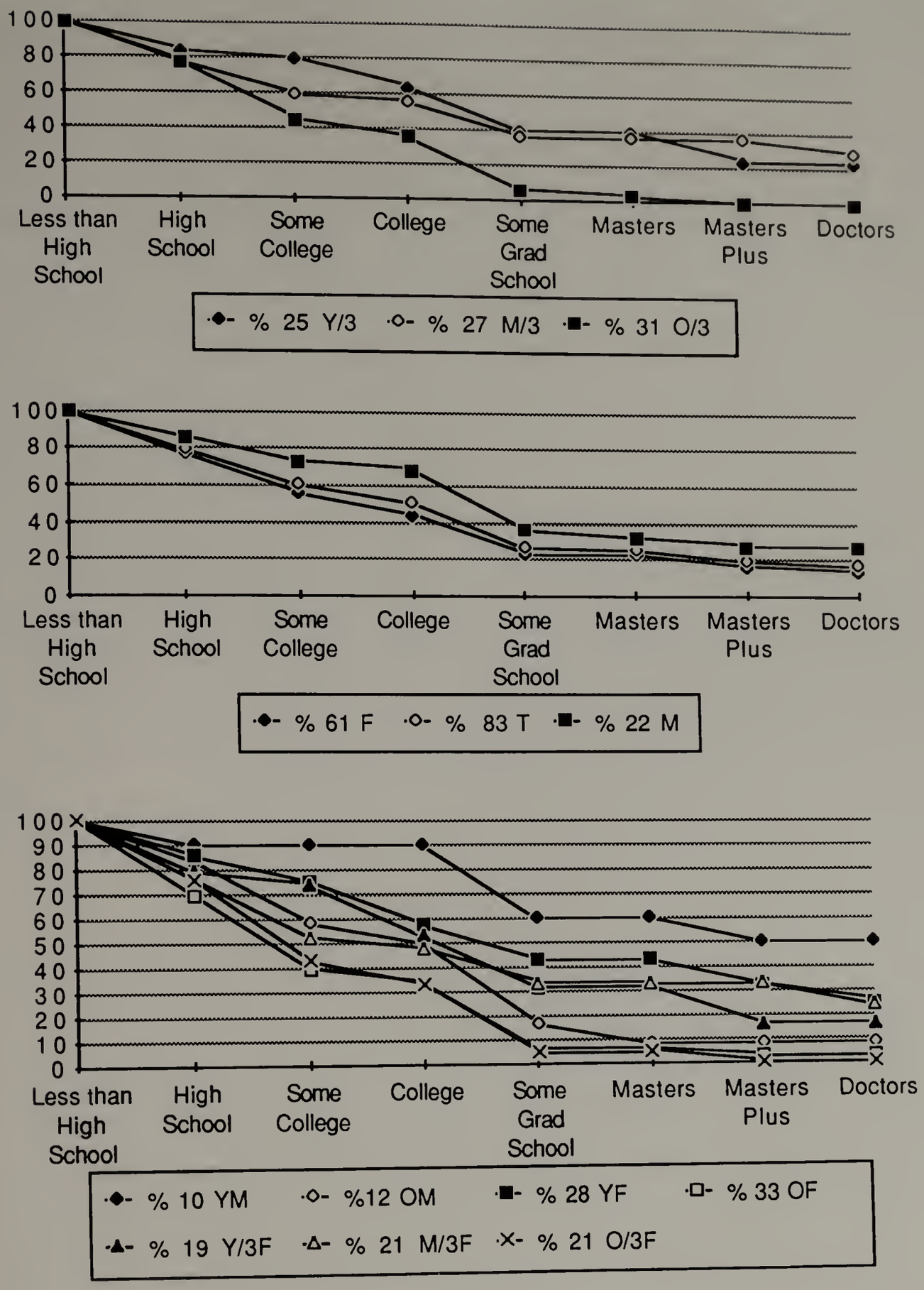
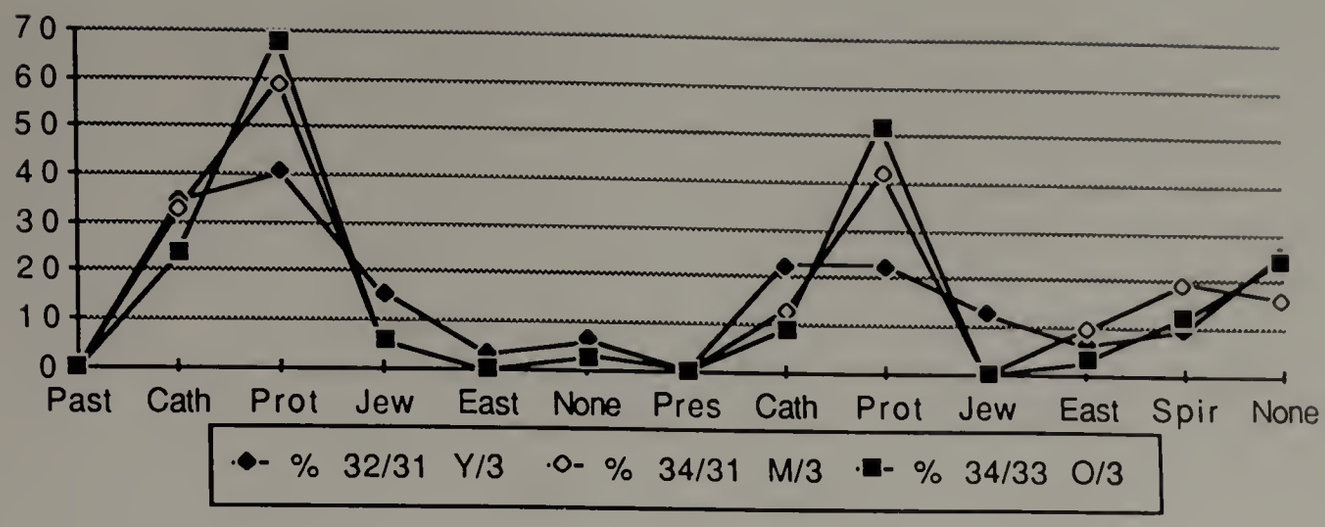
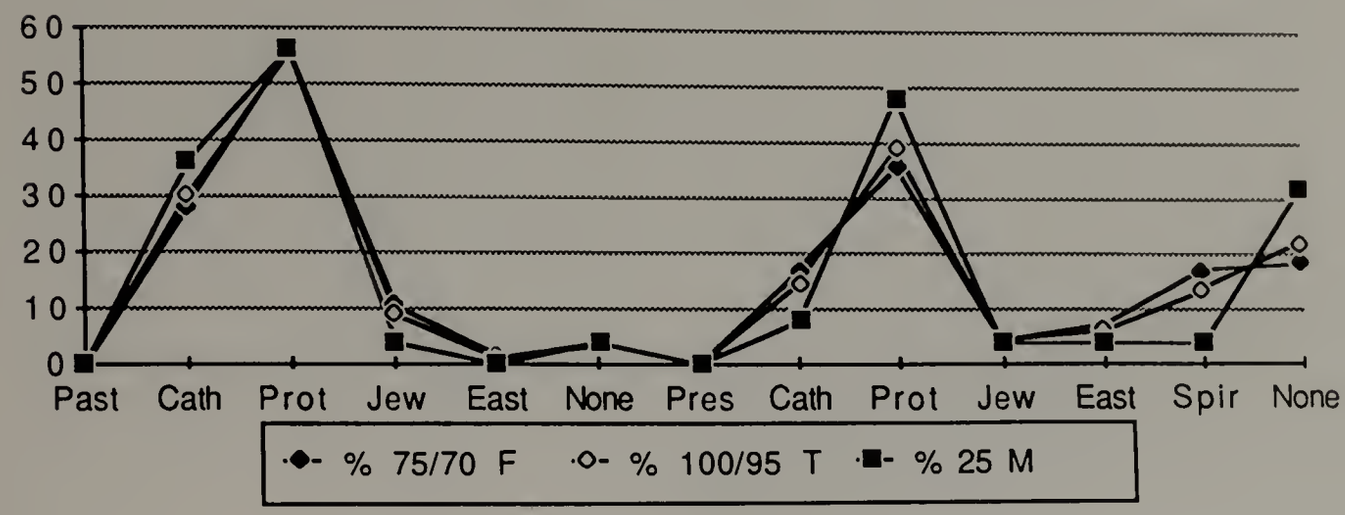


Fig. 5 Education Level of the Fathers of the Respondents.
Cumulative Percent - Sorted by Age and Gender





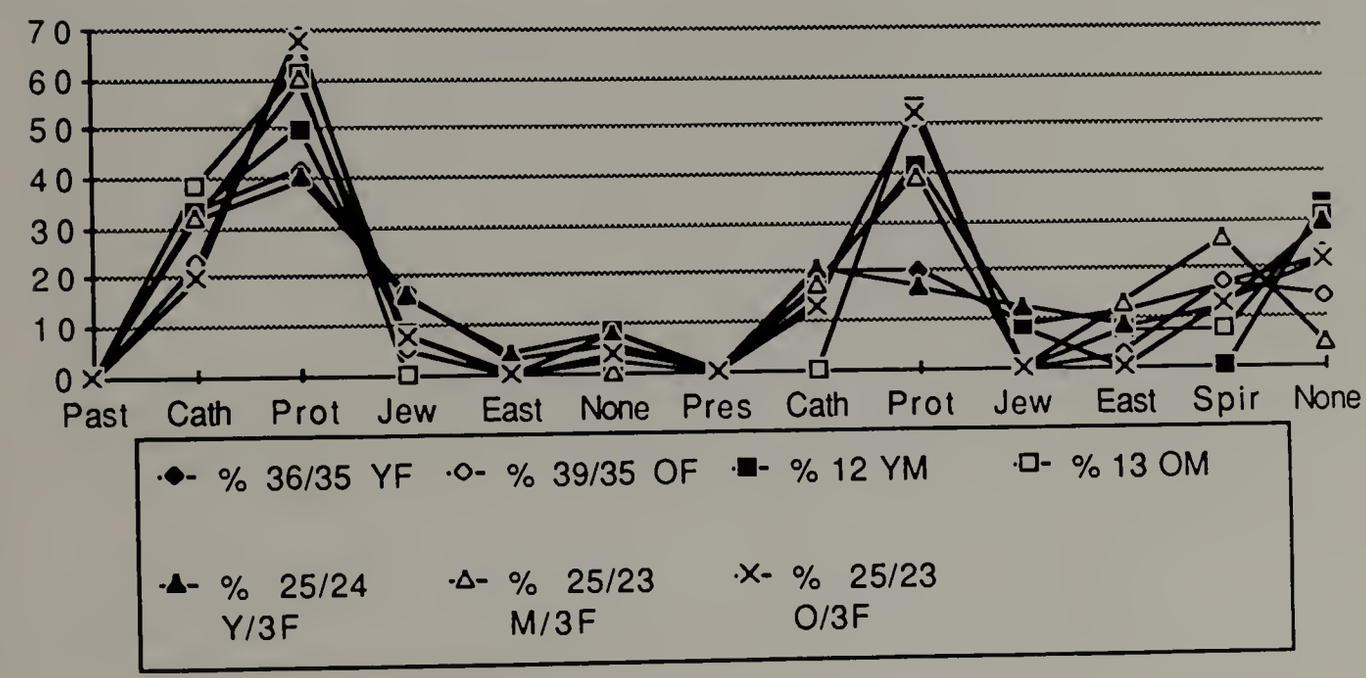
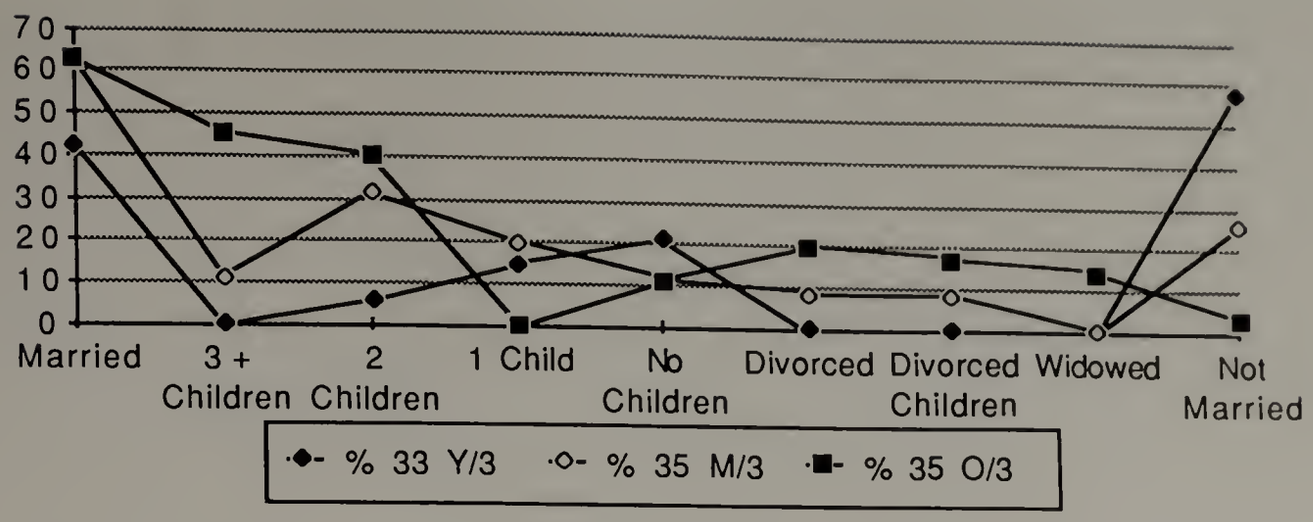
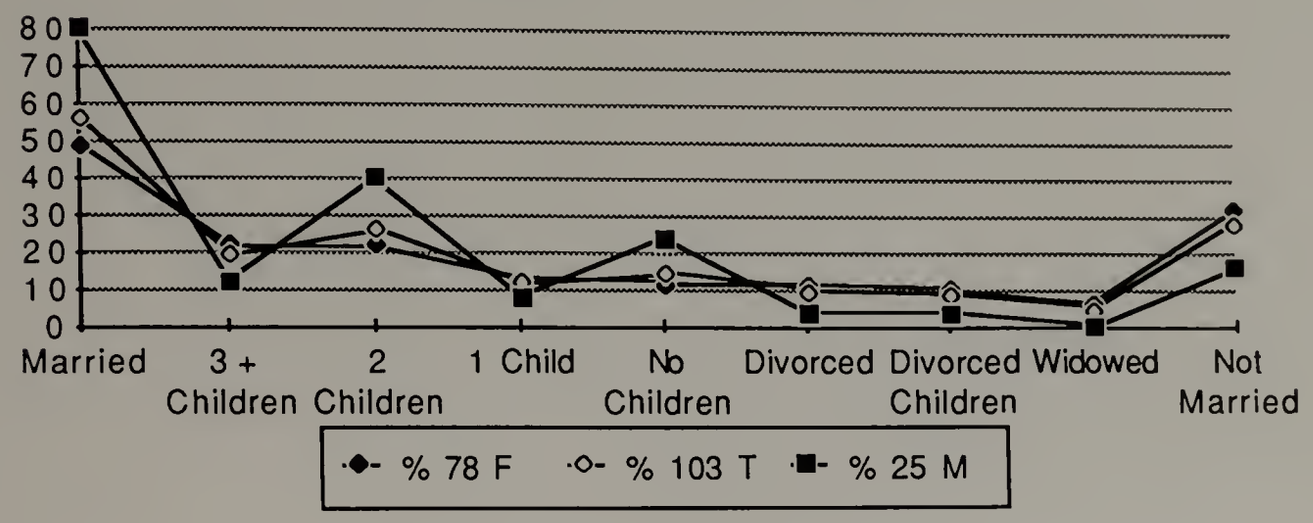


Fig. 6 Past and Present Religious Orientation of the Respondents.
Sorted by Age and Gender





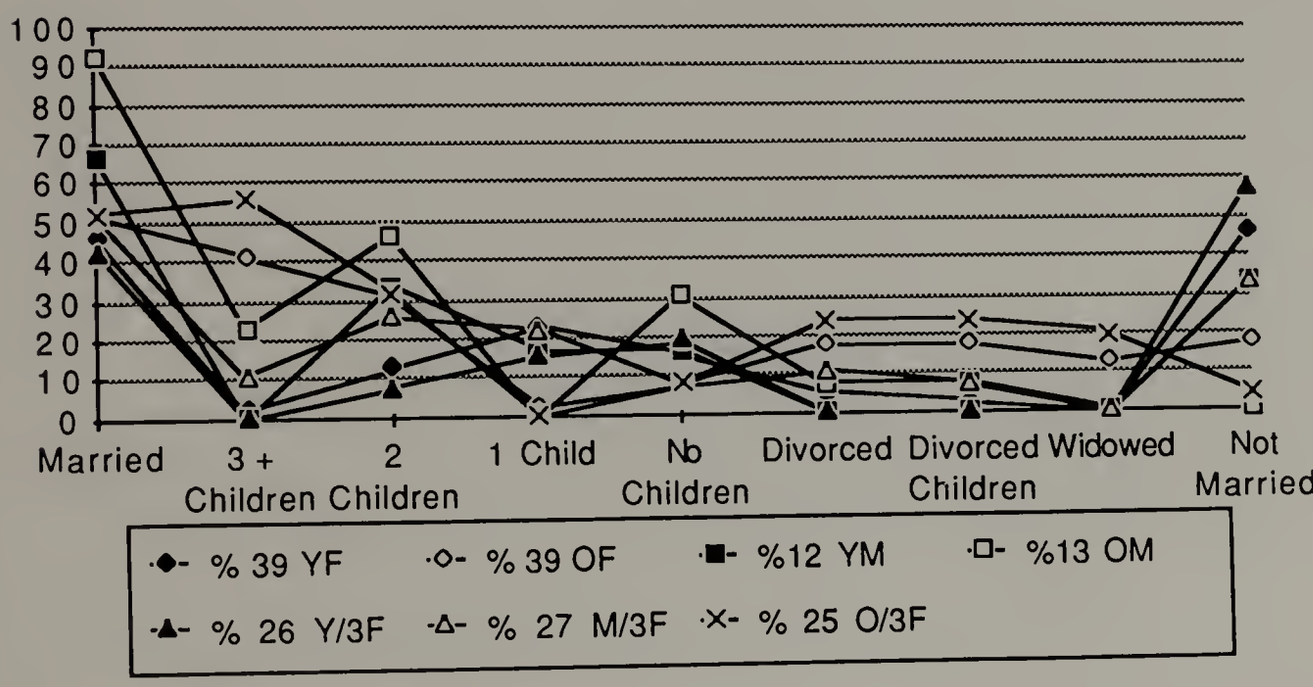


Fig. 7 Marital and Parental Status of Respondents.
Sorted by Age and Gender

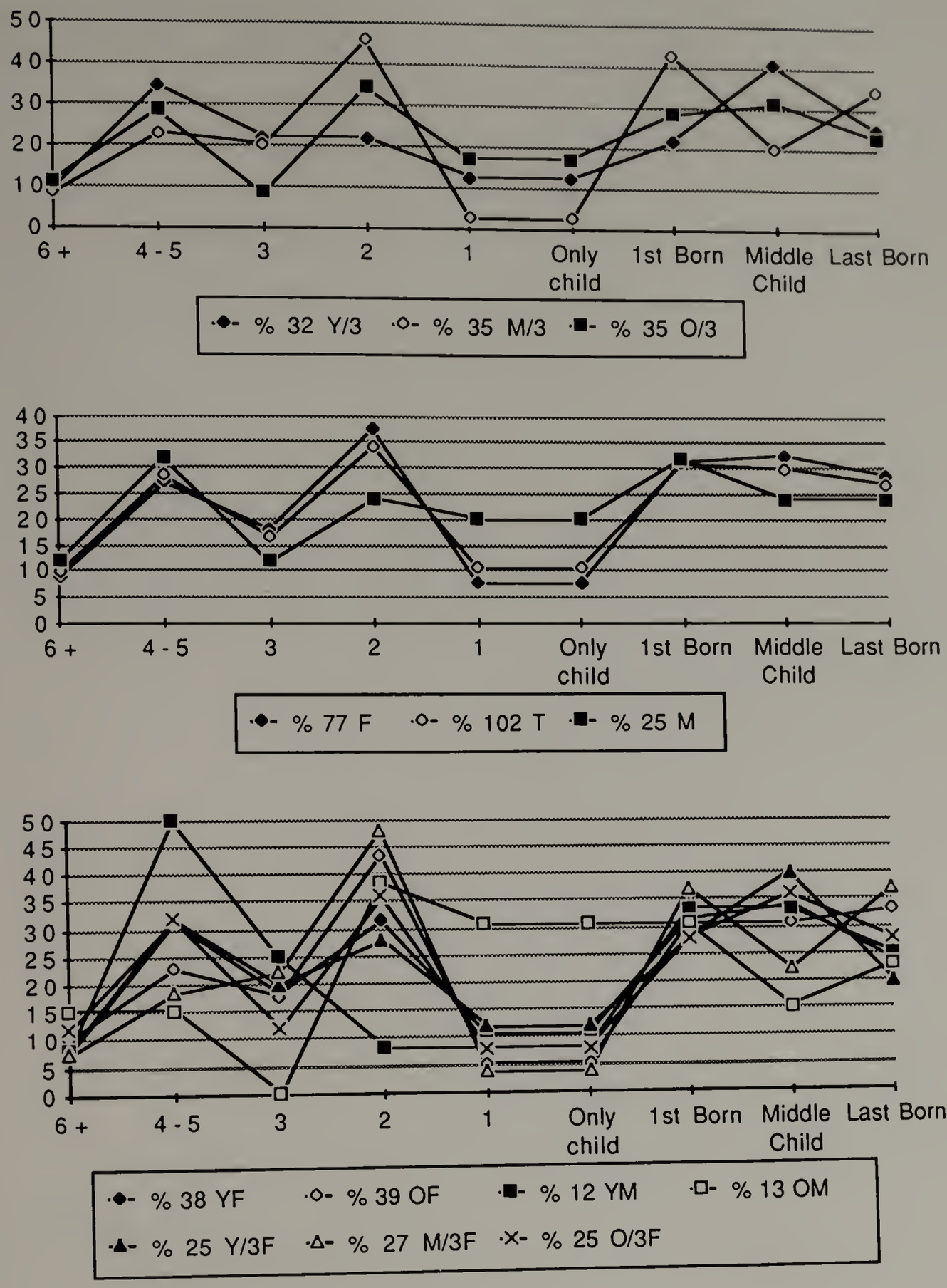


Fig. 8 Number of Siblings in Family and Birth Order of Respondents.
Sorted by Age and Gender

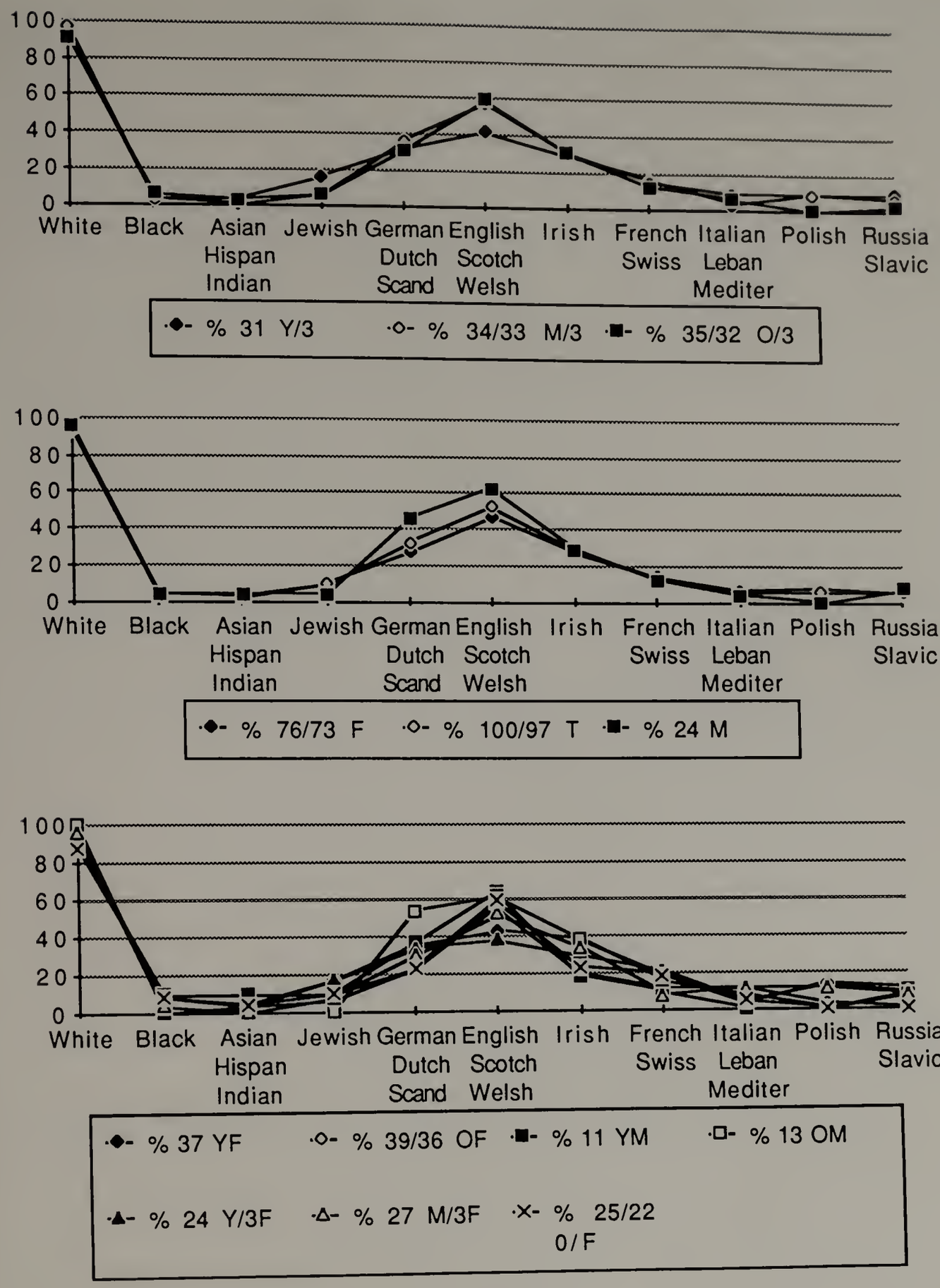


Fig. 9 Ethnic Background of Respondents.
Sorted by Age and Gender

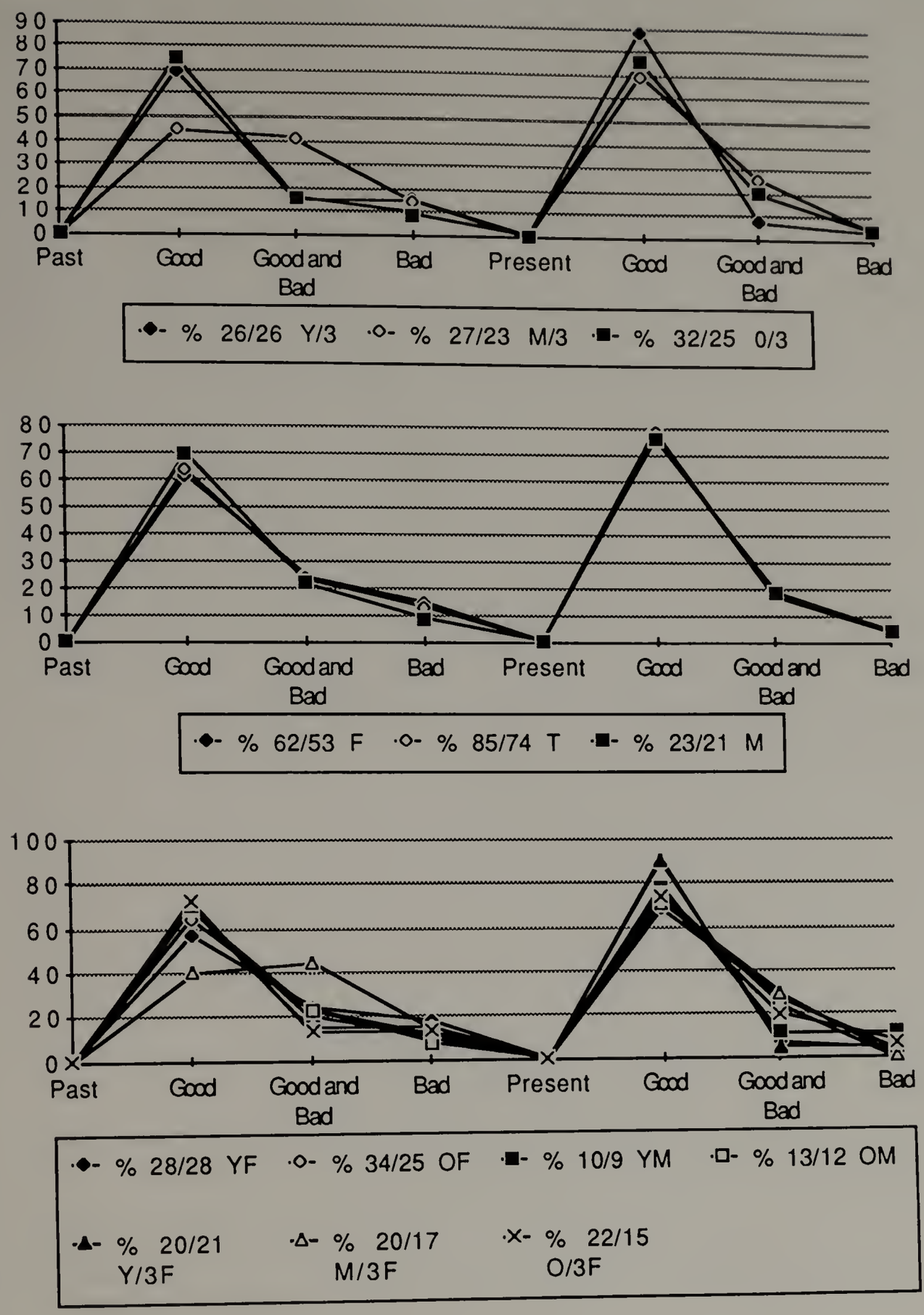
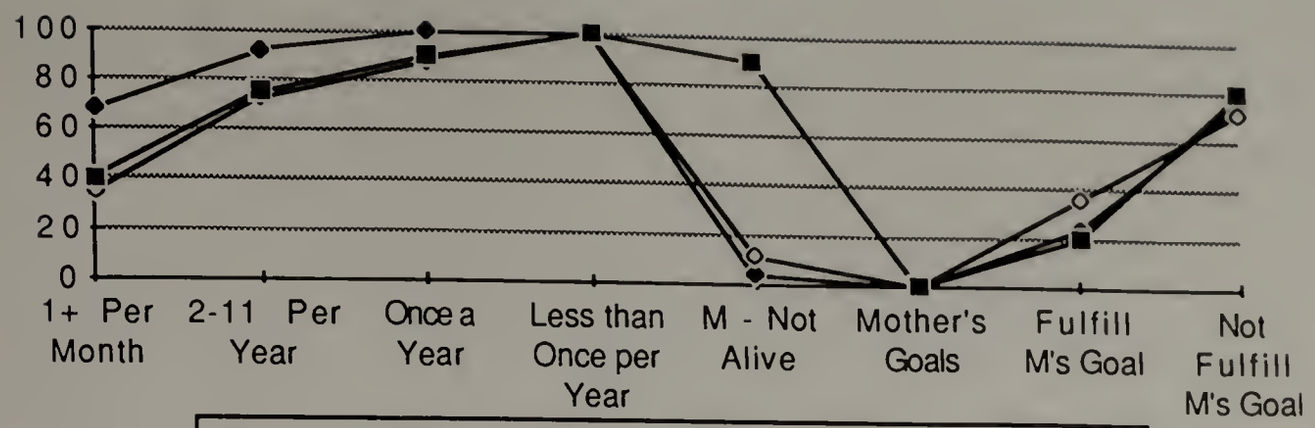
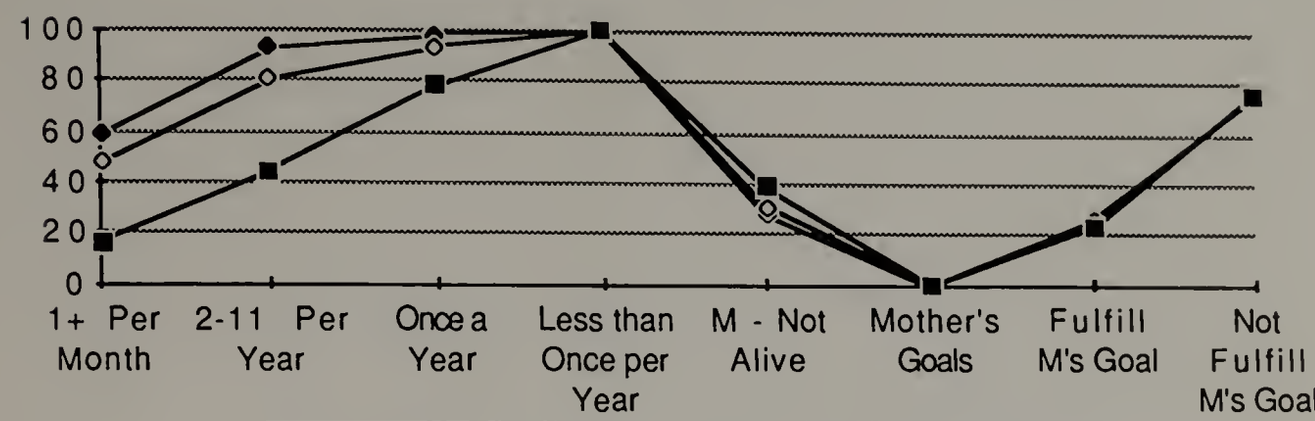


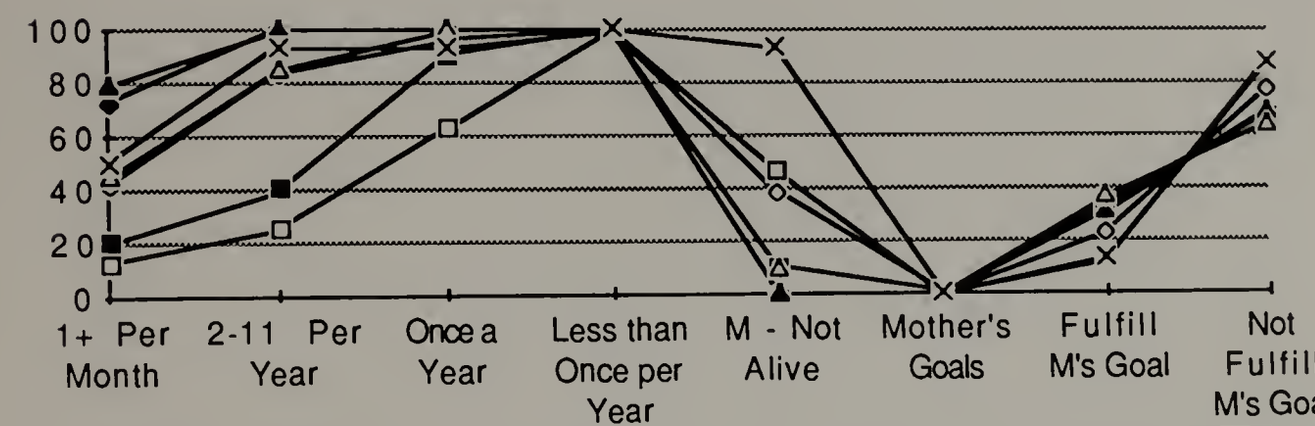
Fig. 10 Past and Present Relationship with Mother.
Sorted by Age and Gender



·◆- % 25/21 Y/3 ·○- % 26/25 M/3 ·■- % 20/30 0/3



·◆- % 53/61 F ·○- % 71/78 T ·■- % 18/17 M



·◆- % 29/26 YF ·○- % 24/35 OF ·■- % 10/8 YM ·□- % 8/9 OM

·▲- % 19/16 Y/3F ·△- % 20/22 M/3F ·×- % 14/23 O/3F

Fig. 11 Frequency of Visits with Mother in Cumulative Percents; Fulfilling Mother's Goals. Sorted by Age and Gender

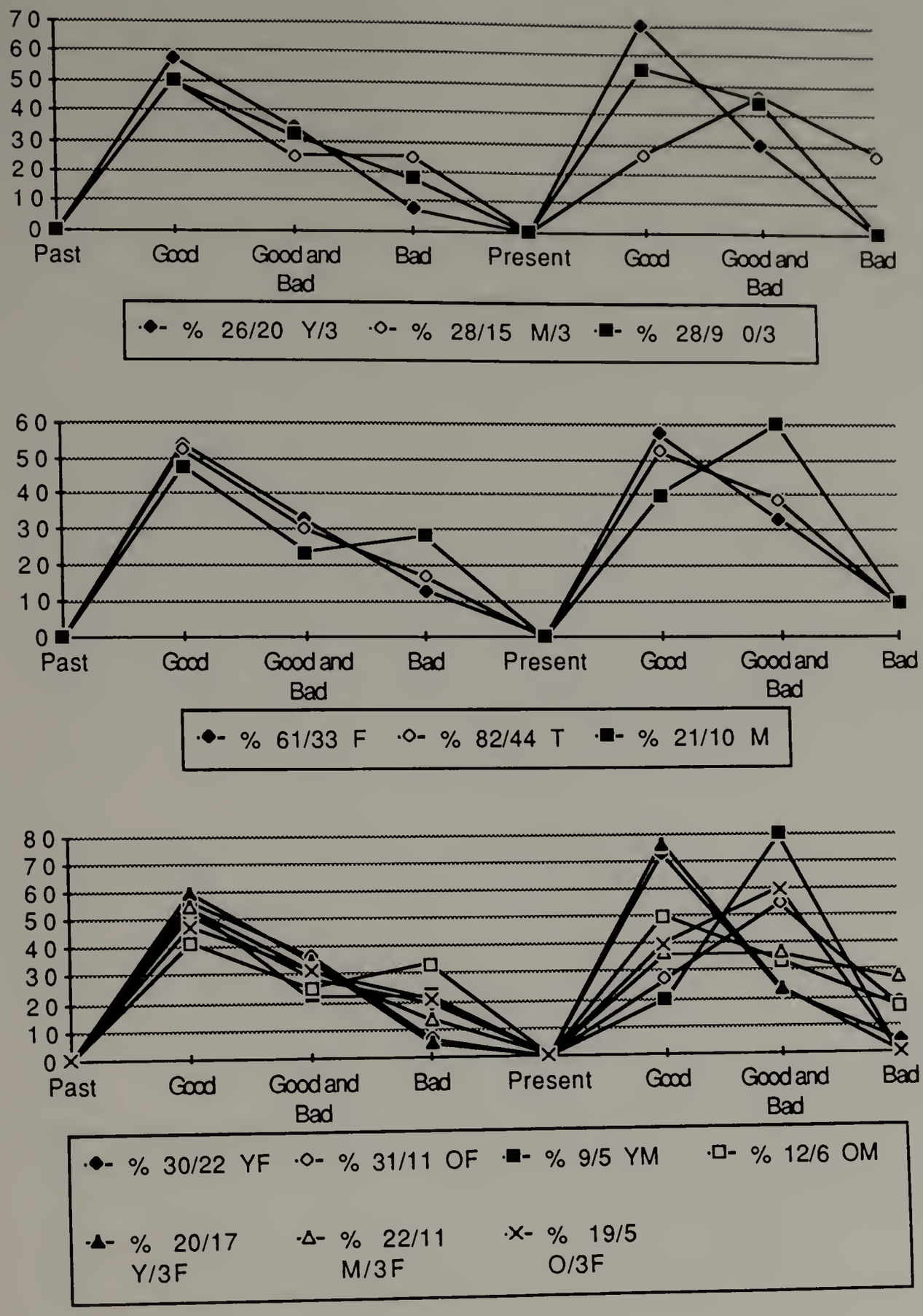
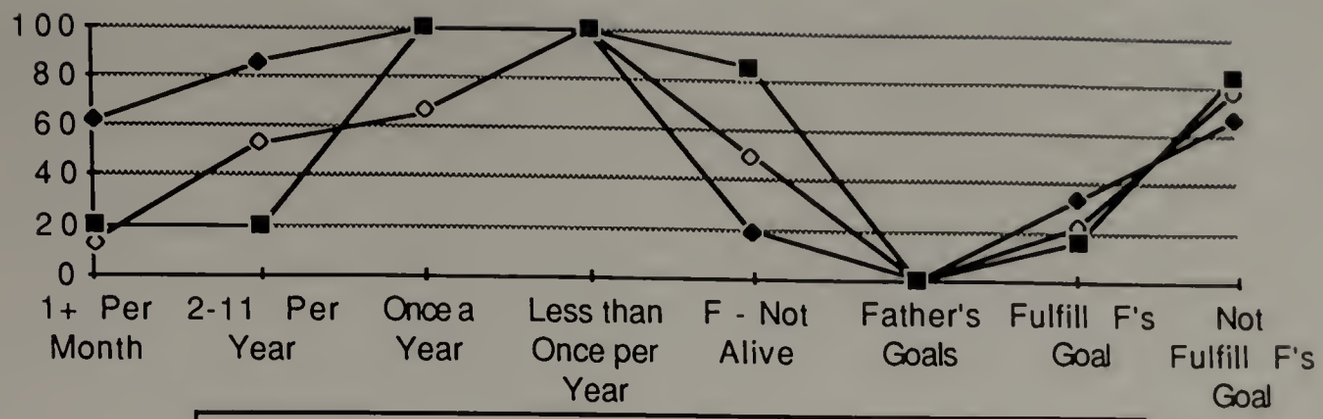
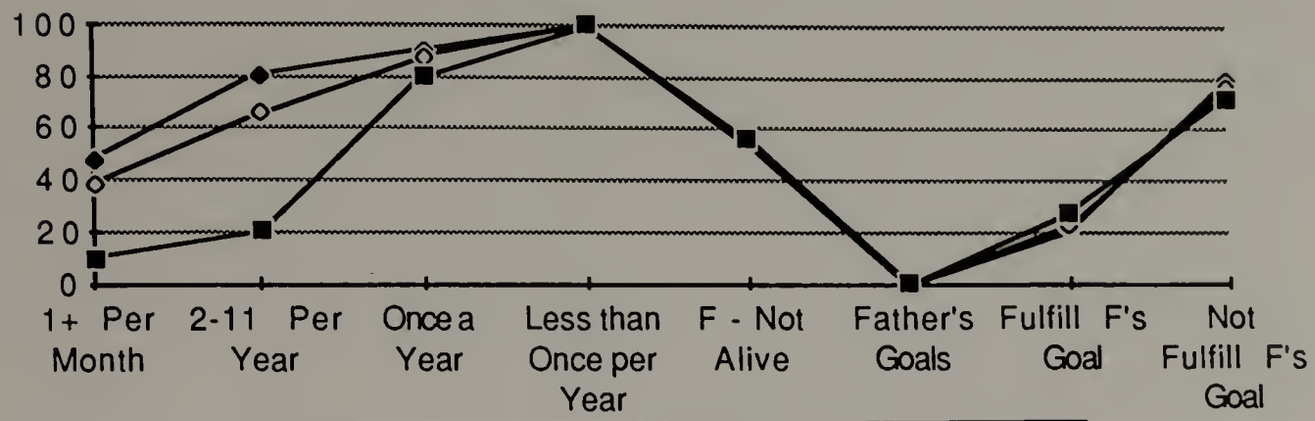


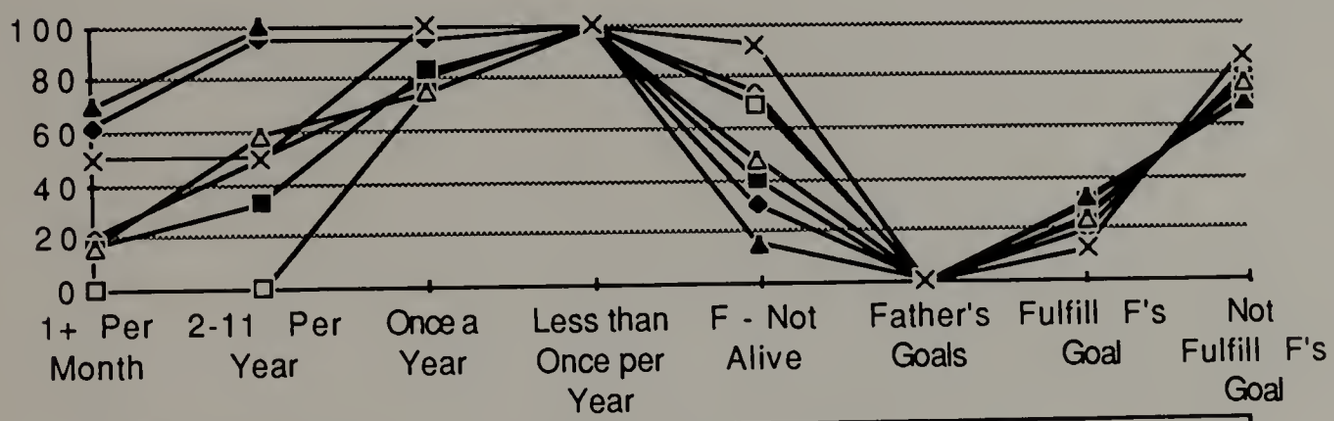
Fig. 12 Past and Present Relationship with Father.
Sorted by Age and Gender



·◆- % 21/21 Y/3 ·◇- % 15/27 M/3 ·■- % 5/31 O/3



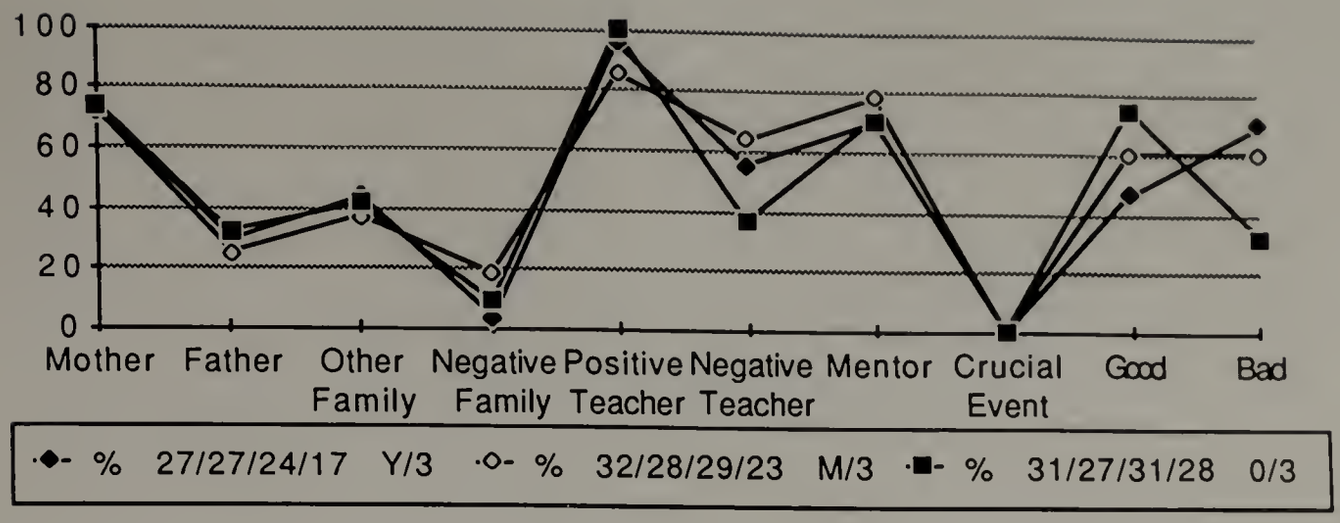
·◆- % 31/61 F ·◇- % 41/79 T ·■- % 10/18 M

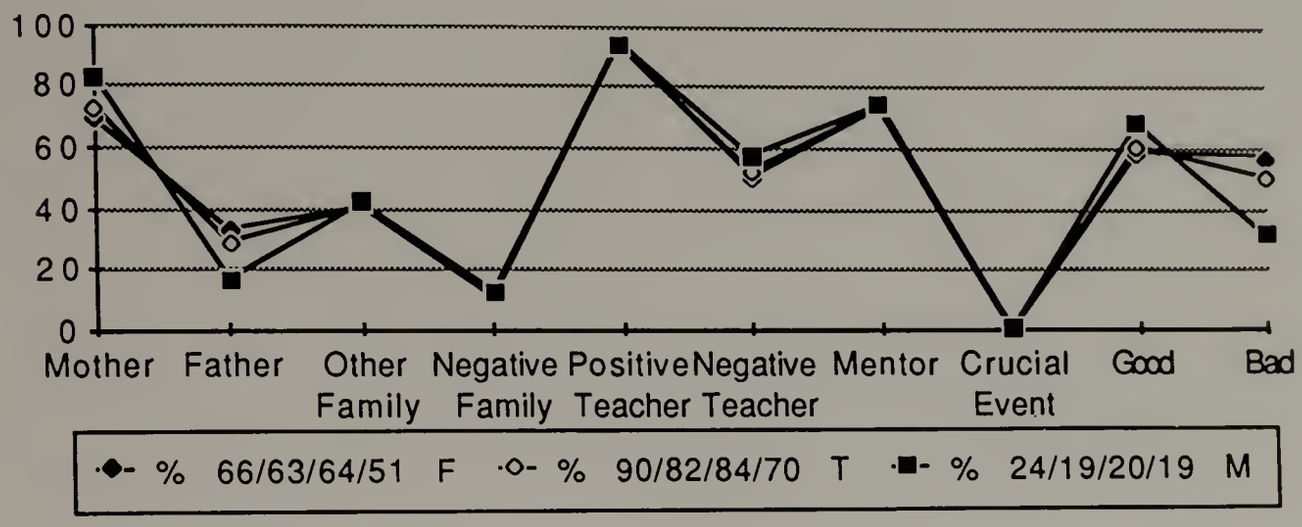


·◆- % 21/25 YF ·◇- % 10/36 OF ·■- % 6/8 YM ·□- % 4/10 OM

·▲- % 17/16 Y/3F ·△- % 12/21 M/3F ·X- % 2/24 O/3F

Fig. 13 Frequency of Visits with Father in Cumulative Percents; Fulfilling his Goals. Sorted by Age and Gender





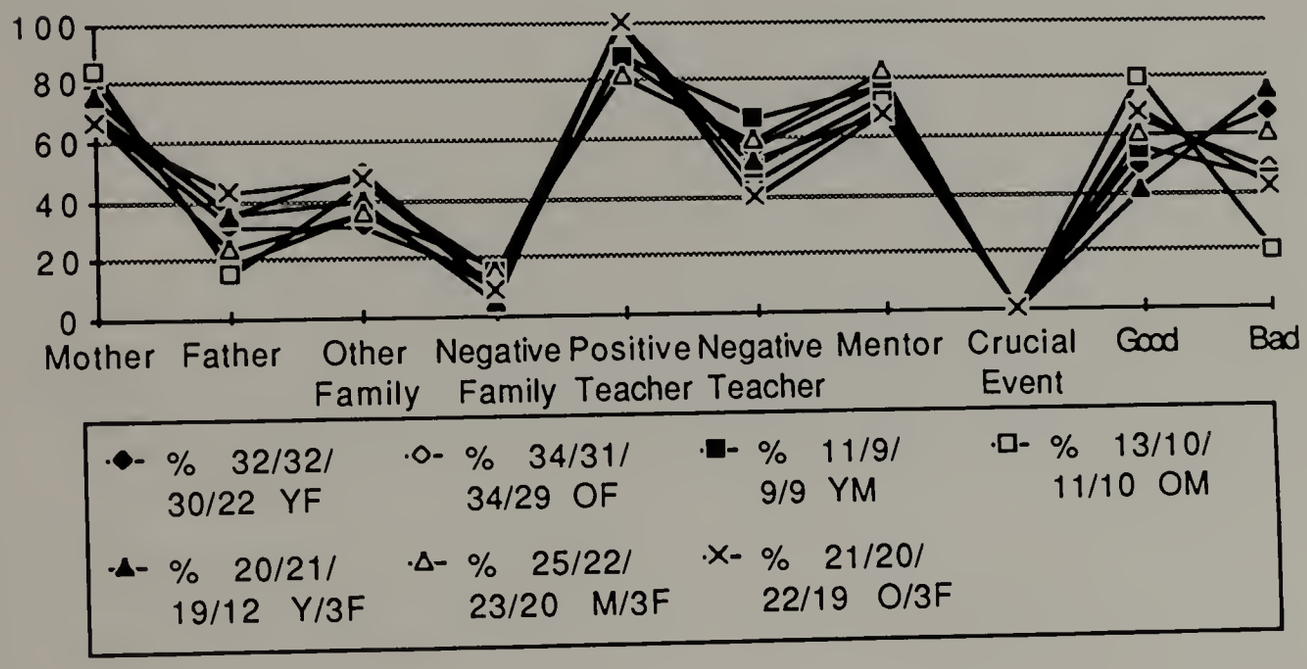


Fig. 14 Significant Influences of Family; Teachers; Mentors; and Crucial Events. Sorted by Age and Gender

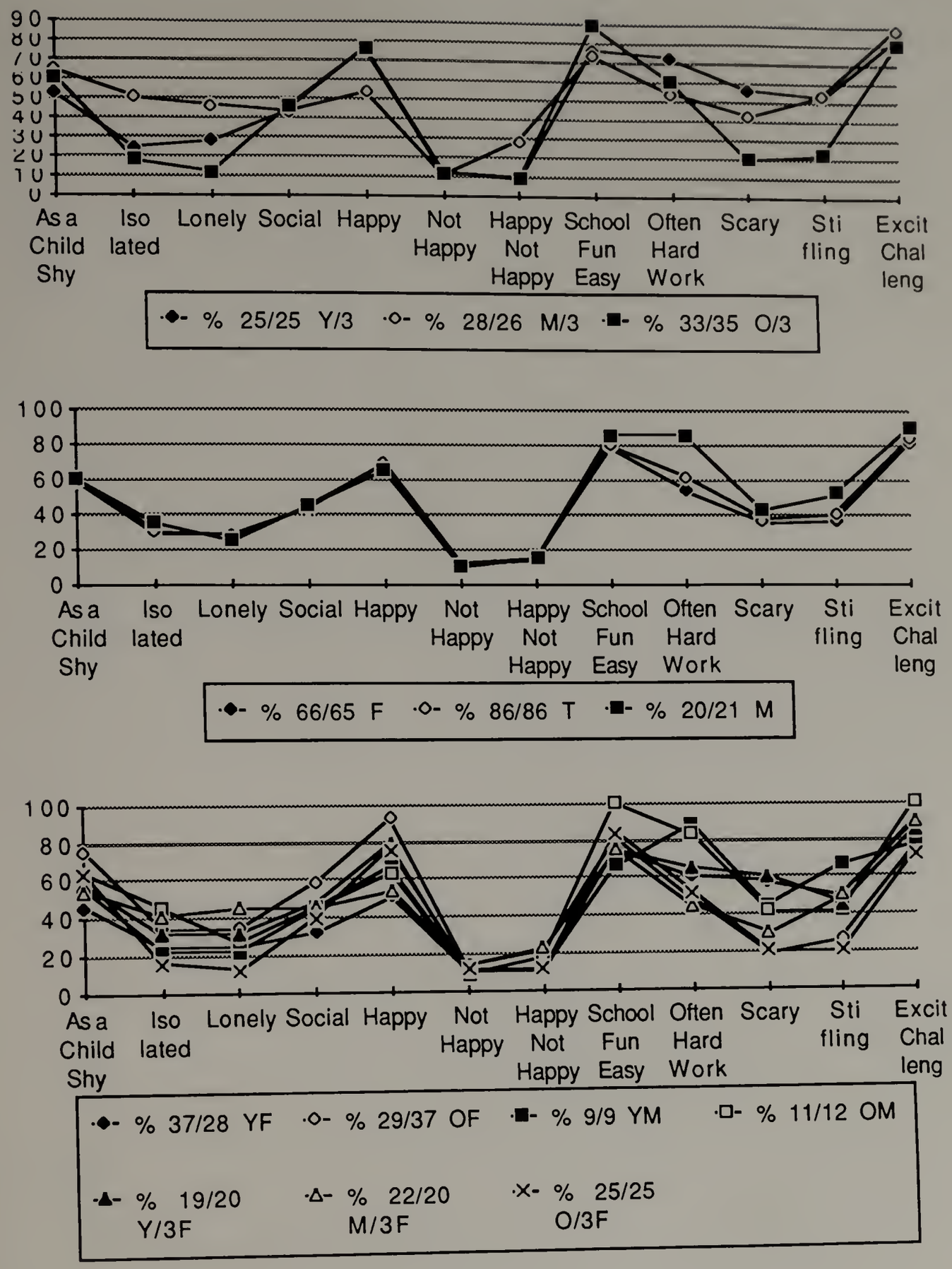


Fig. 15 Respondent as a Child; School Experience
Sorted by Age and Gender

CHAPTER 4

TABULATION AND ANALYSIS OF THE RESPONSES

The respondents are sorted into groups by both age and gender. Charts for age, gender, and age and gender (see pg. 110) are combined into figures and are placed at the end of the chapter. A chi-square analysis of apparent differences among the groups reveals differences at the p=<.05 and p=<.01 level; ± indicates that the numbers are small. The p values define significant differences among the responses and are also listed in the appendix.

Definitions of Creativity

The first few questions in the second section of the questionnaire directs the thinking of the respondent toward the focus of the dissertation study. Creativity is not defined in the questionnaire since part of the inquiry is to probe how the respondent thinks about and defines creativity. To analyze the answers to the open-ended question, "What does creativity mean to you?", 26 sub-categories were created to encompass the various aspects of the answers given. Each sub-category referred to by a respondent was given a check. The checks totaled 414. The 26 sub-categories were then grouped into four larger categories. The four large categories relate to creativity by reference to: 1) A Product; 2) Elements of Creativity; 3) Self-Actualization; and 4) The Emotional Experience. Fig. 16 displays a summary of the percent of respondents whose answers fit into each category.

The question "What does Creativity mean to you?" is a broad and open-ended question that did not restrict the respondent to answer in a specific way or to give a conventional definition. The expectation was that the respondent would probably define creativity but in a personalized way indicative of his or her thinking about creativity and personal involvement in it. The next question asked about the respondent's focus for

creative activity, how he or she applies the more abstract content response of the first question to concrete individual activity. Toward the end of the questionnaire, after the respondent had had time to think about his or her creative experience, the question "Why do you create?" was asked. Elements of definition and motivation are present in the responses to all three questions.

Most of the responses that relate to a definition of creativity generally fall into those definitions that make reference to a product of some sort (Fig. 17) and those that referred to the more abstract elements of creativity (Fig. 18). It is interesting to compare these definitions to the dozen or so definitions distinguished from the literature discussed in Chapter 2. It is probably worth pointing out as relevant that all those who defined creativity in the literature review fit into the group of respondents who are men, 40 or older (OM).

Several definitions and several of the elements of creativity discussed in the literature are notable by their absence. None of the respondents even suggested that the created product is separate from the creator as did Plato, Kant, and Jung. Even those who said that they experience getting the idea as a gift from a spiritual (44%) or external source do not imply that the gift of the gods is the completed work without a need of their further participation. Our individualistic American culture does not support a belief in that degree of passivity but rather that the individual has some control over, is identified with, and takes credit for the achievement. None of the respondents say that the creative process is the product and none say that consciousness is the creative product. None mention symbol or metaphor. It is striking how few define creativity as invention (6%) or as discovery (3%). Of those who did the highest percent (18%) are found in the group of older men. With regard to elements it seems remarkable that so few mention Guilford's elements of creativity such as fluency (0%),

elaboration (3%) and flexibility (6%). Several respondents refer to open-mindedness (10%) and a very few to spontaneity (7%) as part of the definition or meaning of creativity.

Creativity Defined in Terms of a Product

When the respondents define creativity with a reference to a product, the definitions fall into several categories (Fig. 17). In one category the product is concrete and tangible. Those whose creative activity is in the arts category are involved in creating a concrete, tangible product. About half of the respondents feel that originality is an essential quality, but half do not think originality important or required. Only 13% say the product must be useful. About 23% say the product should be aesthetic. It is interesting to examine the several groups to observe how they differ in this category. A much higher percent of the young and middle group of women than the oldest women say the product should be original (68%,59% to 23%; p=.002). A higher percent of the men than women, especially the older men, define creativity as producing a concrete (50% to 14% O/3F; p=.02) and useful (33% to 8% F; p=±.001) product. A higher percent of the women especially the older women define creativity as producing an aesthetic product in greatest contrast to the men (42% to 8%; p=±.03). Rothenberg, a man over forty, also defines creativity as the production of an original, concrete, useful product of value. He does not include aesthetic in his definition.

In another category the respondents say that the product does not need to be concrete or tangible. Those individuals who focus their creative energy in parenting, family relationships, or homemaking or those in such professions as teaching and counseling or other helping professions do not produce a concrete tangible product. More than 50% of both the youngest and the middle group of respondents say the creative product can be intangible contrasting with the oldest third (56% to 22%; p=.005). There is no gender difference. The definition in the literature that seems most kin is

Rollo May's contention that creativity is born in the encounter with the world and as confronting and challenging limits. It is probable that the younger respondents are more involved in the world than the older respondents. Almost half (44%) of the respondents say that creativity is self-actualizing, the product is the self, - a higher percent of the younger women than both older women and men (60% to 33%; p=.03) and in Maslow's sense are focused on becoming who they may be by developing their potential.

In another category the product consists of something intangible that is given concrete form. It may be the definition of choice of those who focus their creative activity on giving what can be considered intangible such as ideas a concrete form in say a book, an organization , or toward creating a new paradigm in science. The men contrast most with the older women (50% to 17%).

Problem-solving is a rather Aristotelian definition. A higher percent of the male respondents, especially the older men (58%) so define creativity in greatest contrast to the oldest and the youngest women (18% O/3F, 12% Y/3F; p=.003). Problem-solving is a creative activity that is common, a part of living, and surely given a great deal of creative energy by individuals in all the groups. However it is a creative activity that men are paid to do in our society as a defined and valued commodity. It is not given a monetary value in the areas in which many women do their problem-solving such as parenting, homemaking, in volunteer work, and in relationships. It is interesting that the middle group of women who are now often being paid to do problem-solving in the market place also define creativity as problem-solving (44%).

Three fourths of the youngest respondents say that a product is not essential (75% to 9% O/3; p=.001). It is interesting and somewhat curious to observe that the oldest women constitute the smallest percent in nearly all of the product categories, that they are the least likely to mention a product at all.

Creativity Defined in Terms of Elements of Creativity

Considering the elements of creativity (Fig. 18) originality apart from an original product is again considered an important part of the definition by 50% of the respondents. Originality is included in their definition by a higher percent of the middle group of women and the men and by the smallest percent of the oldest women (65%, 56% to 33% O/3F,YM; p=.02). Of the almost 60% of the respondents who say that creativity involves gaining new insights, new perspectives, and expanding options, the highest percent are found among the younger women and the lowest percent are among the men and the older women (74% to 44%; p=.01). Combining and rearranging things is an Aristotelian definition more often chosen by the younger respondents - especially the younger men (44%). Combining, rearranging, expressing, and developing ideas is the definition somewhat like Bateson's expression of the mind and the choice of almost 60% of those who define creativity in terms of elements - for a higher percent of women than men, especially the younger men (71% YF to 33% YM; p=.04). The last sub-category that is an important element category is the concept of synthesis and integration. More than 80% of the older men say that creativity involves some sort of synthesis or integration, a definition parallel to finding a form for the intangible in the product category. The oldest women are the least likely to define creativity as synthesis or integration (29%). Again the oldest women have the smallest percent in most of the elements sub-categories.

Creativity Defined with Reference to the Self

The answers to the question "What does creativity mean to you?" included answers that can be grouped into two other categories (Fig. 19). A response related to the self is included by 82% of the respondents and the emotional reaction or feelings involved are part of the answer for two thirds of the respondents. Both categories relate to motivation behind creating and are somewhat similar to but not identical with the

answers given to the question toward the end of the questionnaire "Why do you create?" The older men are the most likely to include spontaneity and emotional expression or free expression as part of the meaning of creativity. The young are the most likely to say that creativity is self-expression and refer to the expression of their uniqueness (86%) contrasting most with the oldest women (42%).

Creativity Defined with Reference to Emotions and to Others

The highest percent of younger men refer to creativity as exciting and the spice of life contrasting most with the middle group of women (70% to 25%; p=±.003) (Fig. 18). The highest percent of older men say it is a challenge to be met contrasting most with the older women (57% to 21%; p=±.06). The highest percent of the older women refer to aesthetic pleasure (83% to 14% OM; p=.04) and in reverse order the highest percent of older men refer to the joy of fit or solution as in problem-solving contrasting with the smallest percent of older women (86% to 17%; p=.004). The one sub-category that includes other people as part of the definition - connecting with and sharing with others is the definition chosen by the highest percent of the oldest women and more than by any other group (84% to 41% Y/3F; p=.005).

Choices for Creative Activity

The same method used to tabulate the creativity definitions was used for tabulating the choices for creative focus. A total of 460 responses to the questions about creative activity were recorded as checks and sorted into 21 sub-categories as suggested by the responses of the 103 respondents. The average number of responses per respondent is about five. The sub-categories were combined into five categories as relating to: 1) Relationships, 2) Homemaking, 3) The Arts, 4) Work or Profession, 5) Self Development, Problem-solve, Play. Fig. 20 displays the percent of the respondents whose creative focus is in each of the five categories.

About 63% of the respondents choose the category having to do with relationships. A higher percent of the middle group of respondents choose this category than the oldest and the youngest respondents (80% to 53%; p=.01). About 43% of the women focus their creative energy in the homemaking category in contrast to 8% of the men; p=.002). Seventy-five percent of the respondents choose the category of the arts. A higher percent of the youngest than the middle group choose the arts (87% to 66%; p=.04). Work or profession as an area for focus of creative energy is included by 66% of the respondents. Not surprisingly a higher percent of the older men and the middle group of women, who are the women most likely to have a career, choose this area in greatest contrast to the oldest women (77%, 70% to 54%; p=.16). The small category of Self-development drew responses from 33% of the respondents. A higher percent of the middle group focus on self-development than either the youngest or oldest groups (54% to 22%; p=.001). Problem-solving is the focus of 15% of the respondents. Play is included by 18% of the respondents with the greatest contrast between the younger respondents and the oldest women (100% YM, 75% Y/3F to 33% O/3F; p=.14)

Relationships

Sixty-four respondents choose among the five sub-categories of the relationship category with 92 responses (Fig. 21). Sixty-four percent of the respondents are married, 58% have children, and 48% of the respondents who chose the relationship category focus their creative energy in the family and parenting sub-category - a somewhat higher percent of the oldest than the youngest group (58% to 35%; p=.17) with the greatest contrast between the oldest women and the older men (71% to 29%; p=±.06). Sixteen percent of the responses are in the partner/spouse sub-category and 11% are in the friendship sub-category. Forty-eight percent of the respondents choose the interpersonal sub-category - a higher percent of the youngest group than the middle and the oldest group (65% to 42%; p=.12) but the greatest contrast is between the

older men and the oldest women (71% to 29%; p=±.01). The group of older men differ from the others in that although they have the largest percent of any group who are married (92%) very few focus their creative energy on relationships within the family as a parent (29%), as a husband (0%), or on friendship (0%) and have the highest percent who focus on interpersonal relations and group organization. Twenty percent focus on organizational and group relationships.

Homemaking

Thirty-five respondents, all but two are women, choose the category of homemaking as a creative focus with 60 responses (Fig. 22). About 40% choose interior decoration and design and cooking as a creative activity of choice - a higher percent of the middle group than the younger women or older women. About 30% said they focus on their home environment and about 20% focus on working with plants, gardening or flower arranging.

The Arts

Seventy-six of the respondents choose among the 5 sub-categories of the arts giving a total of 131 responses (Fig. 23). Within the writing sub-category 3% write fiction or poetry and 55% non-fiction. About 44% choose aspects of the fine arts - a higher percent of the women than the men (52% to 25%; p=.03) with the greatest contrast between the oldest women and the men (58% to 25%; p=.03). About 30% of the respondents put their creative energy into crafts - a higher percent of women than men (36% to 17%; p=.09) with the greatest contrast between the middle group of women and the younger men and the oldest women (47% to 9%, 12%; p=±.02). Of the 22% in the music and dance sub-category, 45% are younger men.

Profession

Sixty-seven of the respondents say they focus their creative activity on their profession giving 87 responses in the six sub-categories (Fig. 24). Teaching is the sub-category chosen by the highest percent of the respondents (58%) with the greatest apparent difference between the younger and older men (75% to 50%). Eighteen percent of the responses are in the administration and education sub-category with a higher percent of the older men contrasting most with the oldest women (50% to 0%; p=±.03). Twenty-four percent of the respondents focus on psychotherapy or nursing with a somewhat higher percent of women than men (29% to 11%; p=.14)) and the greatest contrast between the middle group of women and the younger men (37% to 0%; p=±.05). Twenty-four percent of the respondents focus on the academic/research sub-category with the greatest contrast between the middle and both the oldest and youngest groups of women (42% to 7%,13%; p=±.03). Five percent of the responses are in the business consulting sub-category with a higher percent of the oldest than the younger groups (24% to 0%; p=±.003). Homemaking is included among the professions since is chosen as a major focus for 53% of the women - about 80% of the oldest and youngest women.

Self-Development, Problem-Solve, and Play

Thirty-four respondents responded in the five sub-categories of self-development with 55 responses. Fifty percent of the respondents who chose this category choose thinking ideas, 29% insight and perspective, 32% self development and leadership - a higher percent of the middle than the youngest or oldest groups (53% to 13%; p=.02), 32% creating a life style - a higher percent of the oldest than the youngest (60% to 0% YM, 14% Y/3F; p=.02), and 18% meditation and dreaming creatively. Fourteen percent of the total respondents choose problem-solving as a focus

of creative activity and 17% of the respondents focus on play including humor, games, and use of free time mostly chosen by the youngest group (29% to 8%; p=.03) and by 42% of the younger men (Fig. 25).

The Creative Experience as Reported by 103 Respondents

About Getting the Idea

"When you need an idea to either create something or to resolve some problem, which, if any, of the following things do you do which help?" (Fig. 26)

The most frequently chosen activities as an aid for getting a needed idea are walking/running (55%), talking to a friend (49%), writing about it (49%), doing some household task (47%), brainstorming (43%), or going to a quiet place (44%). The least frequently chosen activities for all groups are taking a shower or going to a place filled with people. Some of the choices among the sub-categories vary with age. Compared with the oldest third of the respondents a higher percent of youngest third talk with a friend (55% to 46%), brainstorm (52% to 37%), or play music (58% to 26%; p=.01) and a higher percent of the oldest respondents go to a quiet place (51% to 36%) or set a deadline (29% to 15%). Compared to the middle third age group a greater percent of the oldest third group walk (69% to 46%; p=.05), persist (43% to 29%), go to a special room (46% to 23%; p=.04), and a smaller percent write about it (40% to 54%). Compared with the youngest third age group a greater percent of the middle third age group do a task (57% to 39%), meditate (46% to 24%; p=.06), or pray (34% to 12%; p=.03). A greater percent of women than men talk to a friend (54% to 32%; p=.06) or do some task (51% to 32%; p=.09).

When the sample when is divided by both age and gender more significant differences become apparent. The highest percent of those who walk or do some physical exercise to help get an idea are the oldest women in greatest contrast to the older men

(76% to 38%; p=.02). A higher percent of the younger women choose talking to a friend than younger men (62% to 17%; p=.01). A higher percent of the older men write about it than do the younger men (62% to 33%) but also a significantly higher percent of the youngest and middle groups of women write about it than do the oldest women (58% to 32%; p=.04). A higher percent of the middle third women compared to the younger men do a task (59% to 25%; p=.05). A higher percent of the oldest respondents go to a quiet place than do the youngest respondents (51% to 36%; p=.19). A higher percent of the older men brainstorm in greatest contrast to the oldest women (69% to 24%; p=.01). A higher percent of the youngest women play music than older men (54% to 15%; p=.03). A higher percent of the oldest women persist than do the middle group of women (48% to 22%; p=.05). A higher percent of the middle group meditate to get an idea in greatest contrast to the youngest group (46% to 24%; p=.06). A higher percent of the younger women and the oldest women than younger men or the middle group of respondents go to a special room (46% to 23%,17%; p=.04). A higher percent of the middle group of women pray than the youngest women (33% to 12%; p=.03). A higher percent of the older women will set a deadline for themselves than will younger men (28% to 0%; p=.04).

"Does an idea come on demand when you need it, when the pressure is on?" (Fig. 27)

Fig 27 presents a partially cumulative graph showing that 94% of the respondents get their idea on demand at least sometimes and 57% get their idea often or always. There are no significant age or gender differences.

"Is incubation a necessary stage in your creative process?" (Fig. 27)

Again 94% of the Respondents feel that incubation is necessary at least sometimes and 56% say it is often or always needed - a higher percent of the oldest respondents than the youngest respondents feel that incubation is often or always

necessary (67% to 42%; p=.05). Thirty-eight percent of the oldest women say that incubation is always necessary. Only 6% say incubation is never or seldom necessary and 21% say it is always necessary.

"When an idea comes to you, which of the following best describes your experience: Do you feel as if you have been..." (Fig. 28)

About 34% of the respondents feel they are passive receivers of an idea and 75% feel they are an active agent. Some say that both are sometimes true. A higher percent of the middle group of respondents feel as if they are passive receivers of the idea than the youngest respondents (43% to 24%; p=.10) and the smallest percent feel they are the active agents in getting the idea compared to the oldest respondents (66% to 86%; p=.05).

"Do you get into a receptive state and catch ideas as they come along, deciding use and purpose later?" (Fig. 28)

About 73% feel getting into a receptive mood important - a slightly higher percent of older women (77%) than older men (62%).

___ "Does the 'Creative Muse' seem to come and go?

___ Do you have rather long fallow periods that you simply have to wait out?" (Fig. 28)

About 67% of the respondents experience the muse as coming and going with a higher percent of men than women (80% to 63%) with greatest contrast with the oldest women (80% to 56%; p=.07). Fifty-one percent experience fallow times when ideas do not flow - a higher percent of youngest women than the middle group of women (62% to 41%).

"What is your sense of the source of the idea or solution?" (Fig. 28)

Most of the respondents believe that the source of an idea is from their own unconscious (63%) or as a result of their own synthesis (58%). A higher percent of the middle group feel the idea is from an external source than do the youngest group (37% to 15%; p=.04). A slightly higher percent of women than men attribute the idea to a spiritual source (47% to 32%) with the greatest contrast between the middle group of women and the youngest men (74% to 25%; p=.004).

"What kinds of emotions or feelings do you experience at the beginning of the creative process before the idea has emerged?" (Fig. 29)

The emotions most commonly reported as experienced before getting an idea by the respondents are excitement (65%), restlessness (54%), a sensory association (52%), and a sense of urgency (50%). The highest percent of the oldest women report experiencing excitement in greatest contrast to the middle group of women (80% to 48%; p=.02). A somewhat higher percent of men than women have a sense of urgency (64% to 46%) with the greatest contrast between younger men and older women (67% to 41%; p=.12), and a higher percent of women than men report they experience tension (45% to 28%) with the greatest contrast between the middle and the youngest group of respondents (54% to 27%; p=.02). A higher percent of the youngest women make a sensory connection with getting the idea than the middle group of women or the older men (65% to 37%; p=.04). A higher percent of older men than younger men experience restlessness (69% to 42%), frustration (38% to 17%), confusion (38% to 8%), and find it more painful waiting (31% to 0%). A higher percent of younger men feel they are working hard contrasting most with the youngest women (50% to 19%; p=.05) and experience inner stillness contrasting most with the oldest women (50% to 12%; p=.01).

"What kinds of emotions or feelings do you experience at the beginning of the creative process after the idea has come or been achieved but before you begin work on it?" (Fig. 30)

The two major feelings associated with getting an idea are excitement (72%) with the greatest contrast between the youngest and the oldest of the respondents (85% to 63%; p=.04) and pleasure (60%), with a significantly higher percent of the older group experiencing pleasure (71% to 49%; p=.02) - 100% of the older men compared with only 44% of the middle third women. A higher percent of the older respondents experience urgency to get started than the younger respondents (54% to 35%; p=.06) with the greatest contrast between the oldest women and the younger men (60% to 17%; p=.02). A slightly higher percent of women than men report experiencing elation (36% to 24%) varying from 41% of the middle third women to only 23% of the older men. A significantly higher percent of young men experience a sense of resolution than those in any other group (67% to 30%; p=.004) and tension release compared to the oldest third respondents (42% to 9%; p=.04). About 26% of the respondents experience getting the idea as mysterious, 18% experience surprise and 18% a sense of achievement. A higher percent of the men than women find getting the idea painful (16% to 3%).

Form of the Idea

"In what form does the idea first come to you?" (Fig. 31)

The greatest percentage of the respondents experience the idea as an image (63%) with the greatest contrast between the younger men and the older women (83% to 49%; p=.03). Of the 48% who experience the first form of the idea as in words the greatest contrast is between the younger men and youngest women (75% to 38%; p=.04). Of the 52% who experience the idea as intuited the greatest contrast is between the middle group of women and the younger men (67% to 42%; p=.10). A higher

percent of the younger than the older respondents experience the idea kinesthetically (22% to 6%; p=.02).

"What does the idea seem like?" (Fig. 32)

More than half of the respondents (56%) believe a new idea is usually a new combination with the greatest contrast between the older and the middle group of respondents (66% to 49%) and 41% feel it is a new discovery with the middle group of women and the younger men contrasting most with the older men (49% to 23%; p=.04). Of the 34% who feel the idea is a new creation a higher percentage are women (37% to 24%) and younger (41% to 27%) with the youngest women contrasting most with the older men (50% to 15%; p=.04).

"How do you experience the idea? Does the idea come

___ as nearly full-blown such as a complete or vivid image or knowing, coming together all at once so that it only needs to be executed?

___ as an embryo which requires that you nurture it to make it evolve or unfold?

___ as something vague, nebulous or unformed?

___ other - what? How would you describe it?" (Fig. 32)

In response to the question of the form of the idea at its inception 52% say it comes full-blown and more or less complete with about 60% of the older men and younger women contrasting with about 40% of the younger men and oldest women (p=.08). Of the 59% who feel the idea to be something like an unformed embryo not yet developed and unfolded the greatest contrast is between the oldest women and the older men (72% to 46%; p=.12). About 22% say the first form of the idea is vague and nebulous and many say the idea is a combination or is different at different times.

Assessment of the Product of the Creative Effort

"Which of the following best describes the product of your creativity?" (Fig. 32)

The highest percent (62%) of the respondents experience the results of their creative effort as something that gradually unfolds ranging from 74% for the middle group of women to 50% for the youngest respondents (p=.07). A higher percent of men than women experience the result of their creative work a surprise (44% to 21%; p=.02) with the greatest contrast between the older men and the older women (46% to 15%; p=.02). The least contrast among the groups is among the 37% who feel the product is what had been envisioned.

Experience During Creative Work

"During the creative process which of the following are true for you? (Fig. 33)

___ You become so immersed in the work that you become unaware of your surroundings?

___ have a constant inner dialogue about what you are going to do next whether it is going well or not or what to do to readjust, etc.?

___ the inner voices are silent?

___ are unaware of time passing?

___ can keep an appointment in mind and still keep connected to the work?

___ an interruption such as a telephone call so interrupts the work or disrupts the flow that the spell is broken and you cannot get back on the track or reconnect?

___ can resume where you left off after an interruption?

___ an interruption gives you a rest and a perspective which is helpful when you return?

___ must be alone during the creative process?

___ can work with other people around as long as they do not interrupt you?

___ work better when people are around?

___ since your creative work involves people, their presence and interaction is essential?

___ other people are the source of my creative energy and their presence is therefore vital for my creative process?

___, other?"

Immersion in the work is experienced by 57%, by a higher percent of women than men (62% to 44%; p=.12), with the greatest contrast between the older women and the younger men (67% to 42%; p=.12). Of the 57% who report having an inner dialogue the highest percent are among the youngest group of respondents and the smallest percent are from among the oldest respondents (67% to 49%; p=.13). Of the 54% who report experiencing a sense of timelessness the greatest contrast is between the middle third group of women and the youngest women (70% to 35%; p=.01). Only 5% report having no inner dialogue.

In response to questions concerning interruptions during creative work, about 29% can keep an appointment in mind, 29% find their work disrupted by an interruption, and 59% say they can resume work satisfactorily after an interruption. A significantly higher percent of men can resume creative work after an interruption than women (76% to 54%; p=.05) with the greatest contrast between men and older women (76% to 49%; p=.03). Concerning relationships to others during creative work 54% require being alone for creative work - a higher percent of the middle group than the youngest group (66% to 42%; p=.05). The variation for having people around okay is from 42% of the youngest to only 29% of the middle group and for having people around helpful the variation is from 19% of the youngest women to 4% of the oldest women. A higher percent of older men and the middle group of women than the youngest respondents say that interaction with people is needed (37% to 15%; p=.08). Only 15% say that interaction with others is vital for their work.

"As you work, how do you experience accidents or unplanned happenings?" (Fig. 34)

Only 15% of the respondents consider accidents as misfortunes and only 9% say that an accident causes them to discard their work. Most (64%) say an accident causes them to redirect their work - a higher percent of women than men (69% to 48%; p=.05), and varies from 81% of the youngest women to only 33% of the younger men (p=.01). Accidents are expected by 36% varying from 54% of the older men to 32% of the women (p=.12) and not expected by 22% of the middle group of women but by none of the younger men (p=.08). A higher percent of the older respondents experience accidents as a gift for a new direction (38% to 25%) - especially older men (46%). A higher percent of men than women look for hoped for freshness from accidents (36% to 15%; p=.03) - especially the younger men in greatest contrast to the middle group of women (50% to 7%; p=.006). A higher percent of younger men than older men try for a happy accident (33% to 8%; p=.10) and a higher percent of men than women are successful in making a happy accident happen (40% to 17%; p=.01), with the greatest contrast between the men and the middle group of women (40% to 7%; p=.005) The smallest percent of younger men use an accident to redirect their work (33%) yet the greatest percent say they use an accident for hoped for freshness (50%), try for a happy accident (33%), and are successful (42%). In contrast to the other groups older women are least apt to see accidents as misfortunes, least apt to discard because of an accident, fewest expect accidents, fewest use for hoped for freshness and are least able to make a happy accident happen.

Environmental Needs

"What do you need in your environment to be creative or more creative?" (Fig. 35)

The greatest environmental needs in order to do creative work identified by the respondents are a neat place in which to work (57%), uncommitted time (65%), quiet

solitude (60%), freedom from demands (52%), and distractions (39%). Concerning the question about a neat place or evocative chaos, a significantly higher percent of women than men require a neat place (62% to 32%; p=.01) varying from 69% for younger women to only 23% for the older men (p=.003). Evocative chaos is selected by a higher percent of the older men and least by the younger women (23% to 8%). A higher percent of middle group of women require quiet solitude than the youngest women (70% to 42%; p=.02). A higher percent of women than younger men identify the need for uncommitted time (67% to 42%; p=.06). Older men identify the need for freedom from demands more frequently than younger men (69% to 33%; p=.07) and a higher percent of older men require freedom from distractions than the youngest respondents (62% to 27%; p=.03). About 34% of the oldest compared with only 14% of the middle group of respondents find music helpful (p=.05).

About External Conditions

___"Do you consider structural limitations or rules such as size, color, shape, range, time, use, purpose, audience, etc. as helpful structure?

___ or as unwanted restrictions?

___ as a challenge? (Fig. 36)

More than 52% of the respondents find limits challenging and 45% find them helpful with 16% saying that limits are not wanted. A higher percent of younger men find limits challenging contrasting most with younger women (75% to 44%; p=.06). Yet the smallest percent of younger men find limits helpful contrasting most with older women (33% to 54%).

___"Would you prefer a commission with prescribed goals and specific purpose?

___ or to create freely and sell or put to use after it is finished? (Fig. 36)

Commissions for creative work are preferred for 33% of the respondents, for a higher percent of men than women (44% to 29%) varying from 46% of the older men to 26% of the youngest women. Half of the respondents say they prefer to do the creative work first and sell afterwards, with the greatest contrast between the oldest and the youngest women (64% to 42%; p=.12).

"If you had greater monetary resources

___ would you experiment more, be more creative?

___ or not do anything differently? (Fig. 36)

Having more money is seen as a help for increasing creativity by 70% of the respondents in contrast to 28% who say it would make no difference. There is no difference over all between men and women but there is a significant difference between the older and younger groups. A higher percent of the younger respondents feel that more money would allow them to develop their creativity (84% to 56%; p=.002) with the greatest contrast between the youngest and the oldest women (92% to 28%; p=.0001). A higher percent of the oldest women than the youngest women say more money would make no difference (60% to 12%; p=.0001) and about 46% of the older men say that money would not help their creativity in contrast to only 8% of the younger men (p=.03). Most of the respondents saw more money as providing more time and/or materials with which to work.

___ "Does a deadline or outside pressure help you be more creative?

___ or does it hinder you?" (Fig. 36)

Attitudes about deadlines vary little by age or gender. Two thirds of the respondents feel deadlines help and 29% say that they hinder creativity. The older men

(77%) feel that a deadline helps compared to 58% of the younger men who find a deadline helpful (p=.09). More younger men feel that a deadline hinders compared to the older men (42% to 23%).

___"Does working for a sale or a market make your work better?
___ or worse?" (Fig. 36)

About a quarter of the respondents feel having a market helpful with a higher percent of the respondents from the oldest than the youngest groups (34% to 17%; p=.09) and 18% say it is not helpful - the younger women contrast most with the older men (26% to 0%; p=.04).

About Blocks and Obstacles to Creative Activity

"What blocks you or stops the creative process?" (Fig. 37)

The greatest obstacle to creative activity is seen as lack of time and/or space (82%) with a significant difference between youngest and oldest respondents (91% to 73%; p=.05). Lack of energy after essential work is finished is cited by 70% of the respondents, unexpectedly by a significantly higher percent of youngest women with the greatest contrast with the oldest women (92% to 57%; p=.004). Personal problems are seen as hindering creative activity for 55% of the respondents. Curiously there is a significantly higher percent of both the older men and the youngest women who find personal problems as blocks to the creative process in greatest contrast with the oldest women (81% to 31%; p=.0001).

The psychological blocks most often cited have to do with self-confidence. Wavering self-confidence is cited by 44%, with the greatest contrast between the younger women and the younger men (62% to 25%; p=.03). Lack of self-confidence is cited by 34%, with the greatest contrast between younger and older women (49% to 21%; p=.01). Loss of confidence during the creative process is experienced by 23% of

the respondents with the greatest contrast between younger and oldest women (36% to 4%; p=.004). Overall, some degree of confidence lack is defined as the most prominent problem block for the younger group - especially younger women. There is a significantly greater difference in self-confidence between the younger women and all other groups.

Fear of failure is cited by 43% of the respondents - with a significant difference between the younger and oldest respondents (55% to 24%; p=.006), with the greatest contrast in responses between younger and older men (67% to 23%; p=.03). The inner critic is acknowledged as a hindrance to creativity by 49%, more of the younger than the older respondents (63% to 33%; p=.005). The greatest contrast is between younger women and older men (67% to 23%; p=.006).

Getting stuck in a pattern is cited by 40%. There is a significant difference between younger and older men (50% to 8%; p=.02) and between the oldest women and the older men (57% to 8%; p=.004). Almost half of the respondents are blocked because the idea is too big. This was most true for a somewhat higher percent of the youngest women and least for older men (62% to 38%; p=.17). The idea as too small to be worth doing discourages 33%, more men than women (44% to 29%). A higher percent of both the older men and the youngest women contrasts most with the middle group of women (46% to 15%; p=.02). Preliminary work such as skills or knowledge required before creative work can be done blocks 40%, with the greatest contrast between the younger and older women (49% to 28%; p=.11). Defense meaning "if I don't try I cannot fail" is seen as a block by 13% - for a higher percent of the younger than the older respondents (20% to 6%; p=.05)

Overall the older respondents particularly older women do not experience blocks as much as the younger group. The highest percentage of blocks are experienced by the younger women. Compared to all the other groups more of the younger women lack self-confidence, have a wavering self-confidence, experience loss of confidence during the

creative process, have ideas that are too big to accomplish or too small, have a need to develop preliminary skills or knowledge, suffer from personal problems, lack time and space for working, and lack sufficient energy when other more essential work is finished. More of the younger men fear failure, use excuses to not try, get stuck in a pattern, and lack time and space. The smallest percent of older men fear failure, suffer from an inner critic, get stuck in a pattern, find the idea too big, are stopped by defenses or lack energy. The smallest percent of the older women respondents suffer loss of self-confidence, are blocked by preliminary work that needed doing, personal problems, lack of time and space, defense, or lack of energy.

"How do you deal with blocks or major difficulties that come up during the work? Does what you do work for you?" (Fig. 38)

Almost three-fourths of the respondents stop when they feel stuck or blocked in their creative effort, do something different, and try again later. A third of the respondents say they stop and wait for a solution to come. This response is the pattern for a higher percent of older men than younger men and oldest women (54% to 24%; p=.07). Of the 27% who try to do it differently the greatest contrast is between the oldest women and the younger men (40% to 17%; p=.16). A higher percent of men abandon the work when blocked than women (28% to 9%; p=.02) and a higher percent of older men will abandon the work than older women (31% to 5%; p=.01).

Three-fourths of the respondents report that what they try to get beyond blocks succeeds. A higher percent of men report succeeding than women (88% to 69%; p=.06) with the greatest difference between younger men and youngest and oldest women (92% to 64%; p=.07).

___"Is your curiosity and habit of mind broad, wide-ranging, all encompassing?

___ selectively narrowed and/or focused on a few discrete areas closely?

___ or how would you describe your habit of mind?" (Fig. 39)

Three-fourths of the respondents describe themselves as having a broad wide-ranging curiosity. Twenty-nine percent say that their mind is selectively focused with a significantly higher percent of men than women who say their mind is selectively focused (48% to 22%; p=.02) - the greatest contrast is between younger men and older women (50% to 18%; p=.03).

"While working, which are true for you:

___ Your mind is narrowly focused blocking out divergent thoughts?

___ Your mind is wide open to divergent thoughts which come in to be considered as possible new creative directions to modify the work as you go along?

___ That many new ideas come in all the time you are working which suggest other things to try which seem exciting and make you impatient to be finished with what you are doing?

___ Other ideas distract you?

___ Do you keep a notebook of ideas to try later?

___ What else?" (Fig.39)

A third of the respondents say their mind is narrowly focused while working with a significantly higher percent of younger men contrasting most with youngest women (58% to 23%; p=.03). Two-thirds of the respondents say their mind is wide-open while working. Almost half of the respondents say that new ideas coming to them as they work distract them. This is true for a higher percent of the older men compared to the

others especially younger women (69% to 38%; p=.05). A third of the respondents keep an idea notebook, a higher percent of the youngest respondents in greatest contrast to the older women (41% to 21%; p=.04).

Creative Style

"In your creative work which are true for you ... characterize your style of working?" (Fig. 40)

The largest percent of the respondents (56%) describe themselves as spontaneous - a higher percent of older than younger men (62% to 42%) and 50% work rapidly. About 30% work boldly, 30% work meticulously and 30% work slowly. A significantly higher percent of men work boldly than women (48% to 24%; p=.02) with the greatest contrast between the younger men and the oldest women (50% to 16%; p=.04). A higher percent of older men than the youngest respondents work meticulously (38% to 21%). A higher percent of younger men work slowly than younger women (42% to 21%; p=.14). About 30% of the respondents feel they must be prepared ahead of time with especially for a higher percent of older men contrasting most with younger men (46% to 0%; p=.007). Of the 20% who need to have an alternative plan, a higher percent are the youngest women with the greatest contrast with the middle group of women (35% to 7%; p=.01). About 45% take chances - more of the older men than the middle group of women (54% to 30%; p=.14). Almost 60% of the respondents prefer to wing it - a higher percent of the middle than the youngest group of respondents (71% to 45%; p=.03).

Emotional Reaction to Creative Activity

"Do you experience the creative process as hard work? ___, as fun? ___, as stressful? ___, as pleasurable? ___, as painful? ___, or what? ___." (Fig. 41)

Of the 79% of the respondents who say that the creative process is pleasurable a higher percent are older men than the older women (92% to 70%; p=.09). Of the 77% who say that the creative process is fun a higher percent are men than women (92% to 72%; p=.04). About 60% describe the creative process as hard work with older men contrasting with the youngest respondents (77% to 48%; p=.08), 30% feel it is stressful with the older men contrasting with the youngest respondents (46% to 18%; p=.05), and 22% describe it as painful with the older men contrasting most with the youngest women (38% to 12%; p=.05). A higher percent of older men select every category. A higher percent of older men compared to youngest respondents find creative activity hard work, stressful, and painful.

"How do you feel about compromise, rewriting, cutting to fit a space or a time slot or other criteria of the buyer or critic?" (Fig. 41)

Of the 36% of the respondents who feel okay about compromise to meet an outside criteria many saying that it is helpful and results in better work, the greatest difference is between the youngest women and the middle group of respondents (49% to 20%; p=.03). Twenty-six percent of the respondents regarded compromise as necessary and accepted it without strong feelings. Another 18% regard compromise as a necessary evil and do not feel accepting of it or good about it with the greatest contrast between the younger and older men (36% to 8%; p=.10). About 13% feel terrible or lousy about compromising and revising to meet a demand. The greatest difference is between the older and the younger men (25% to 9%). Seven percent refuse to revise or compromise their work - a higher percent of of the older women refuse (12%) but none of the youngest refuse.

"Do you turn to a creative activity when you are.....?" (Fig. 42)

Oddly, only 70% of the respondents say they create when they are inspired. A higher percent of the youngest respondents create when inspired than the middle group

of women (82% to 56%; p=.05). About two thirds of the respondents create when feeling peaceful and happy - a higher percent of the youngest than the middle group of respondents (73% to 51%; p=.07). About 50% create to keep a balance in their lives and 41% create when joyful or elated. Of the 37% who turn to creative activity to escape, a higher percent are the youngest respondents in greatest contrast to the oldest women (61% to 15%; p=.001). Of the 36% who turn to creative activity to relate indirectly a higher percent are the oldest and the smallest percent are the youngest respondents (43% to 24%; p=.10). Of the 30% who turn to creativity when sad, 30% when bored, 22% when frustrated, 17% when angry, and 38% whenever there is time, the highest percent are the youngest respondents - 52% to 12% of oldest women when sad (p=.001), 45% to 19% of middle age women when bored (p=.02), 39% to 8% of the oldest women when frustrated (p=.01), 23% to 8% of the oldest women when angry (p=.10), and 45% to 23% of the older men create whenever there is time (p=.11). About 17% of the respondents turn to creative activity when tense.

About the Creative Process

"Which part of the creative process do you enjoy most? (Fig. 43)

Of the 62% who most enjoy getting the idea a higher percent are from the middle than the youngest group of respondents (71% to 52%; p=.05) except that 77% of the older men most enjoy getting the idea. About 40% prefer planning and designing, 54% of the older men contrasting with 31% of the youngest women. The greatest percent of the respondents (64%) say that executing or doing the piece of creative work is the most enjoyable - a significantly higher percent of women than men (69% to 49%; p=.05) with the greatest contrast between the older women and the older men (72% to 46%; p=.09). About 22% prefer polishing and finishing with the oldest women contrasting most with the middle group of women (36% to 11%; p=.04). Pleasure in completion is

experienced by 62% of the respondents, a higher percent of men than women (80% to 56%; p=.03), and the greatest percent are young men contrasted to the oldest women (92% to 48%; p=.02). Sharing the finished work with others and getting feedback is a preferred part of the process for 55%, for a higher percent of the men than the women (72% to 50%; p=.05). A higher percent of older men enjoy most the sharing and feedback in greatest contrast with the middle group of women (77% to 41%; p=.03). Of the 26% of the respondents who find recognition enjoyable, a higher percent are men than women (48% to 19%; p=.004), - by the highest percent of younger men and least by the older women (67% to 15%; p=.0005). Of the only 5% who choose a monetary return 17% are the younger men. Overall a significantly higher percent of women choose execution and a higher percent of the older men choose getting ideas, planning and designing, and sharing and feedback. A higher percent of the younger men choose completion pleasure, recognition, and monetary return.

"At which point or points are you most apt to get 'bogged-down' or find most difficult?" (Fig. 44)

Twenty-six percent of the respondents feel that getting the idea is the hardest part - especially for a higher percent of the young men and middle group of women compared to the older men and the youngest women (42%,35%, to 0%, 18%; p=.01). Sixteen percent say that planning and designing is the hardest part to do. Thirty-six percent get bogged down somewhere in the execution stage - for a higher percent of the middle group of respondents and the men than youngest respondents (43%,40% to 27%; p=.03). Thirty-eight percent say that the polishing and finishing stage is the part of the process they find most difficult with 54% of the older men and 45% of the youngest women contrasting with 20% of the older women (p=.04). About 13% say that having difficulty depends or can happen anytime in the process. All of the men responded to the question but 14% of the women did not. The highest percent of younger men have trouble

in the beginning and the middle of the process and a higher percent of the older men at the end of the process. The smallest percent of the youngest women have trouble with the designing and execution stages and the smallest percent of the older women have trouble with polishing and finishing stage.

Attitudes about Creativity

"Why do you create: What is your goal, purpose, or meaning?" (Fig. 45a, 45b)

The answers to the question "Why do you create?" were tabulated simply from the answers given, independent of a consideration of the dozen of so motivations distinguished in the literature review. See Figs. 45a,45b for the tabulated charted results of the respondent's answers. The motivations of the respondents parallel much more closely the motivations distinguished in the literature review than do the definitions with some notable exceptions. It is interesting to compare the motivations as a window on the effect on the respondents of the philosophical and cultural heritage.

1) The creator is passive, is a receiver or a medium without conscious control. None of the respondents say that the creator is merely a medium without conscious control and involvement in the creative process. Although about 44% attribute the source of their idea to an external source or a gift of the gods and about 63% attribute the source of their idea to the unconscious, none include the production of the product or the whole of the creative activity. None agree with Skinner's automatic behaviorism. None seem to agree with Jung's concept that creation is merely uncovering preexisting archetypes or Kant's a priori concepts. None would restrict creativity to art alone.

2) The creator creates because it is natural and genetically innate. About 25% say that creating is a part of living, is a part of being human and alive. "...Can't do other than create.."

3) The creator creates to relieve tensions and inner conflicts, to sublimate his unacceptable erotic desires, to escape shame or guilt, and/or to make restitution for his destructive impulses. None give any motivations that fit Freud's definition.

4) The creator creates because he or she is driven to compensate for feelings of inferiority and insecurity. About 21% said that they are driven to create but are not explicit as to why they feel driven. A higher percent of the youngest women feel they are driven (35%). The smallest percent of the oldest women feel driven (12%). A few say that they create to maintain balance and sanity (8%). Sixty percent say they create because they have a need or desire to express themselves. The young and middle group of women are most likely and the oldest respondents are least likely to say they create to express themselves (78% to 36%; p=.002).

5) The creator creates for the self-esteem enhanced in achievement. To achieve something and the satisfaction of the achievement is cited by 62%. A higher percent of the middle group of women in greatest contrast with the oldest and youngest women are motivated by the desire for achievement (83% to 48%; p=.001).

6) The creator creates to grow and evolve, to self-actualize, to discover and use one's potential, and for self-gratification. About 46% say that they create to fulfill themselves. About 54% say they create to expand themselves - more of the middle group than the oldest (74% to 31%; p=.0003) and a somewhat higher percent of women than men (58% to 44%). Sixty-five percent say they create to learn and to use their abilities and skills - more of the middle group than oldest (77% to 49%; p=.01). Those who define creativity as a challenge (22%) imply that the challenge is the motivation.

7) The creator creates to experience the pleasure of an altered state of consciousness. None of the respondents mention an altered state of consciousness but 51% percent say they create because it is enjoyable, gives them pleasure - a higher percent of the middle group of women than the oldest women (67% to 44%; p=.10).

Thirty-three percent say they create for aesthetic joy - a higher percent of the older women than the youngest women (49% to 15%; p=.006). And 15% because it is exciting.

8) The creator creates to find beauty, truth, wisdom, and/or order. Those who say they create for aesthetic joy (33%) fit this category. Those who define creativity as development and expression of ideas (52%) and as integration and synthesis (42%) imply the motivation to find truth and order. Seventy-eight percent said their goal was to capture truth and/or beauty in answer to the direct question.

9) The creator creates to satisfy a need to find an harmonious and integrating form for the ideal, to create order out of chaos. None are explicit in giving this motivation but again those who define creativity as development and expression of ideas and as integration and synthesis imply the motivation to find an integrating order.

10) The creator creates to find meaning and to reach for immortality. About 23% say that they are searching for meaning and a spiritual connection of some sort through creativity - a higher percent of the middle group of women in contrast to the older men (37% to 0%; p=±.01). Others say they want to become an authority in their field for posterity, to fulfill their purpose, and to contribute to society - a higher percent of men than women (44% to 17%; p=.01). Achievement also has elements of the desire to leave a lasting mark.

11) The creator creates to satisfy his curiosity, to find novelty, or to avoid boredom. Several specifically say they pursue creative activity to escape boredom and to make life more interesting, to feel more alive or because it is fun (23%) with the greatest contrast between the younger and the older men (42% to 0%; p=.01).

12) The creator creates to solve problems. Problem-solving is explicitly given as a motivation by 27% - a higher percent of the middle group of women and the men in contrast to the oldest and youngest women (42% to 12%; p=.01).

13) The creator creates to control, predict, understand, and improve his or her world. The motivations of problem-solving, of fulfilling one's purpose and contributing to society, and learning and using abilities fit this motivational category.

14) Being of service to others and improving communication with others is the motivational category not included in the other motivations. A higher percent of the middle group distinguish this motivational category with the greatest contrast between the younger and the older men (83% to 46%; p=.03).

The various motives fall into several categories relative to their focus. Some motivations such as fulfillment of self, self-expression, appreciation of the uniqueness of the self as in self-actualization, as driven, as pleasurable, as providing aesthetic joy, or as a way to find spiritual meaning are rooted in the self. Other motivations such as expanding oneself, to learn, to use and develop abilities have a more external outward focus. Some motivations such as serving others, to communicate with others, to share aesthetic joy, to find peace, harmony, to feel alive, excitement, and solve problems are much more rooted in relationships and an encounter with the world. Some motivations bridge between categories and partake of both such as becoming an authority (self) and make a contribution (other) or problem-solving as joy of fit or solution (self) or as solving problems for others (other). Achievement is satisfaction and posterity (self) and contribution to the society (other).

___"Is it a goal to make a significant contribution to your society or culture by some creative achievement?

___ to capture beauty or truth in some way?

___ Do you feel that only you can do this piece of work because of the unique convergence of your talent or ability, individuality, time and place?

___ Do you believe every one is potentially creative?

___ Do you believe that everyone has the potential to create a good piece of work?

___ a significant piece of work?

___ Do you believe that you have the potential to create a significant piece of work?

___ Do you believe you have a responsibility to use your creative ability for some purpose beyond your own personal expression? " (Fig. 46)

Fifty-five percent of the respondents have as a goal of their creative activity to contribute something to society - a higher percent of men than women (68% to 51%; p=.08) and older men contrasting most with the oldest women (77% to 44%; p=.05). Of the 78% who have as a goal to capture beauty and/or truth a slightly higher percent of the oldest women have this goal contrasting most with the younger men (84% to 67%). A third of the respondents feel that only they can do this particular creative piece of work. Ninety-three percent think everybody is potentially creative and 73% think everyone has the potential to do a good piece of creative work with the greatest percent among the youngest women and the smallest percent among the younger men (85% to 50%; p=.01). More than a third think that everyone has the potential to do significant work - a higher percent of the youngest than the oldest respondents (48% to 23; p=.03). Of the 81% who believe that they themselves can do a significant piece of work the highest percent are younger men and the lowest percent are older women (100% to 69%; p=.03).

A significantly higher percent of women believe that everyone has the potential to do a good piece of creative work. A significantly higher percent of the younger respondents think that everyone can do a significant piece of creative work. A significantly higher percent of the younger men believe themselves capable of doing significant work. Sixty-five percent of the respondents believe they have a responsibility to use their creative ability for some purpose beyond their own personal expression. The older men contrast most with the oldest women and younger men (77% to 56%, 58%).

Experience of Responding to the Questionnaire

The third section of the Questionnaire asked semi-open-ended questions about the experience of responding to the questionnaire (Fig. 47).

"Did answering some of the questions help you clarify or illuminate your creative experience or make you aware of your own process?

Did it make you think about your experience differently?

Did it serve to suggest new ways to try to expand your creative activity?

What are your feelings and thoughts about the questionnaire?

Did you experience responding to the questionnaire as hard work? ___, Fun? ___

What?

About 75% of the respondents said answering the questions clarified their thinking about creativity and their creative process - a higher percent of the older than the younger respondents (87% to 63%; p=.04). Seventy-three percent of the respondents said that it stimulated them to think differently about their own creative experience - for a higher percent of the oldest group than the middle group (87% to 61%; p=.02). Of the 72% who said that it stimulated their thinking about creativity, a higher percent are of of the oldest group in contrast to the middle group of respondents (87% to 55%; p=.01). Thirty-three percent said that responding to the questionnaire served to suggest new ways to try to expand their creative activity. A higher percent are among the youngest group compared to the older group (50% to 23%; p=.02) with an even greater contrast between the younger and older men (55% to 17%; p=.06). Twenty-four percent of the respondents said that responding to and thinking about their own personal biography was valuable and insightful even when stressful - for a greater percent of women than men (30% to 4%; p=.01). None of the older men in a significant contrast to those in other groups, especially the 35% of the middle group of women, commented on the biographical section (p=.02).

About 46% thought answering the questionnaire was hard work with the greatest contrast between the middle and youngest women and the older men (51% to 25%; p=.10). Nineteen percent said it was interesting - a higher percent of men than women (35% to 14%; p=.03) with the greatest contrast between older men and the oldest women (42% to 5%; p=.01). Six percent said the questionnaire was boring or frustrating. Forty-one percent said it was fun to respond to - for a higher percent of the middle group of women than the youngest group of women (54% to 22%; p=.02). Twenty-nine percent said the questionnaire was important or helpful - for a higher percent of men than women (43% to 24%; p=.08) and for the younger men more than the oldest women (55% to 14%; p=.02).

"How long did it take you to answer this questionnaire?" (Fig. 48)

Eighteen percent of the respondents spent about a half hour on the questionnaire - a higher percent of the youngest women in contrast to the middle group of women (38% to 7%; p=. 01), and 10% spent more than three hours on it - a higher percent of men than the women (24% to 4%; p=.±.01) with the greatest contrast between the older men and the oldest women (31% to 4%; p=±.02). Forty-three percent of the respondents spent 1-1.5 hours on the questionnaire and 29% spent 2-2.5 hours on it. Compared to the older men a higher percent of the younger men spent 2-2.5 hours on it (50% to 8%) and a higher percent of the older men spent 1-1.5 hours on it (53% to 17%; p=.02) or really got into it and spent three or more hours on it (31% to 4% of the oldest women; p=±.02). The men spent more time with the questionnaire than did the women (averaging respectively 2.2 to 1.4 hours per respondent). The greatest contrast is between the older men and the younger women (averaging 2.5 to 1.3 hours).

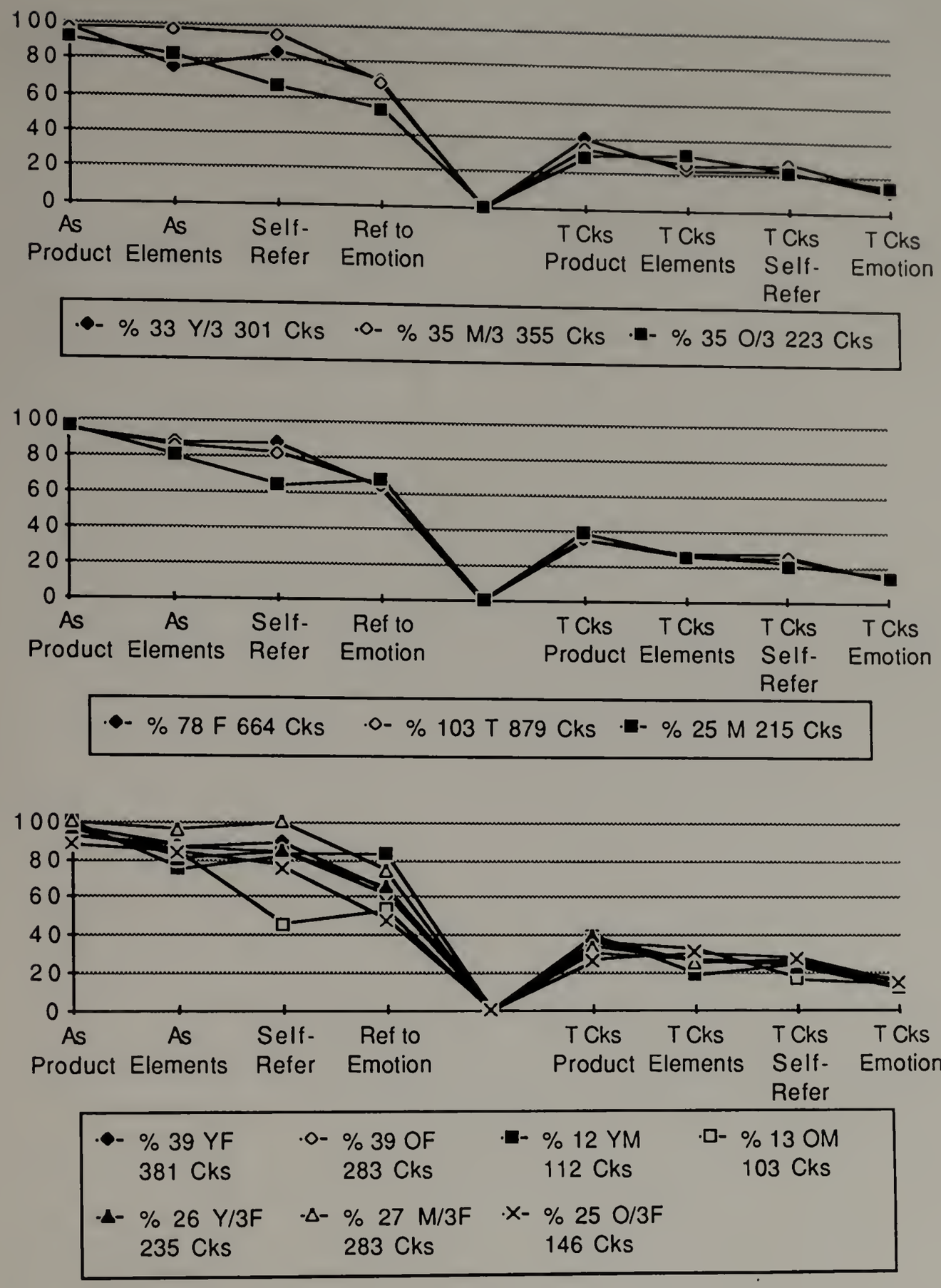


Fig. 16 Percent of Respondents and Percent of Total Checks in Each Definition Category. Sorted by Age and Gender

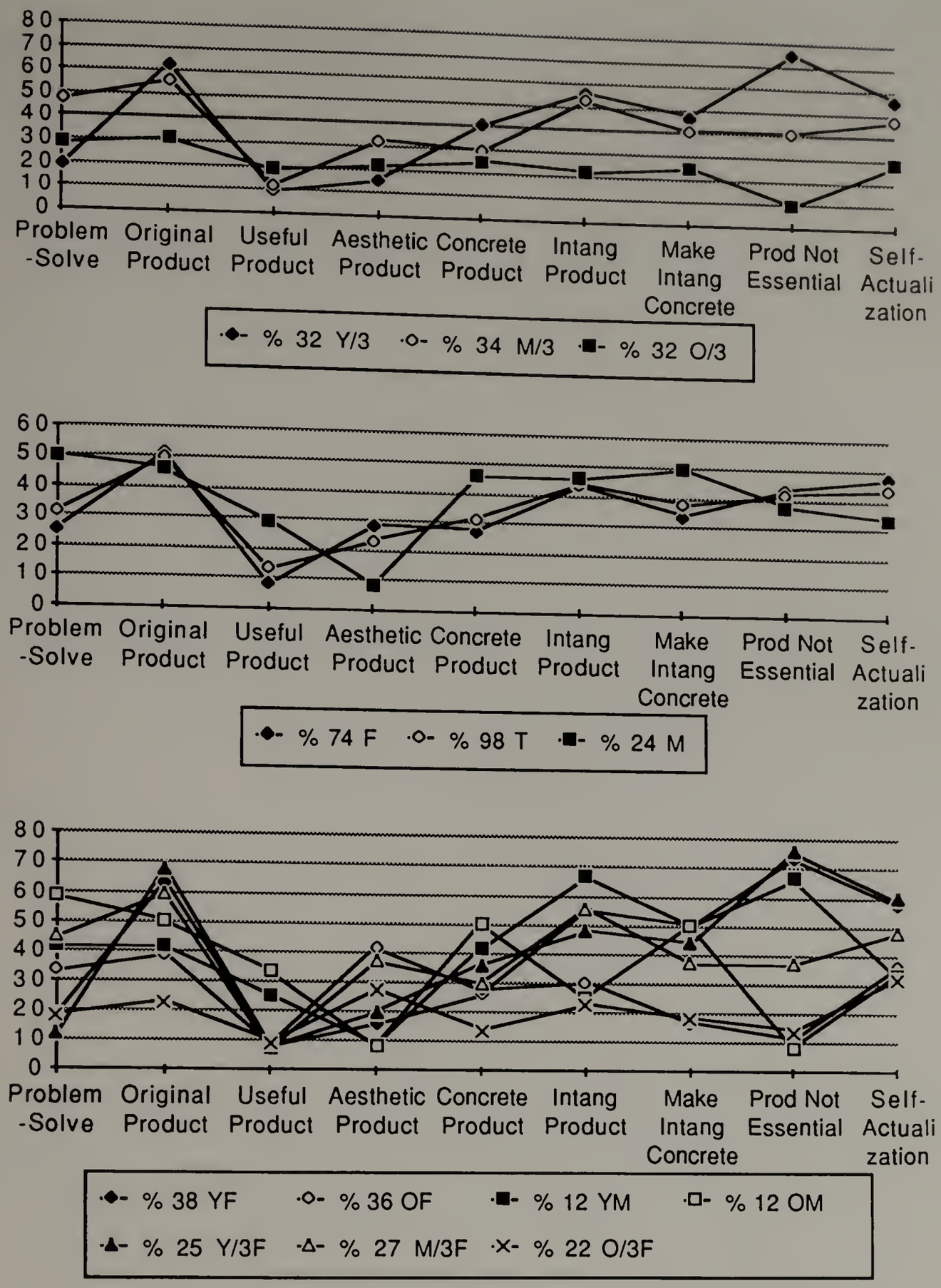


Fig. 17 Creativity Defined in Terms of a Product.
Sorted by Age and Gender

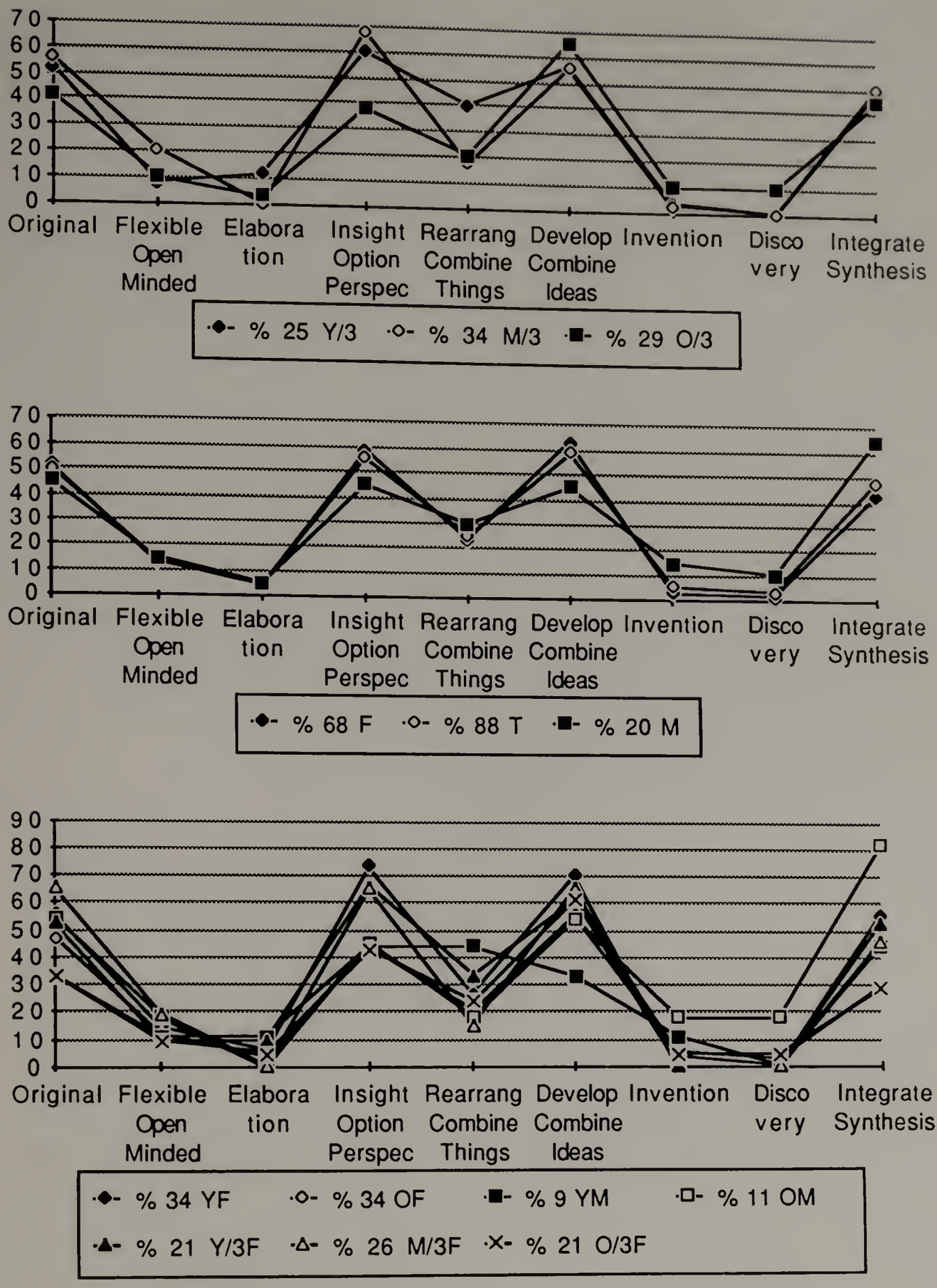


Fig. 18 Creativity Defined in Terms of the Elements of Creativity.
Sorted by Age and Gender

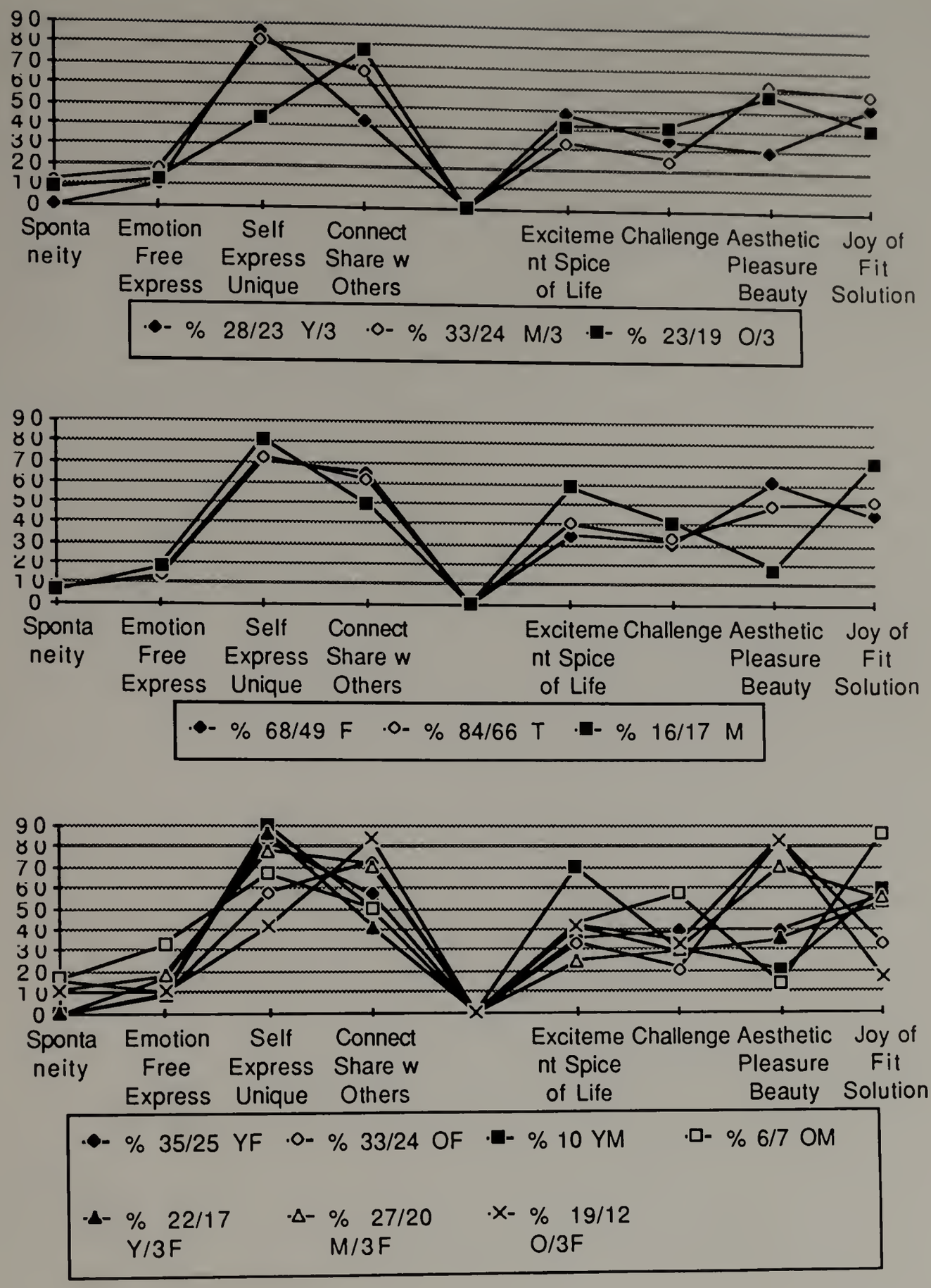


Fig. 19 Creativity Defined with Reference to Self; Others; and Emotions. Sorted by Age and Gender

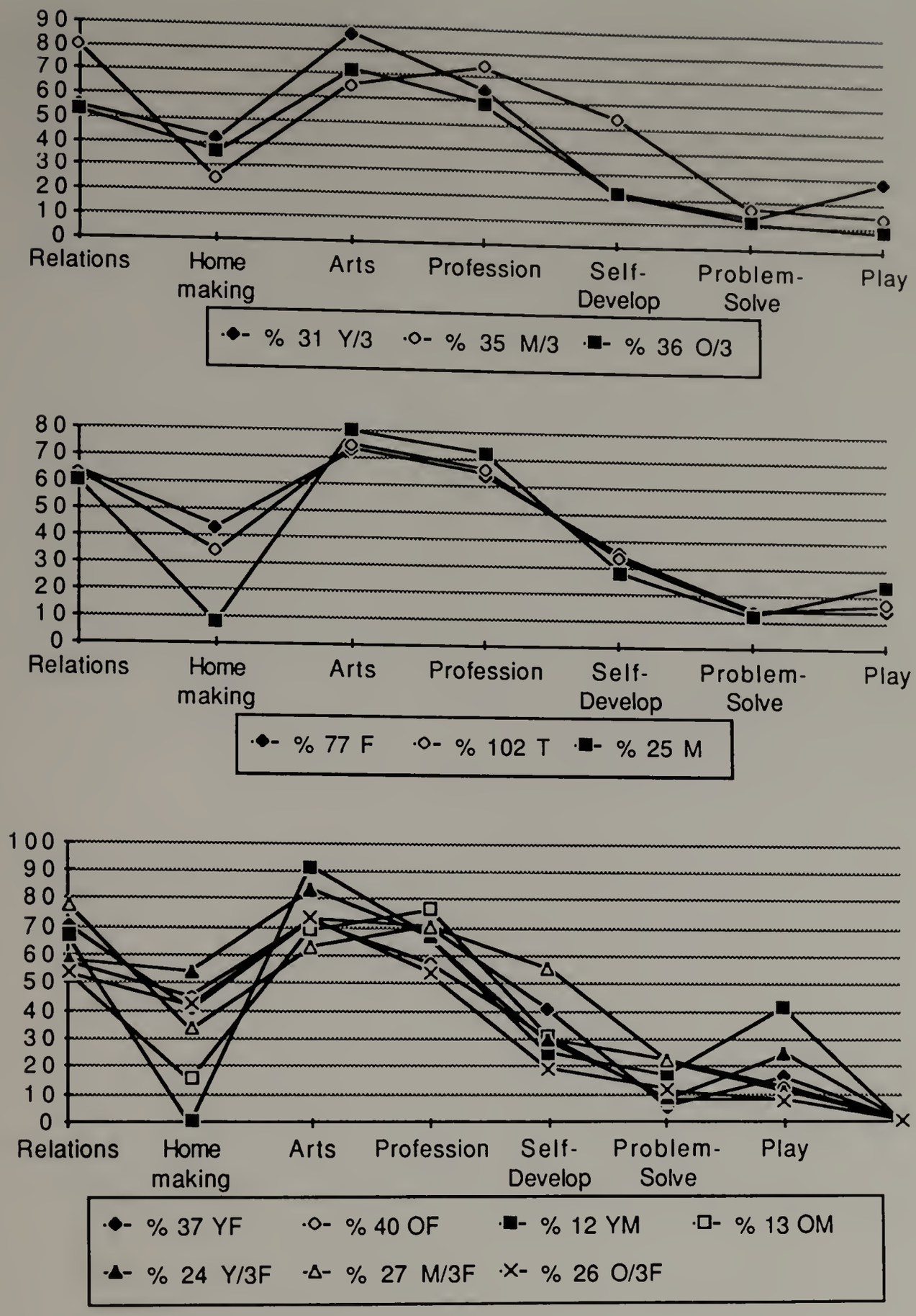


Fig. 20 Creative Activity of Respondents.
Sorted by Age and Gender

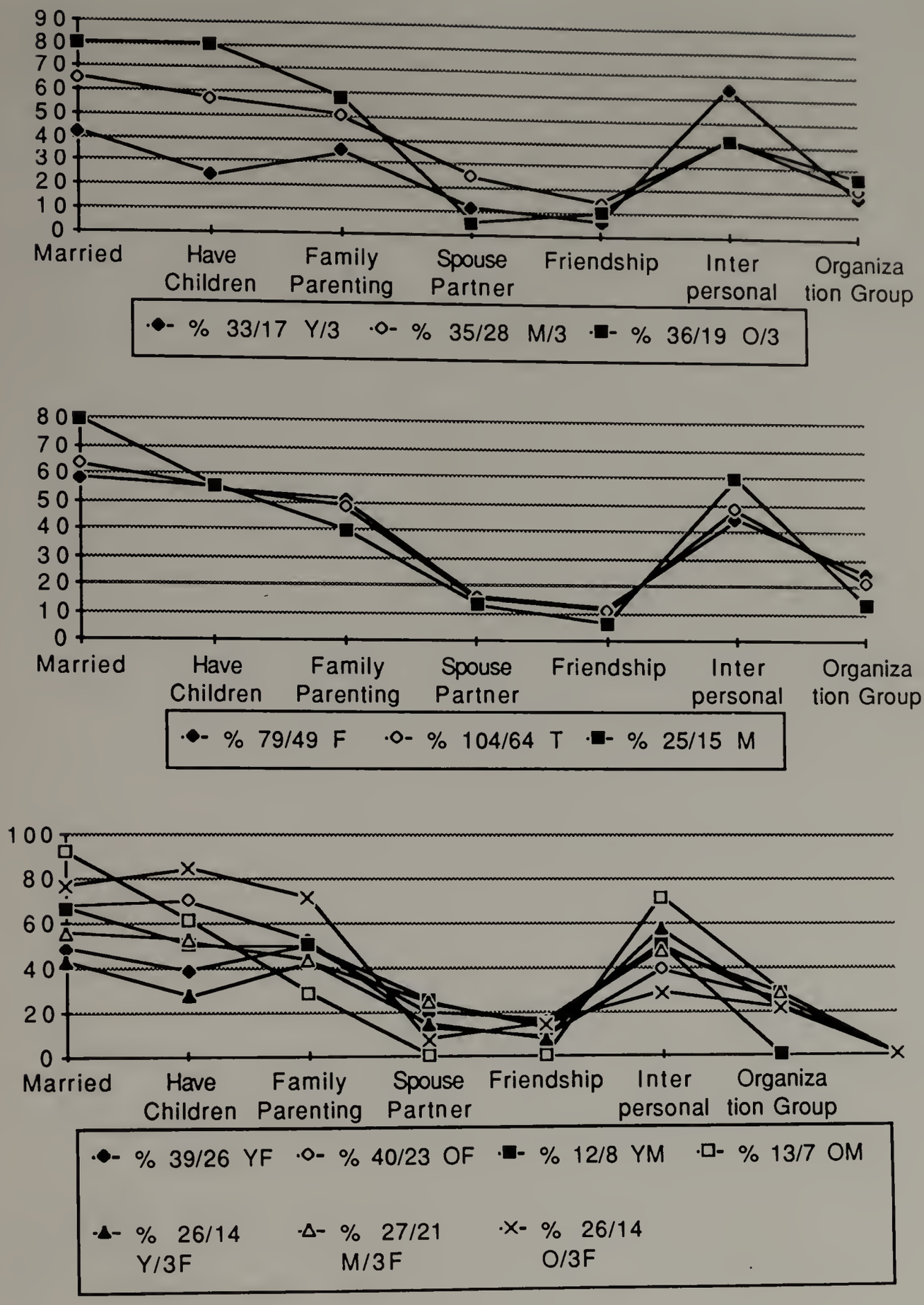


Fig. 21 Percent of Respondents Who Focus Their Creative Energy on Relationships. Sorted by Age and Gender

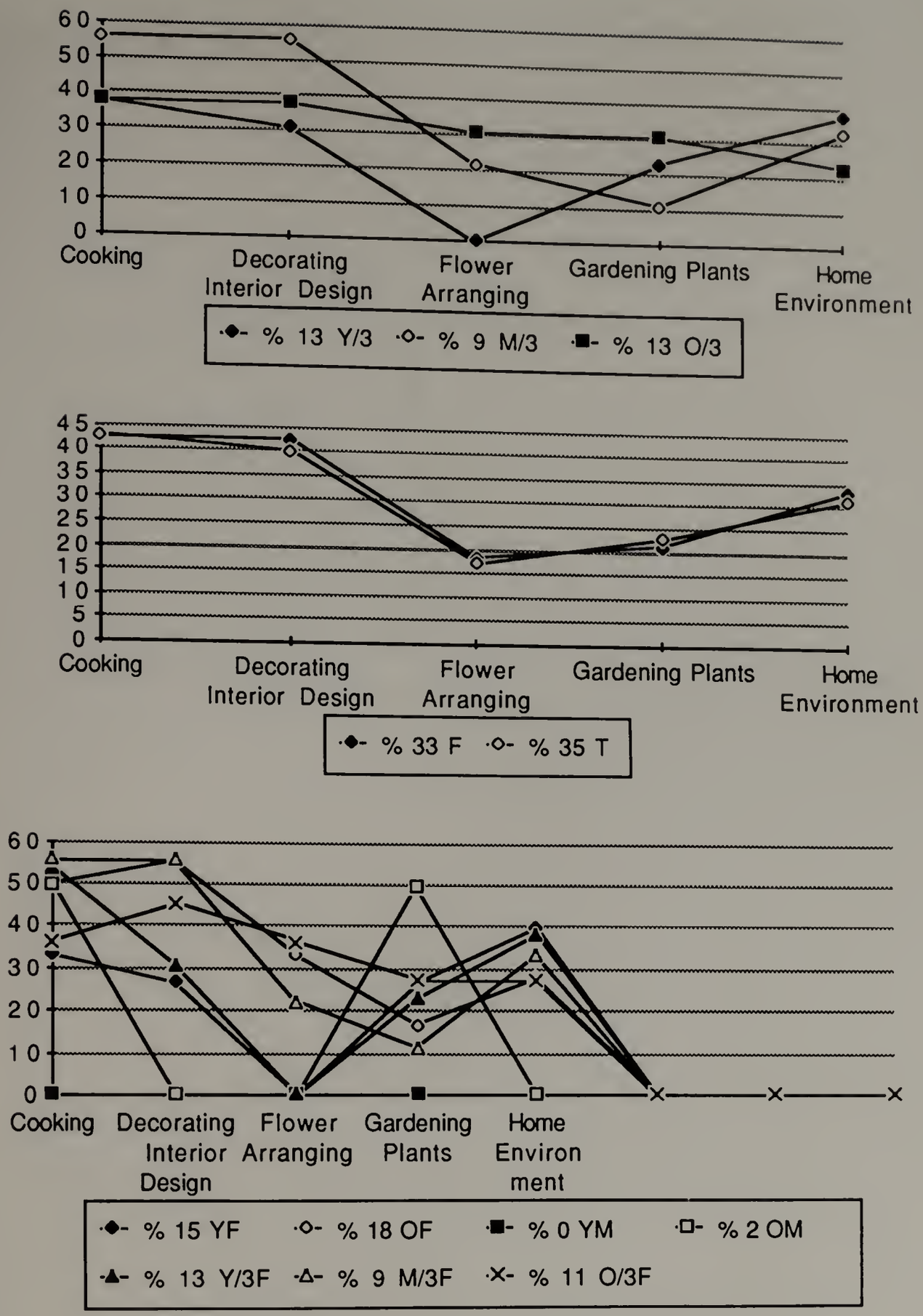
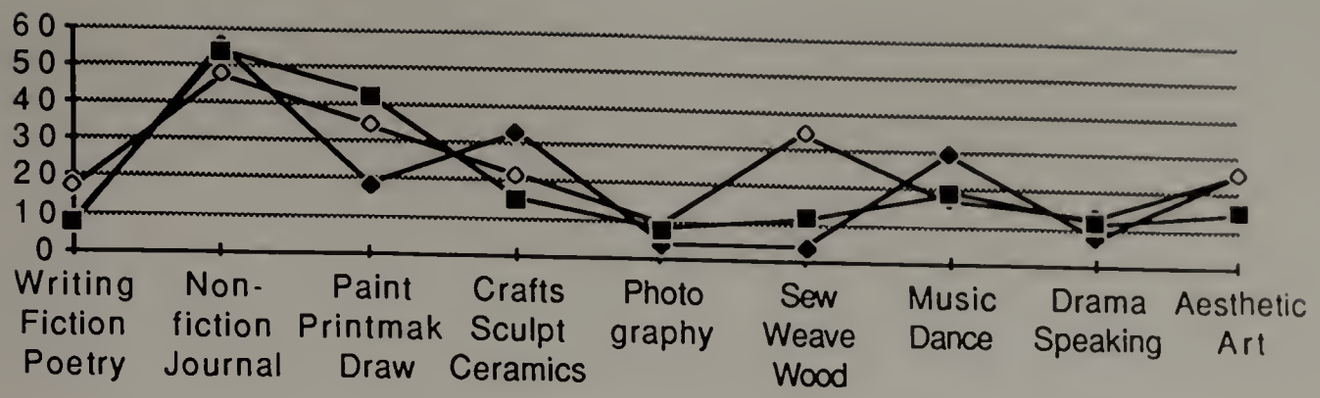
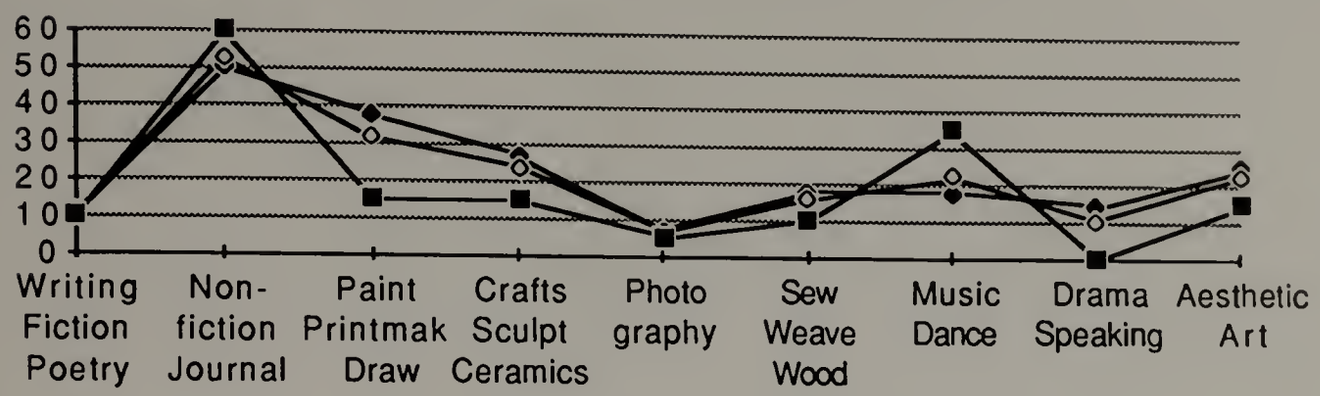


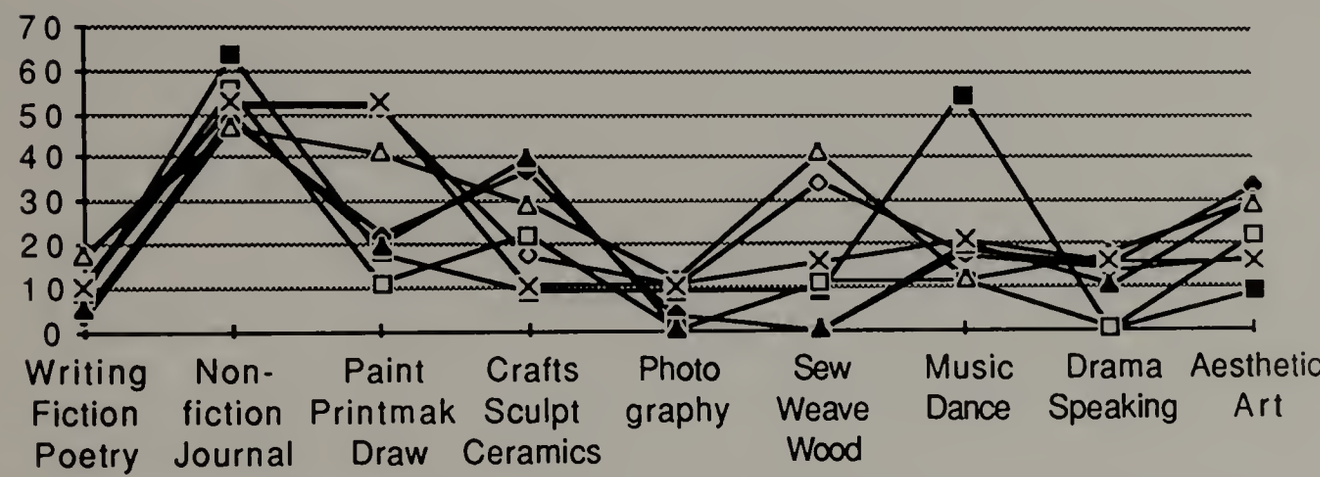
Fig. 22 Percent of Respondents Who Focus on Homemaking.
Sorted by Age and Gender



·◆- % 27 Y/3 ·◇- % 23 M/3 ·■- % 26 O/3



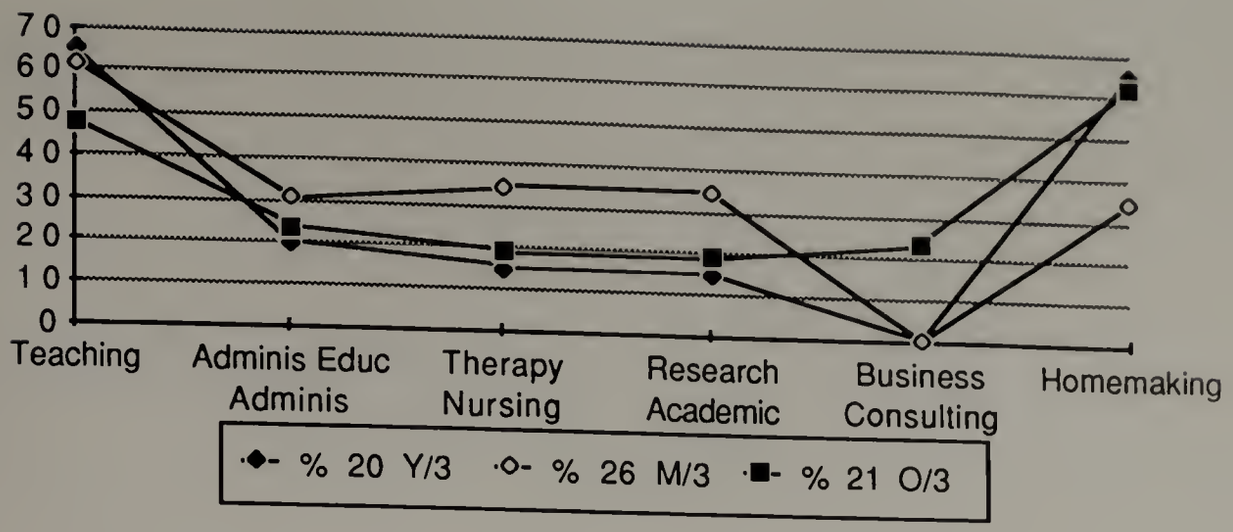
·◆- % 56 F ·◇- % 76 T ·■- % 20 M

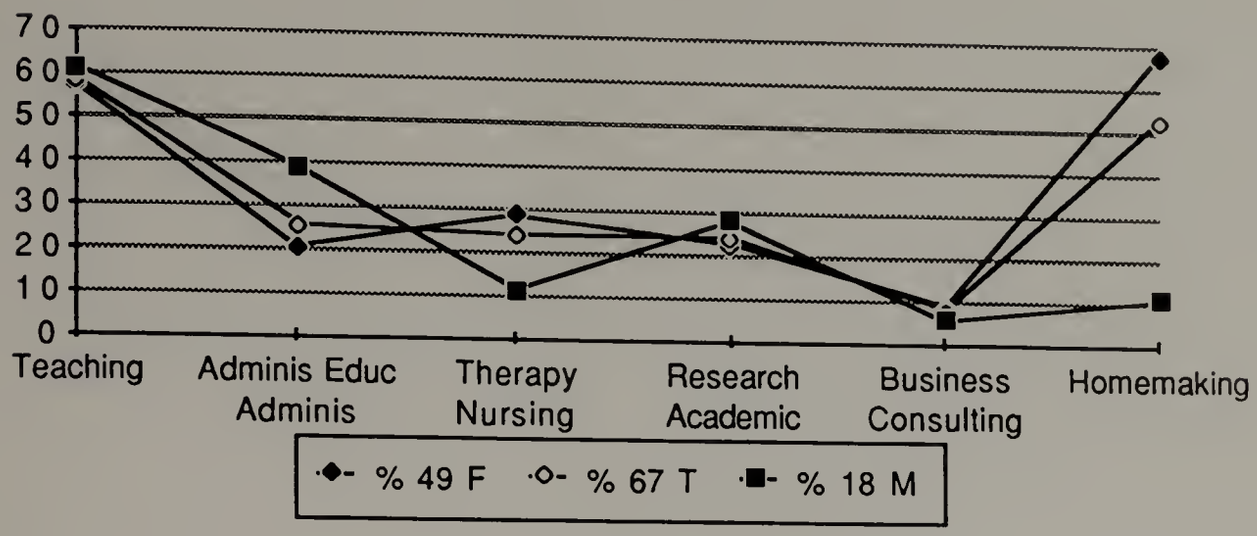


·◆- % 27 YF ·◇- % 29 OF ·■- % 11 YM ·□- % 9 OM

·▲- 20 Y/3/ ·△- % 17 M/3F ·X- %19 O/3F

Fig. 23 Percent of Respondents Who Focus on the Arts.
Sorted by Age and Gender





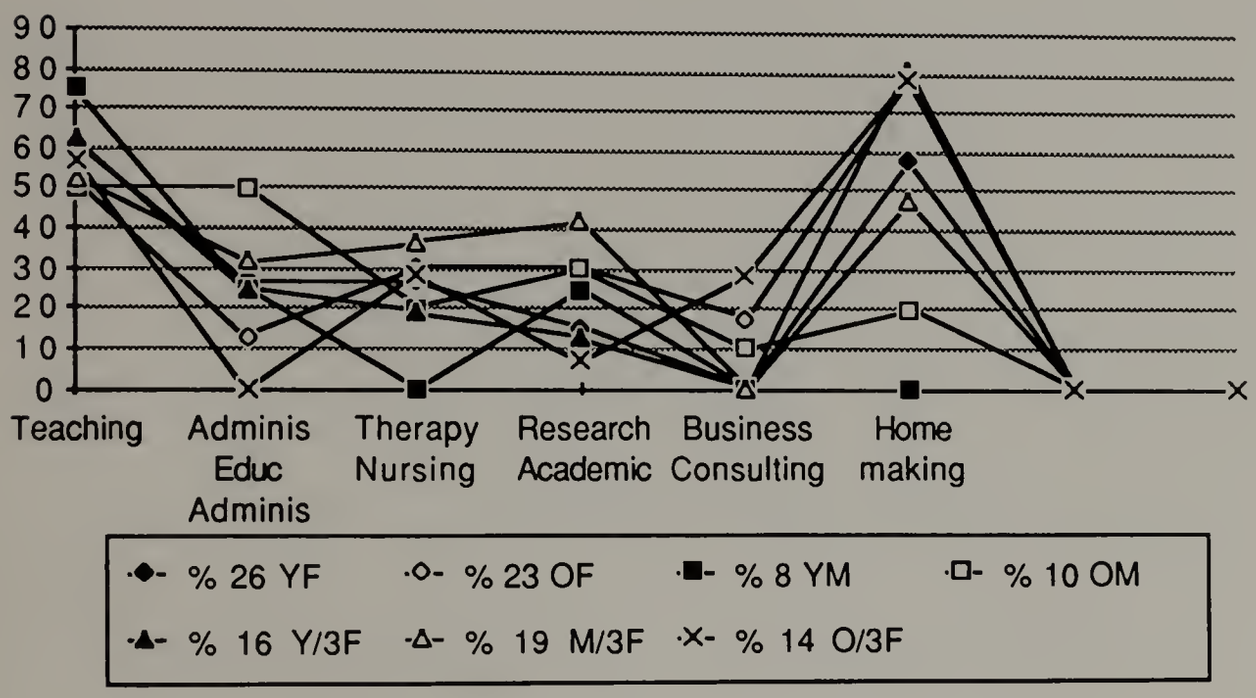


Fig. 24 Percent of Respondents Who Focus Their Creativity in Their Professions. Sorted by Age and Gender

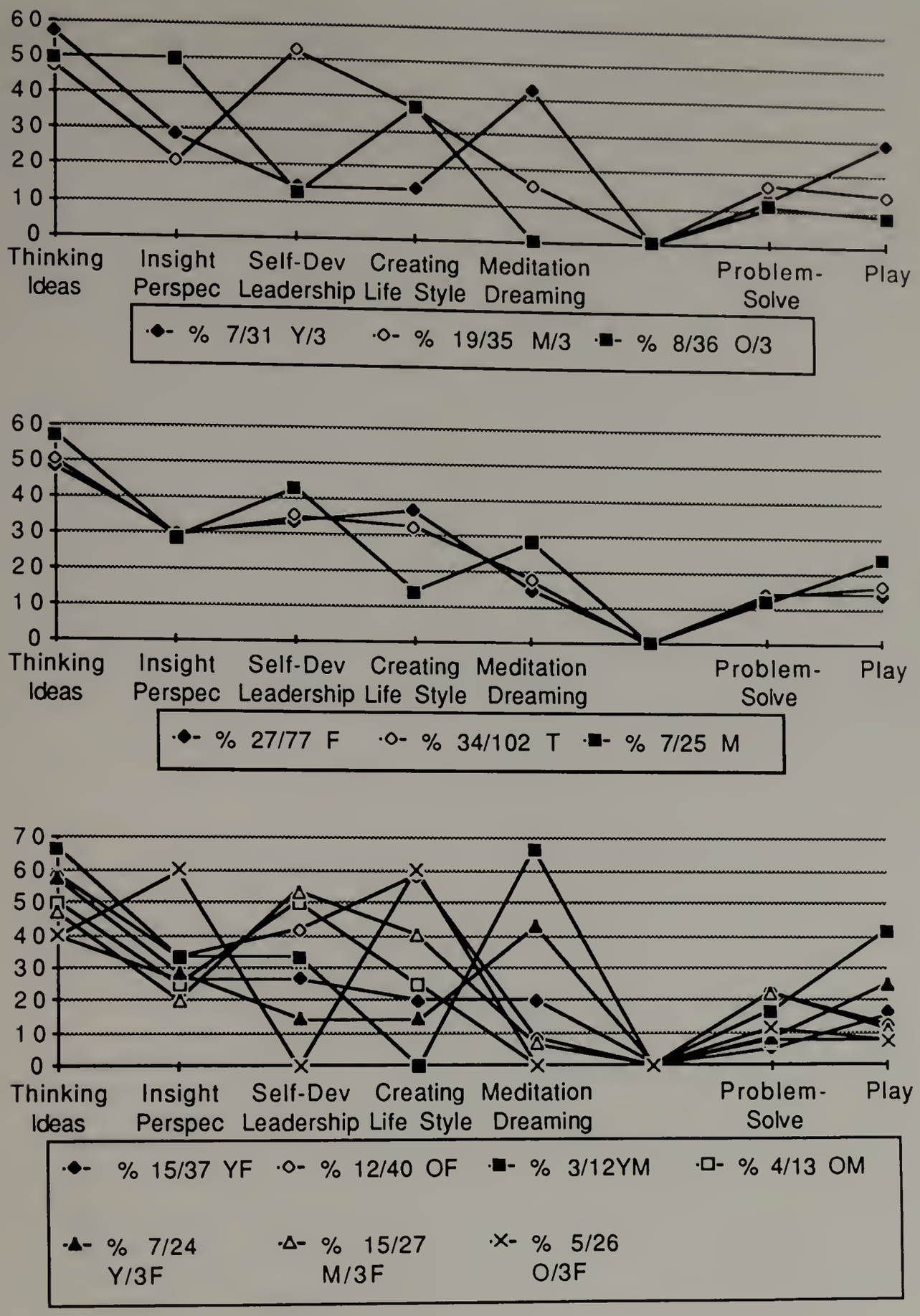


Fig. 25 Respondents Who Focus on Self-Development; Problem-Solving; or Play. Sorted by Age and Gender

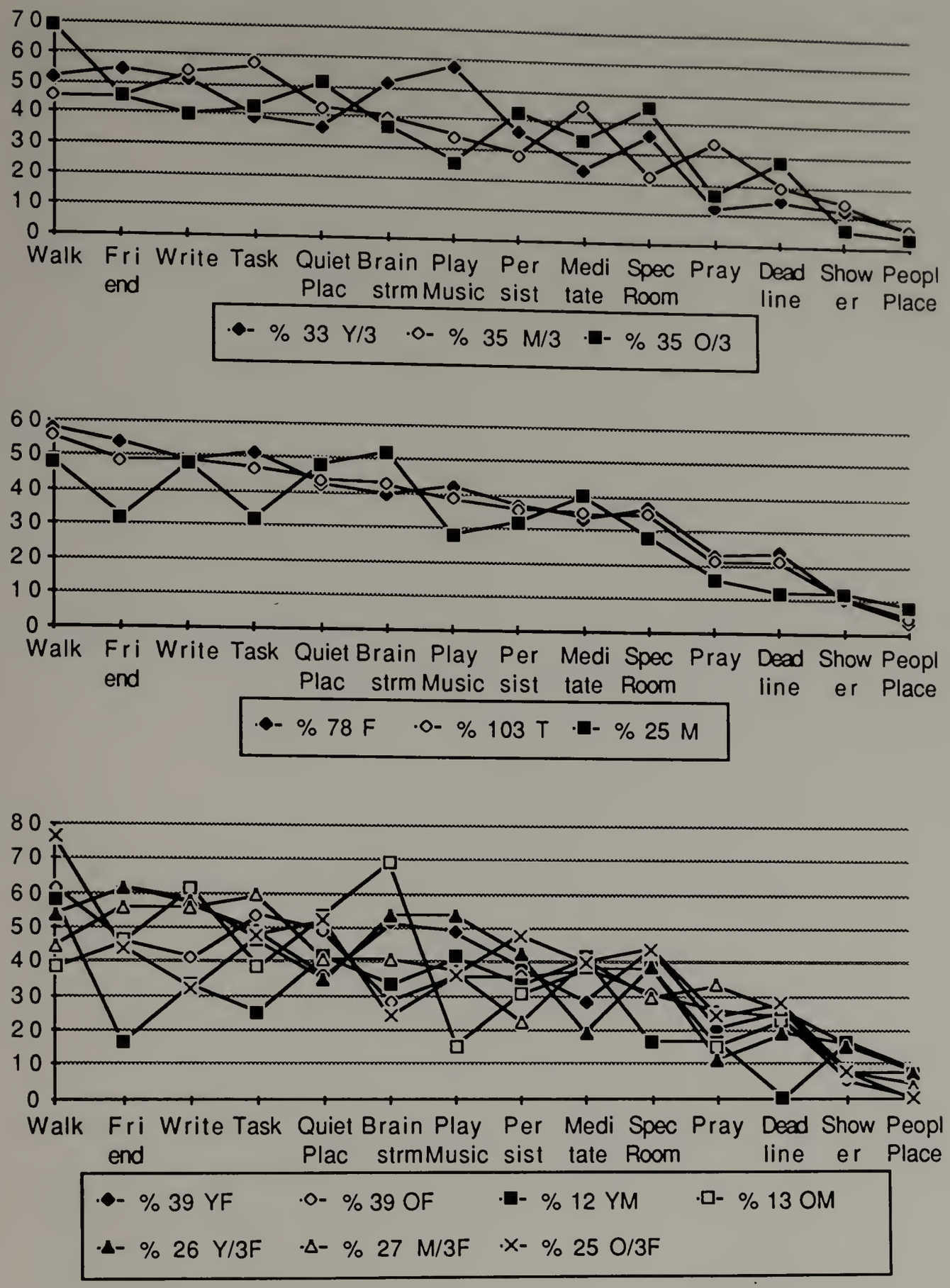
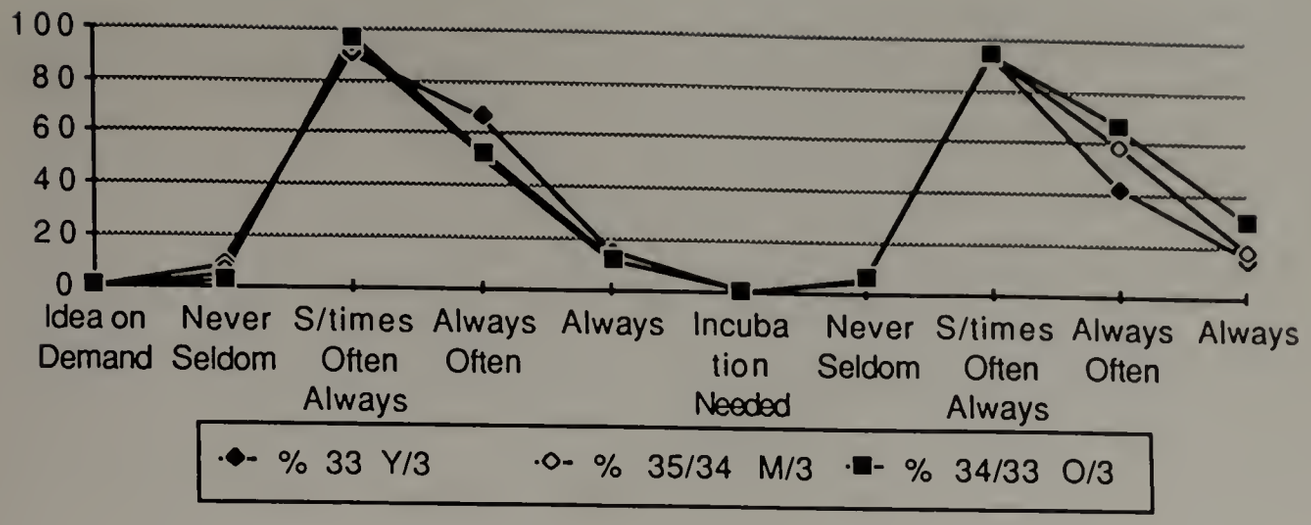
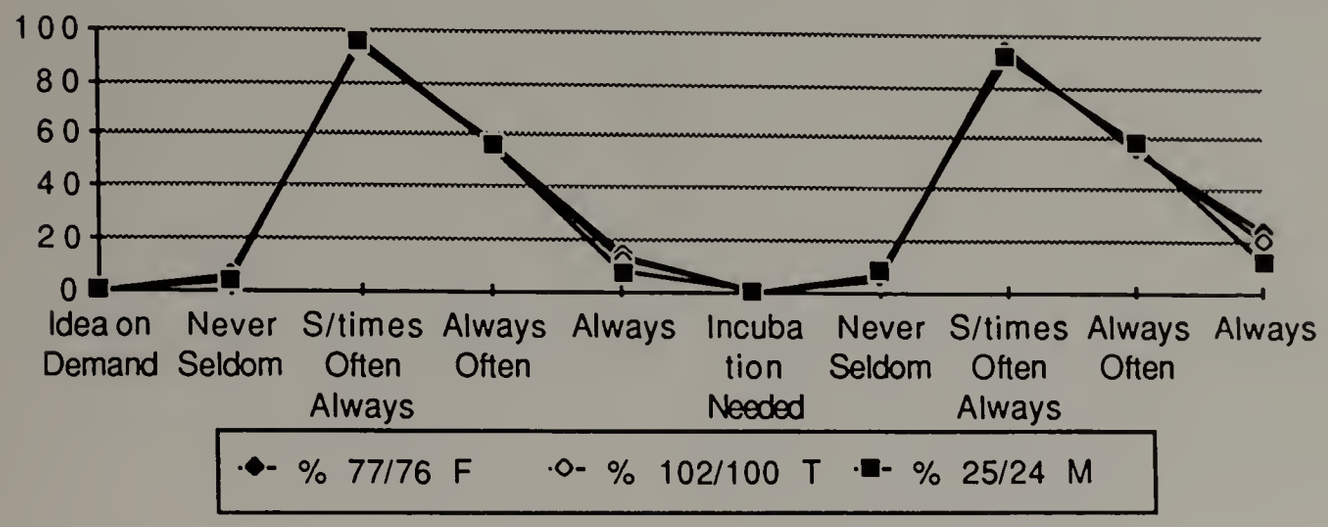


Fig. 26 What Respondents Do to Get an Idea.
Sorted by Age and Gender





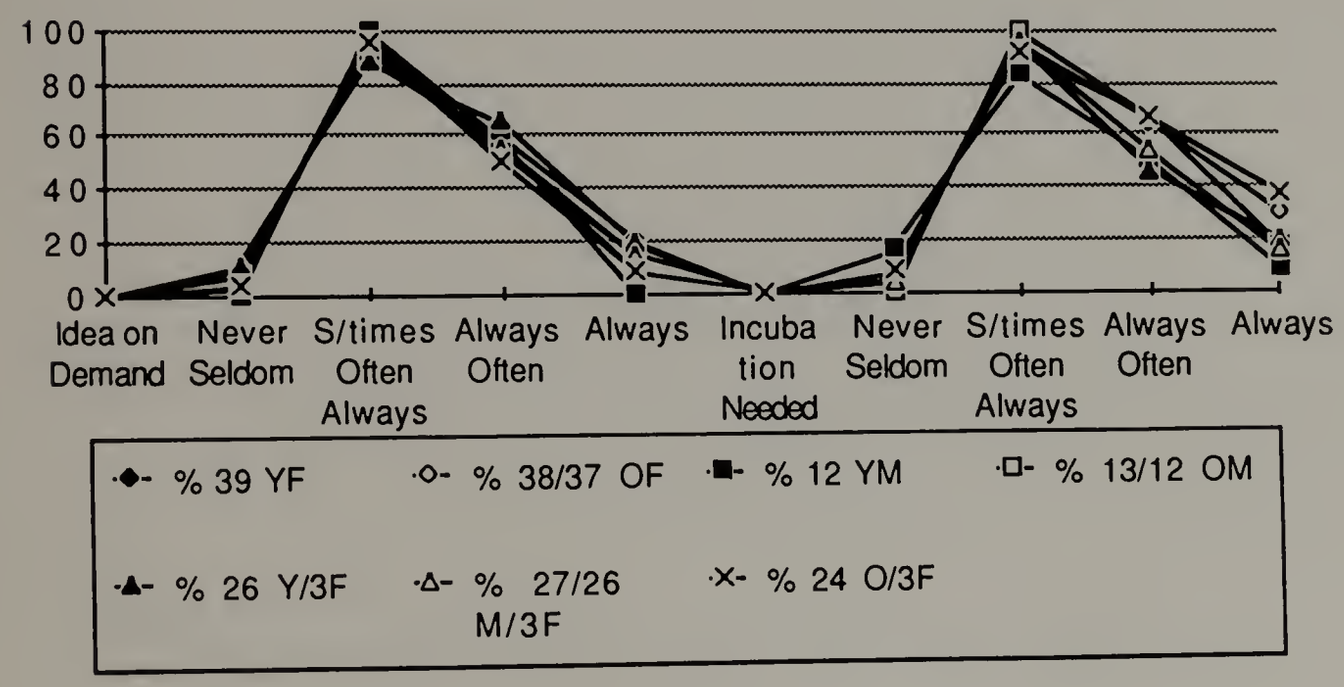


Fig. 27 Idea Comes on Demand; Need for Incubation.
Partially Cumulative - Sorted by Age and Gender

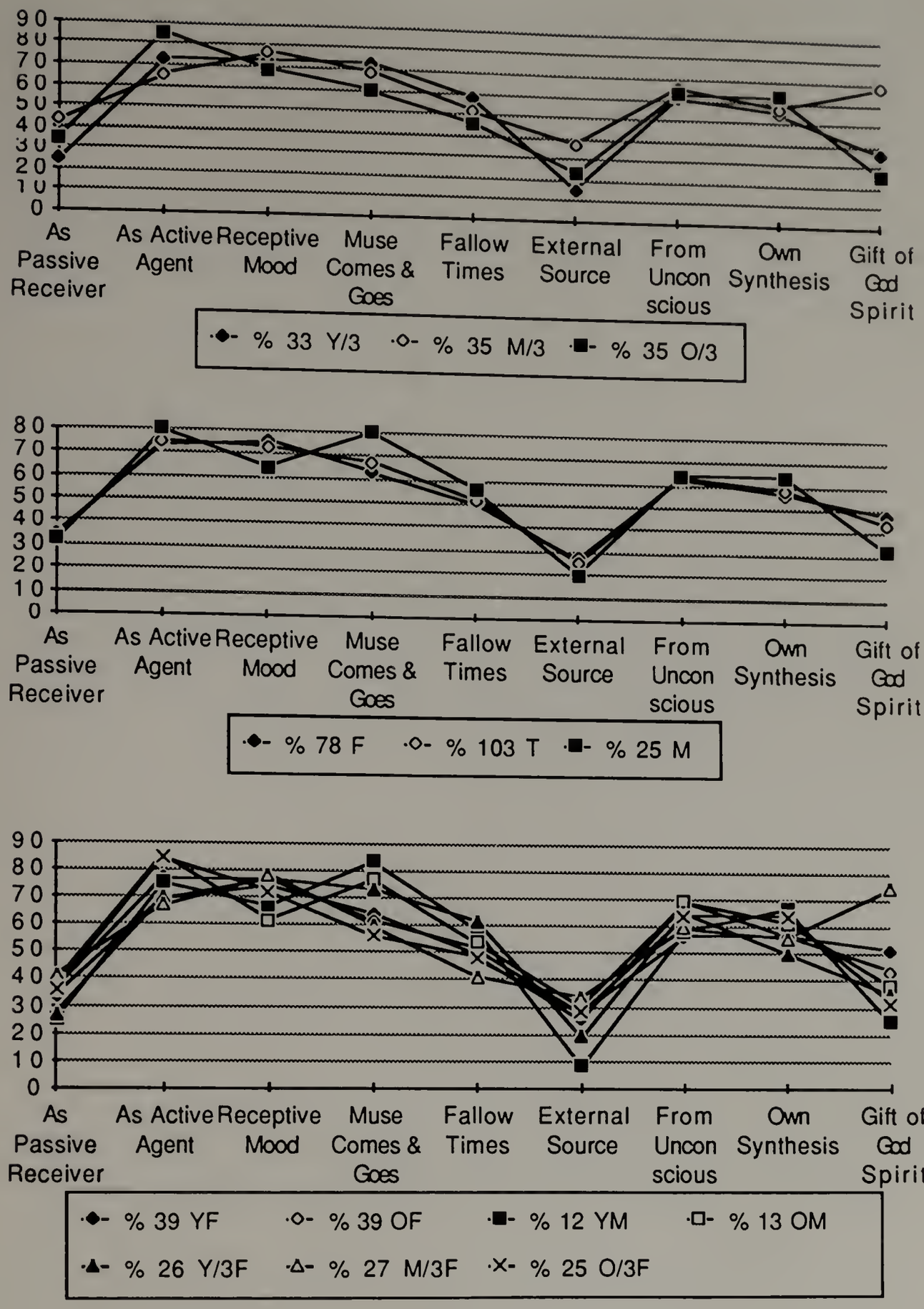


Fig. 28 Experience of Getting the Idea.
Sorted by Age and Gender

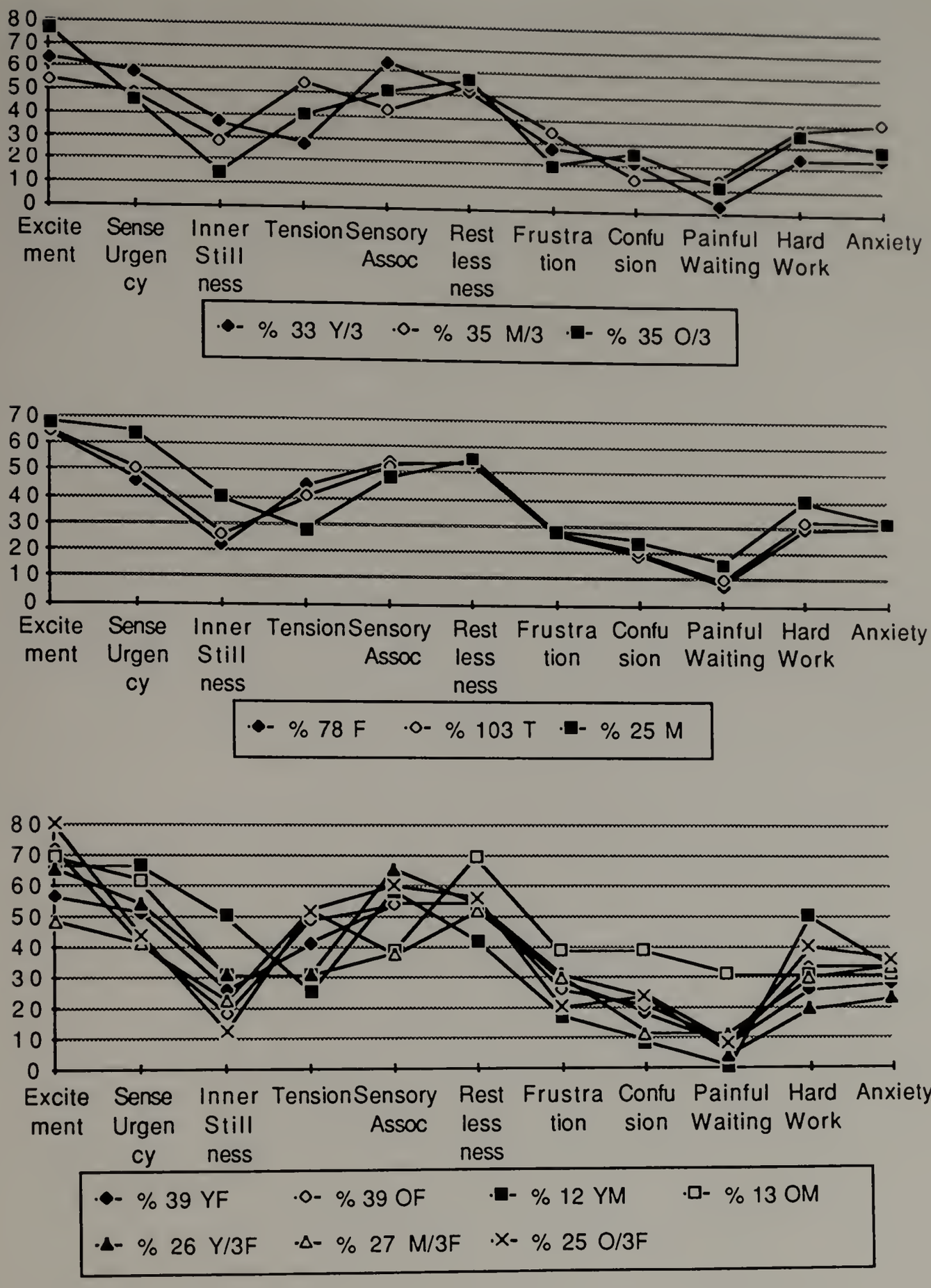


Fig. 29 Experience Before the Idea Comes.
Sorted by Age and Gender

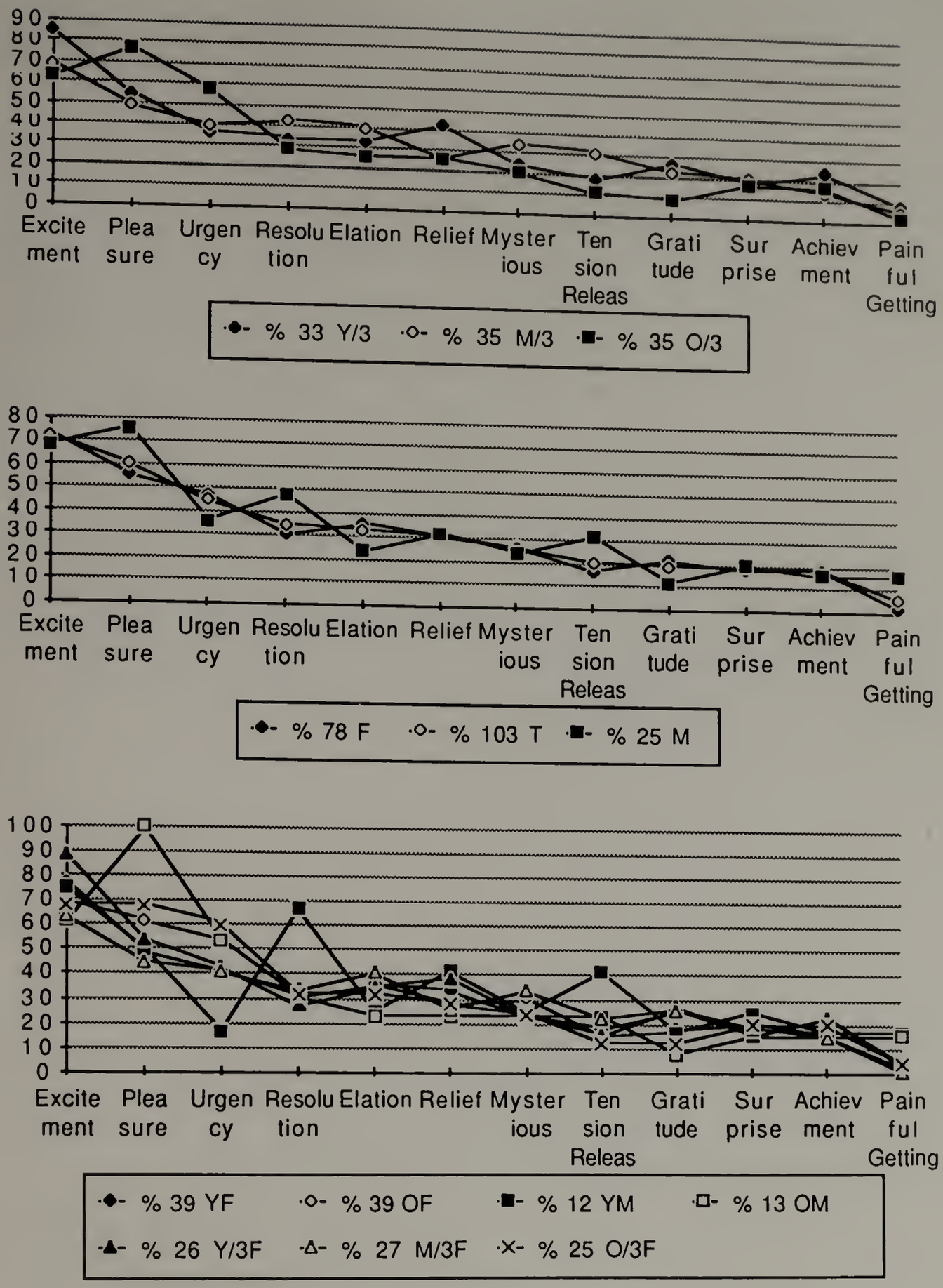


Fig. 30 Experience After Getting the Idea.
Sorted by Age and Gender

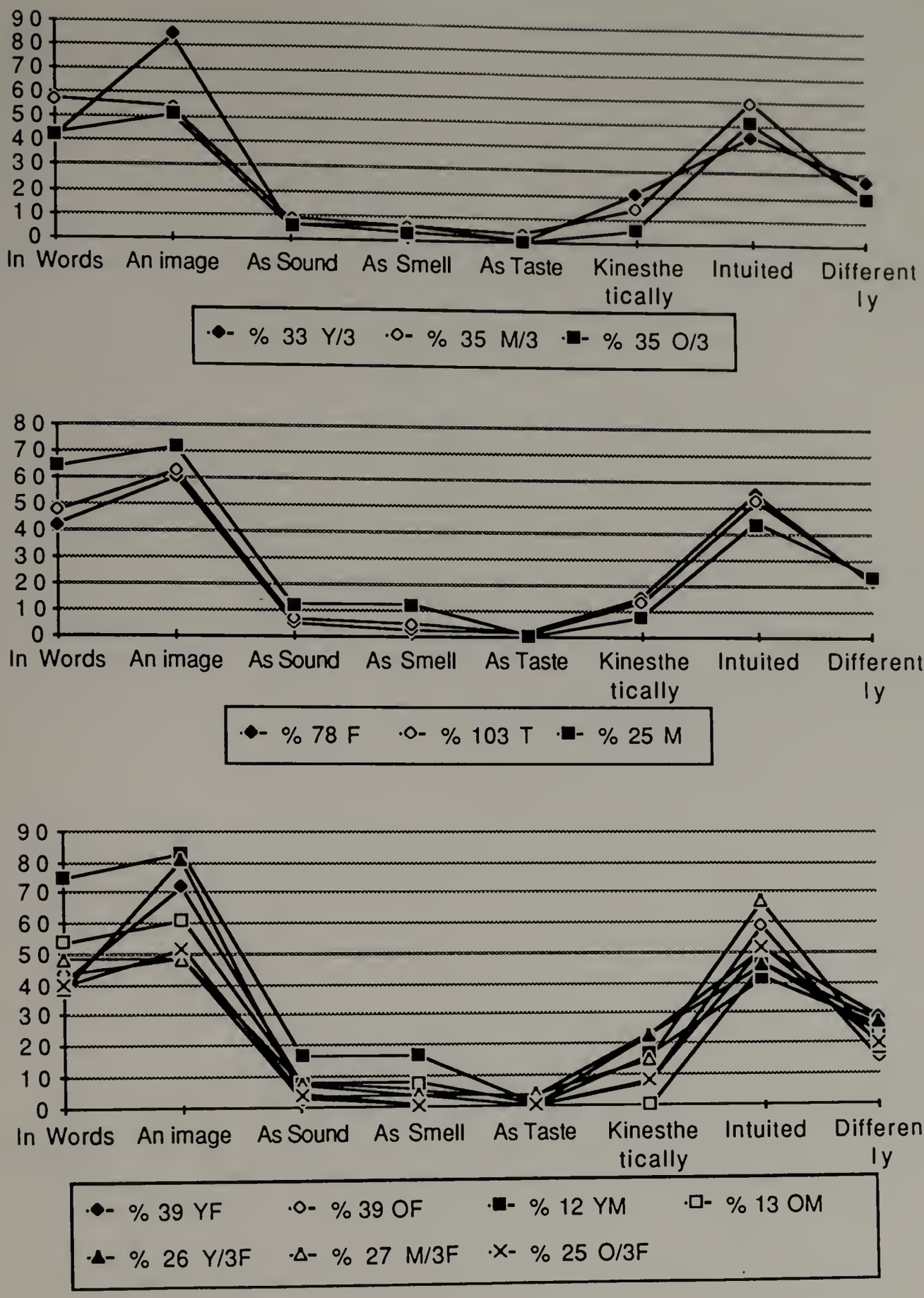


Fig. 31 First Form of the Idea.
Sorted by Age and Gender

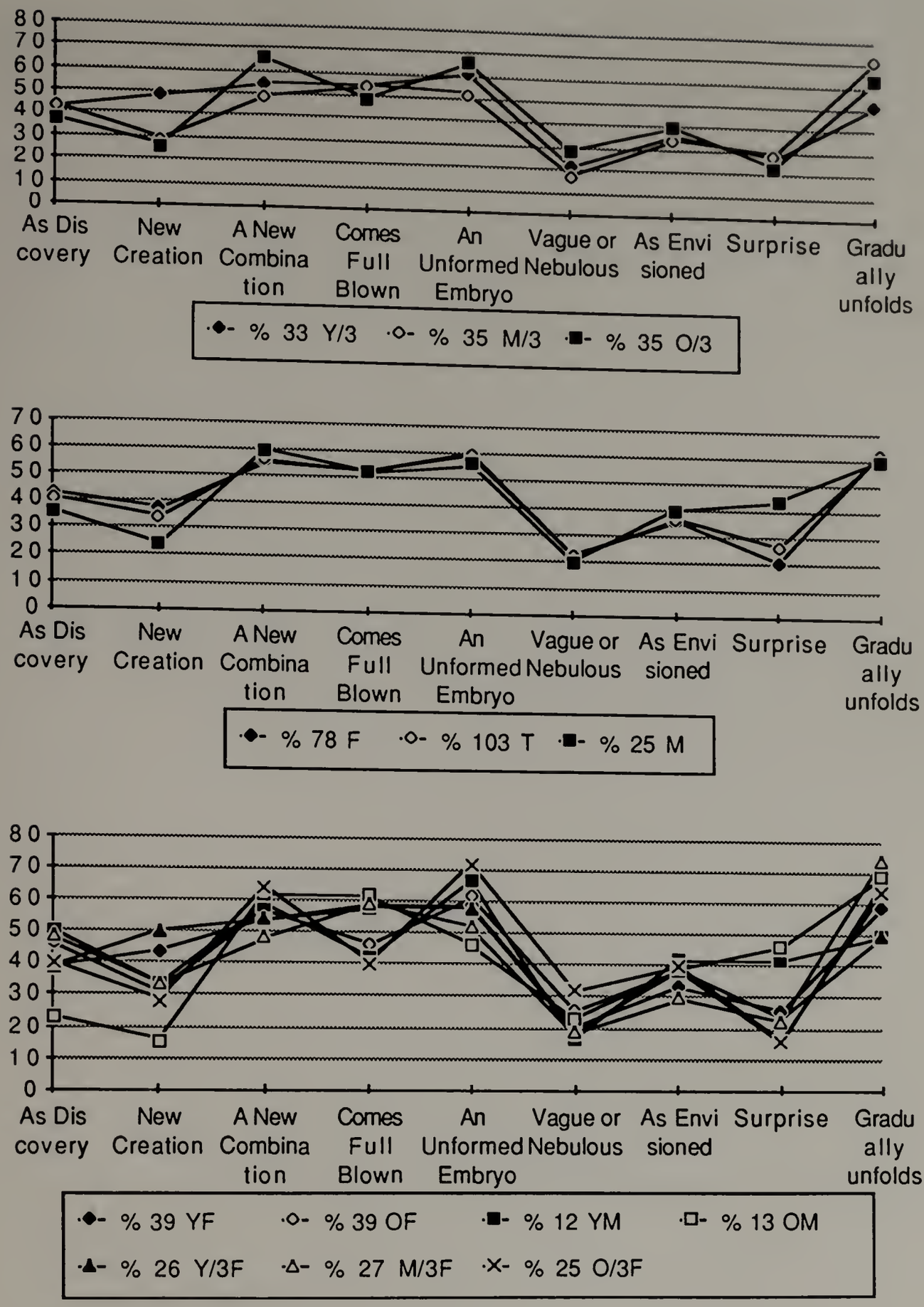
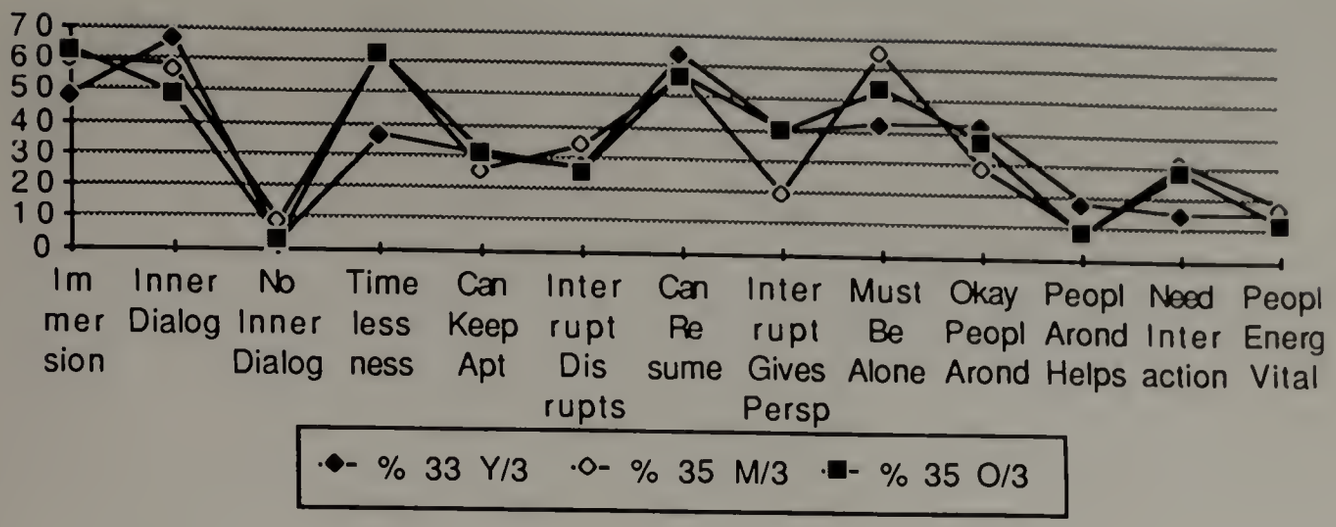
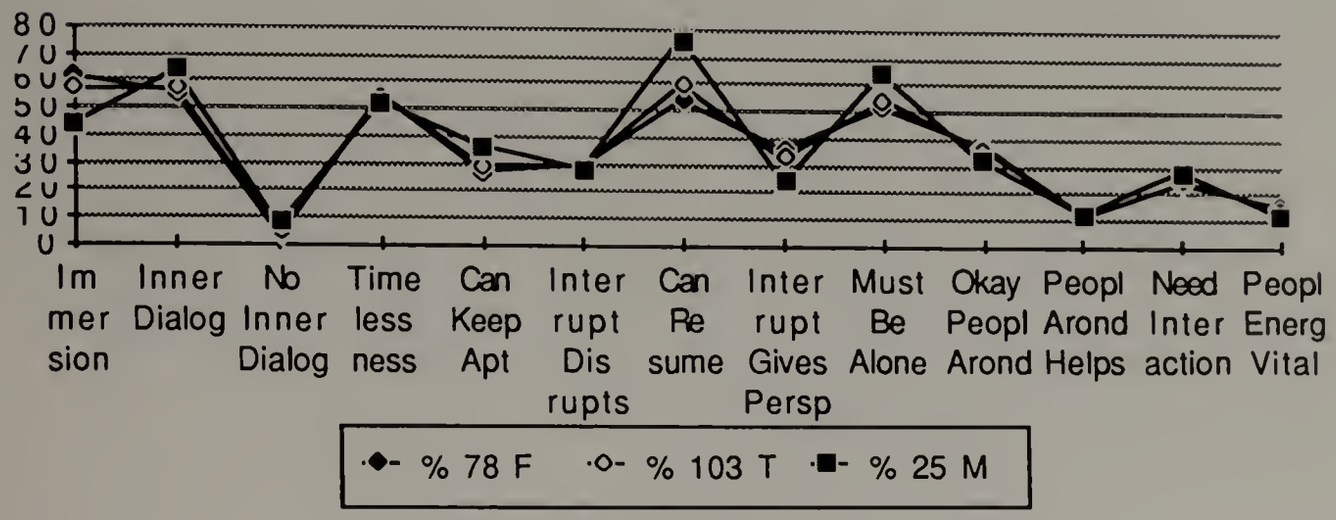


Fig. 32 Nature of the Idea and Product.
Sorted by Age and Gender





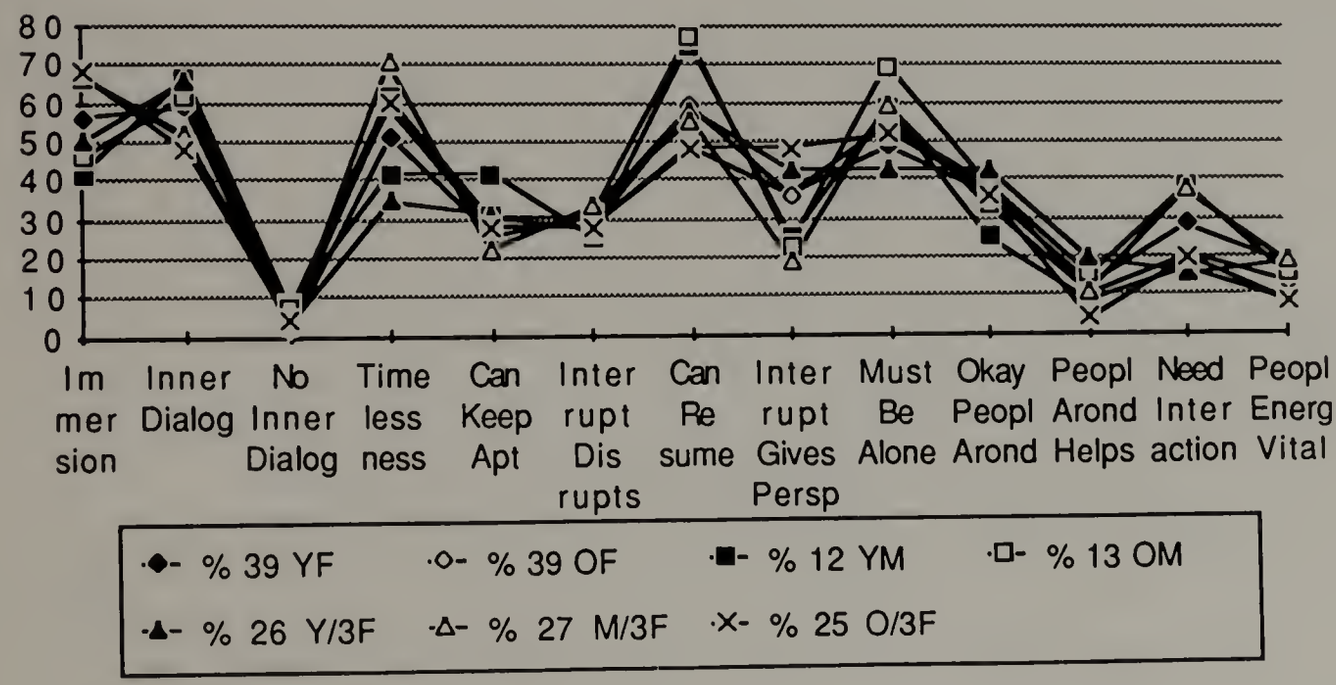


Fig. 33 Experience During Creative Work.
Sorted by Age and Gender

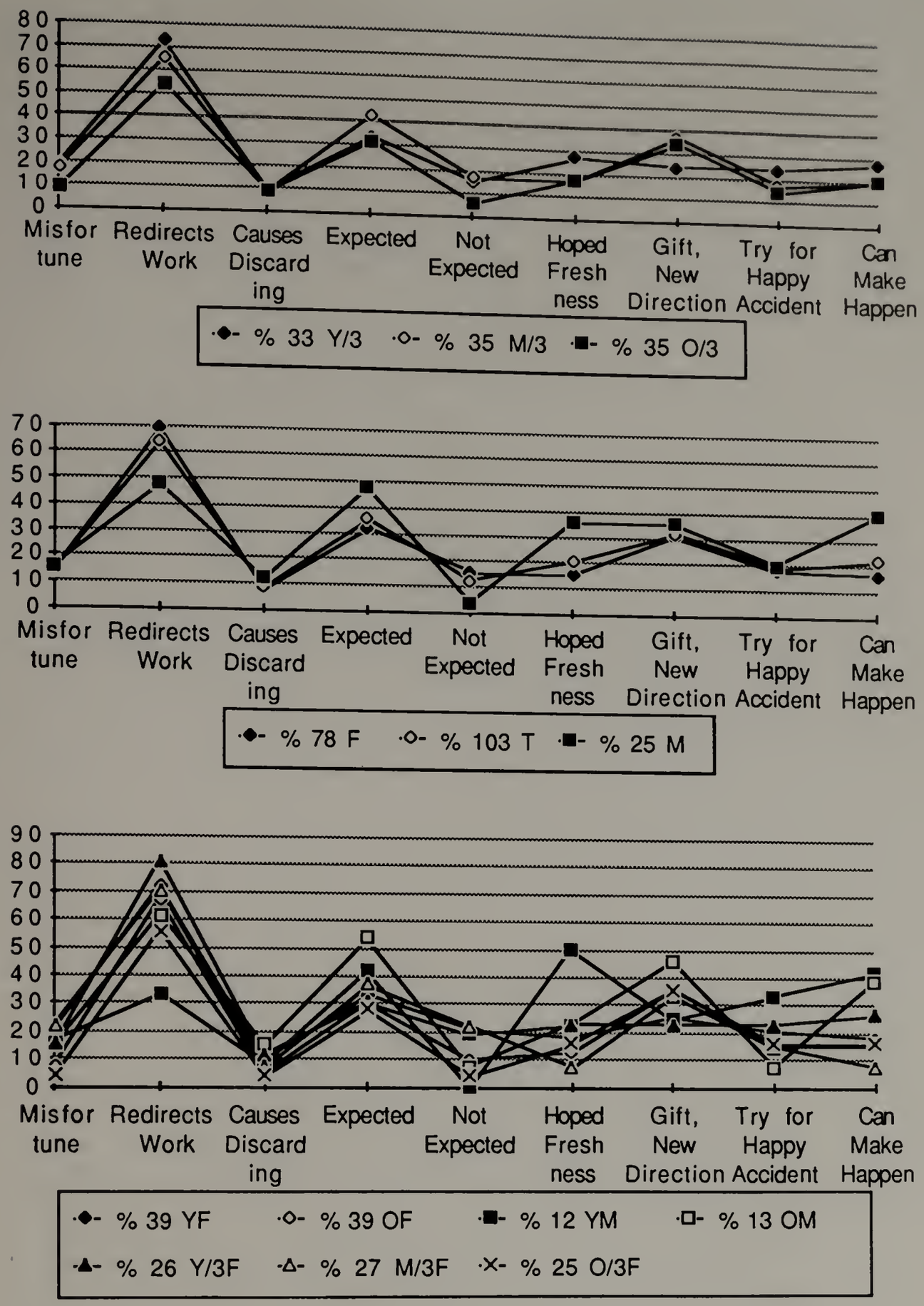
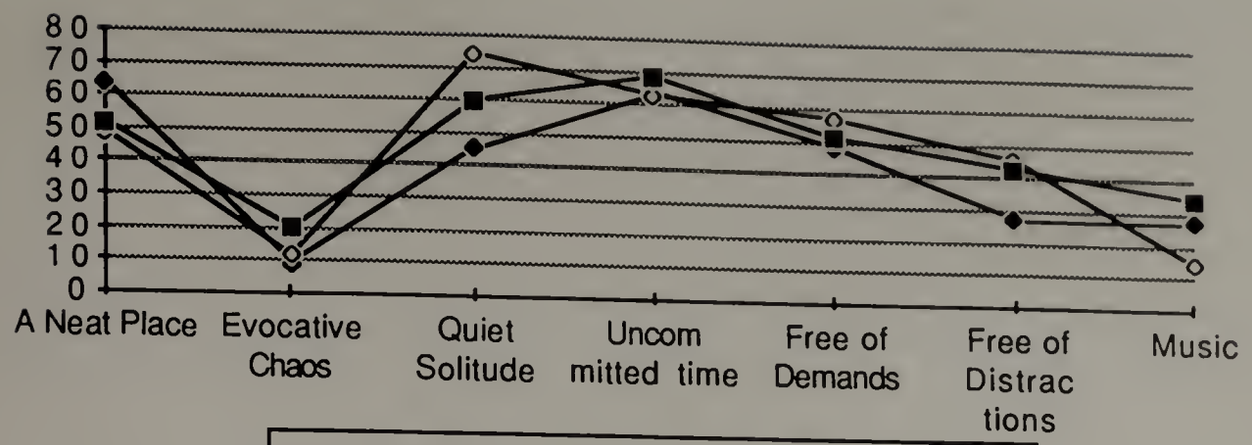
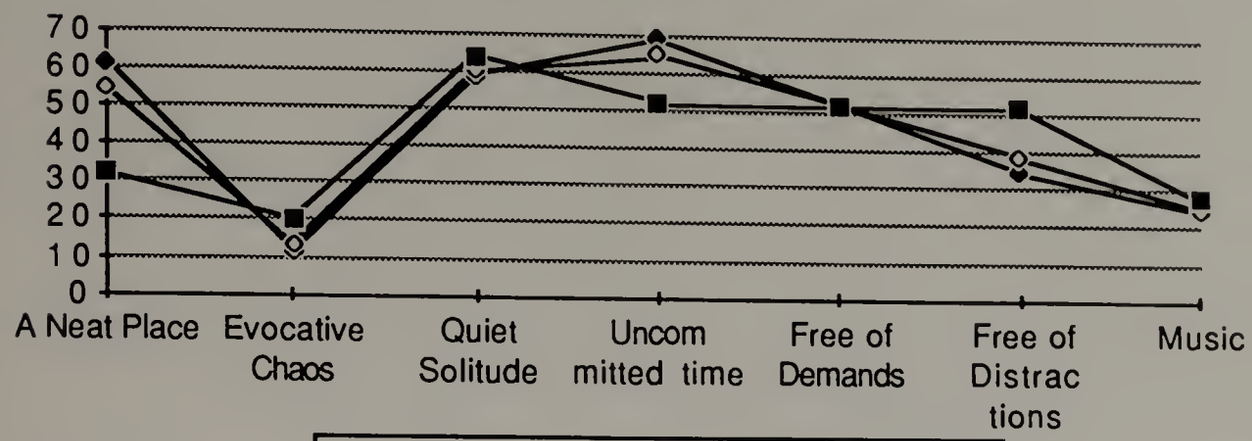


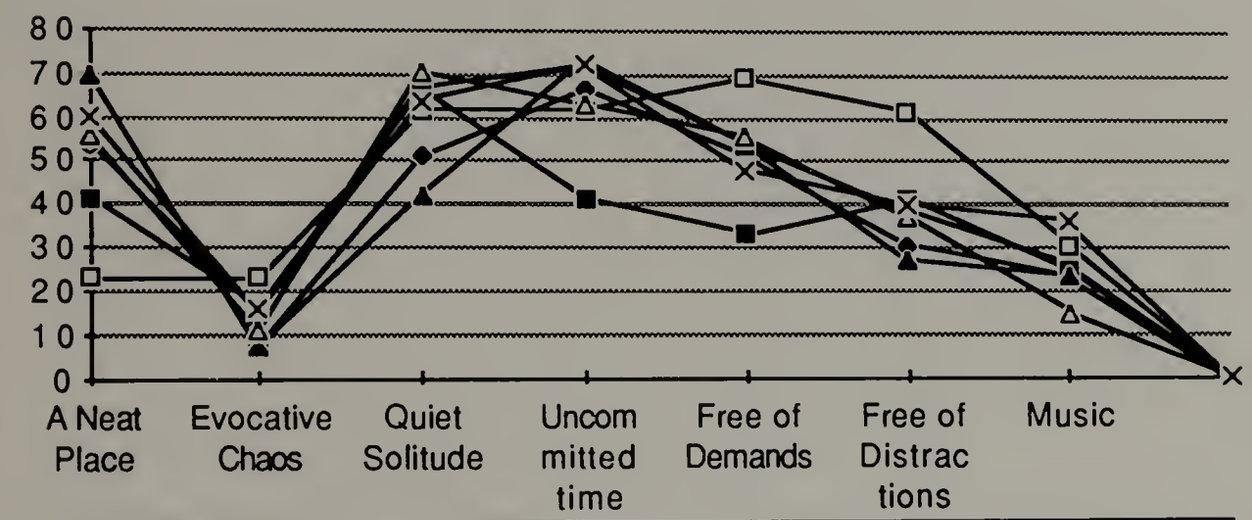
Fig. 34 Attitudes Toward Accidents.
Sorted by Age and Gender



·◆- % 33 Y/3 ·◇- % 35 M/3 ·■- % 35 O/3



·◆- % 78 F ·◇- % 103 T ·■- % 25 M



·◆- % 39 YF ·◇- % 39 OF ·■- % 12 YM ·□- % 13 OM

·▲- % 26 Y/3F ·△- % 27 M/3F ·×- % 25 O/3F

Fig. 35 Environmental Needs for Creative Work.
Sorted by Age and Gender

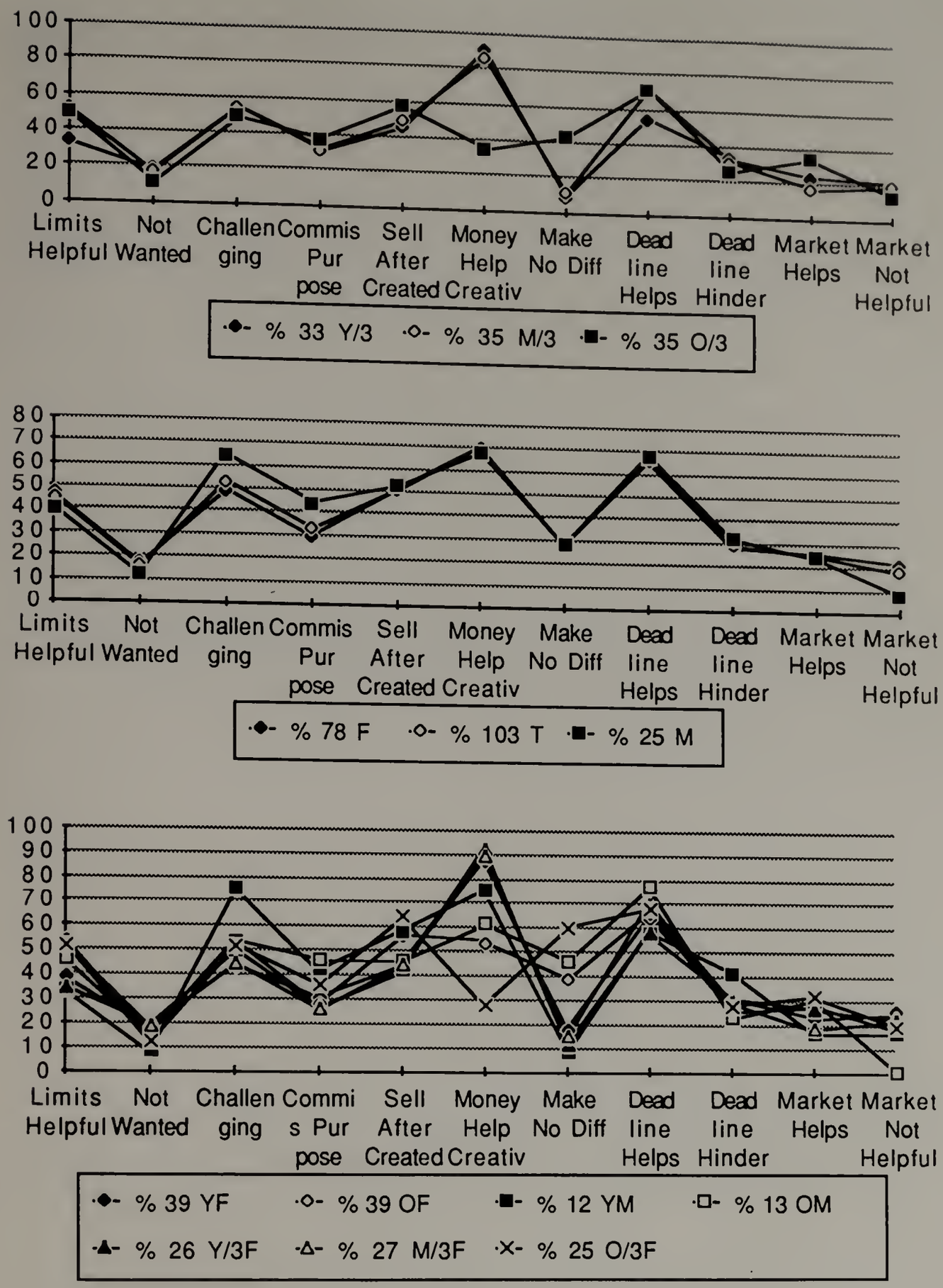


Fig. 36 Effects of External Conditions.
Sorted by Age and Gender

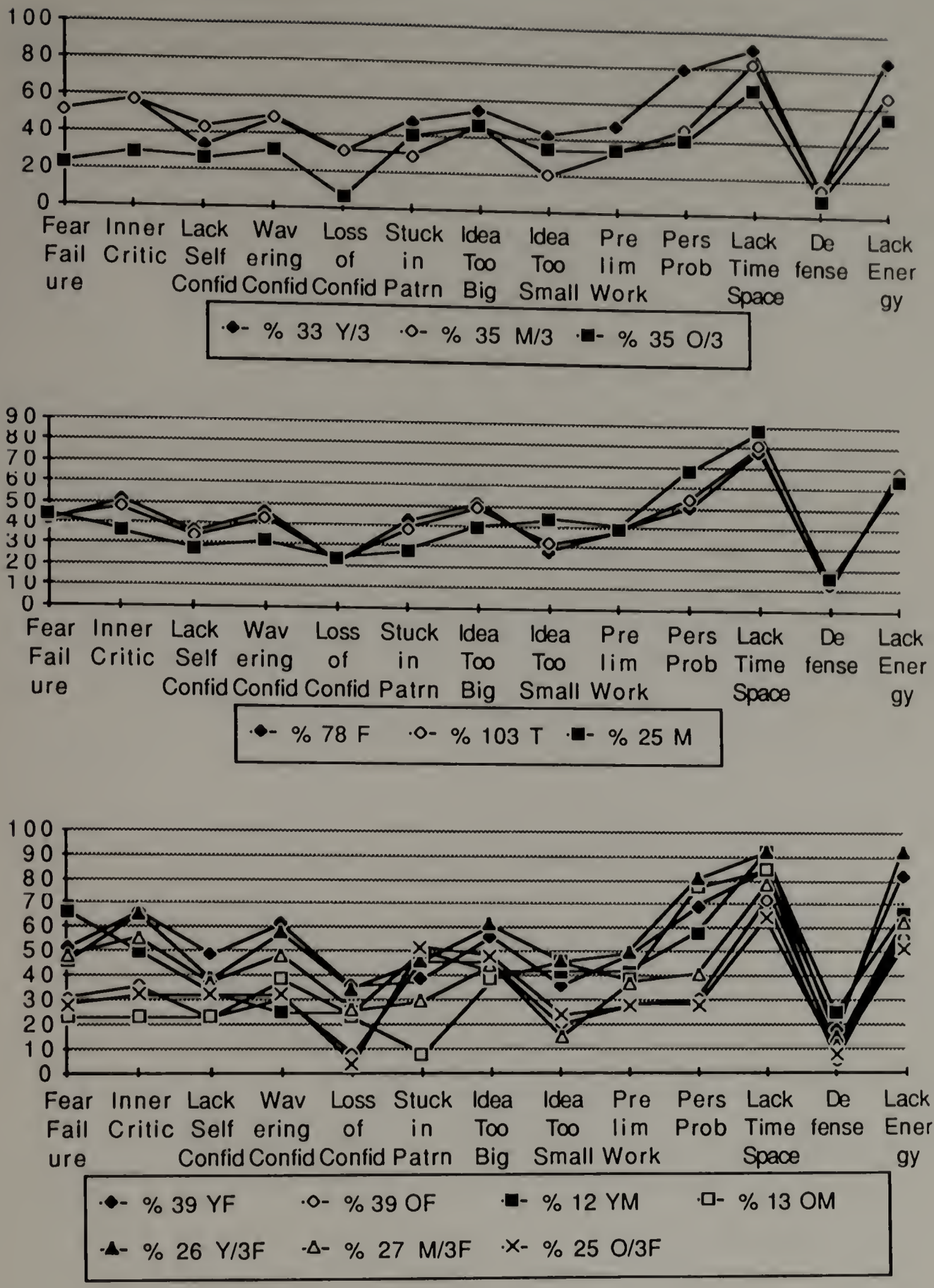


Fig. 37 Blocks and Obstacles to Creative Work.
Sorted by Age and Gender

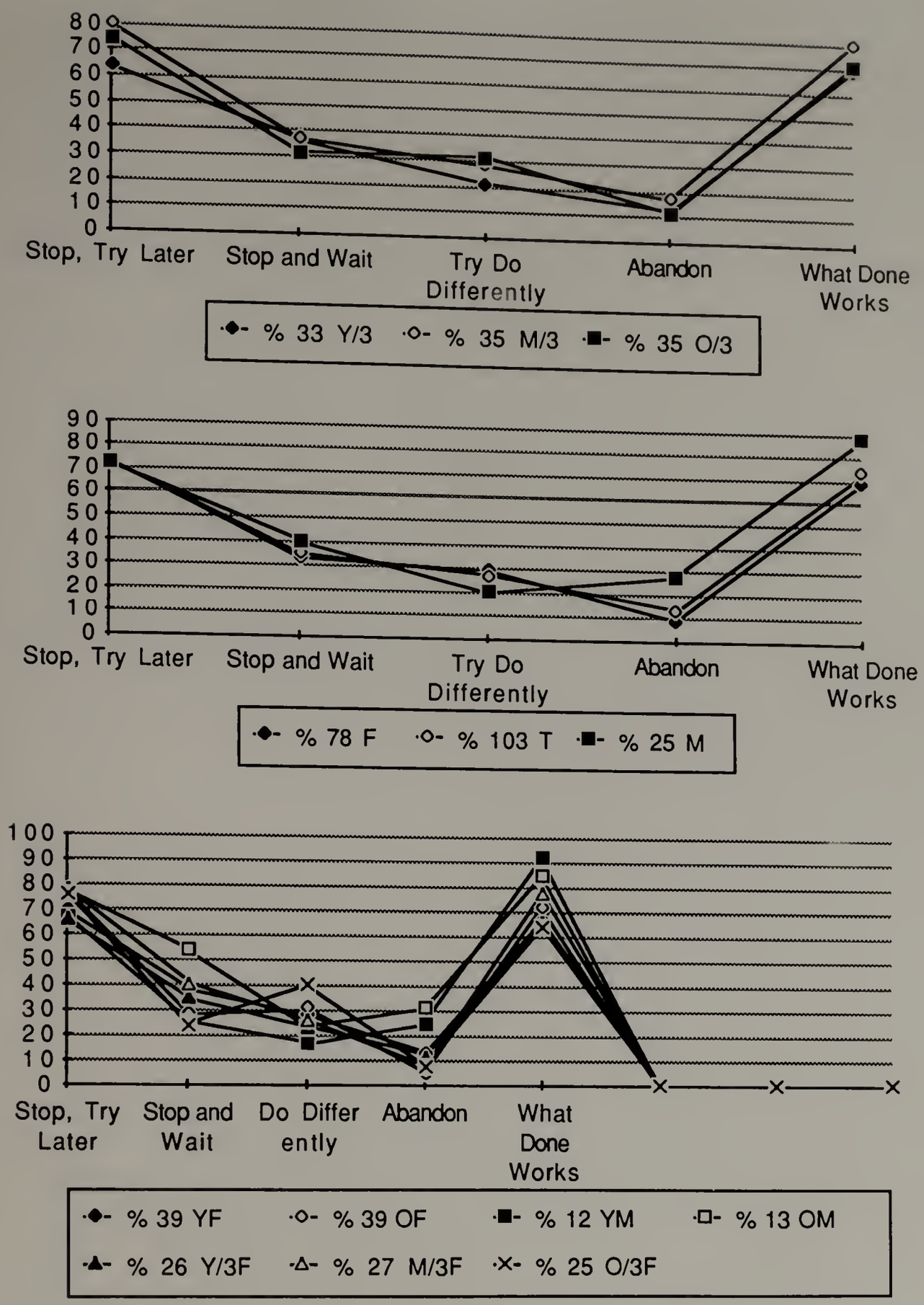
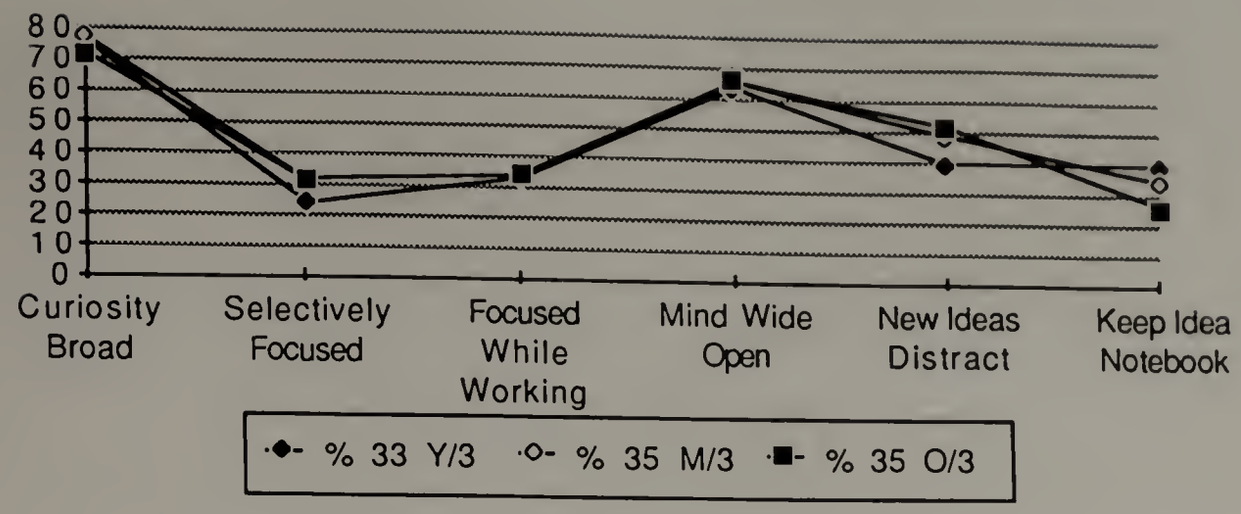
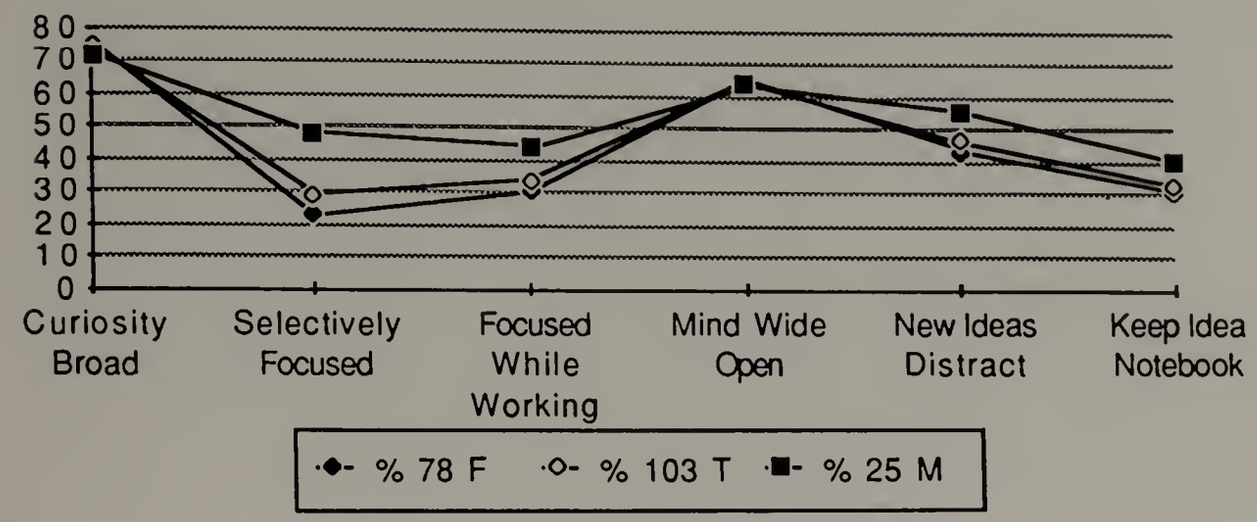


Fig. 38 Dealing with Blocks.
Sorted by Age and Gender





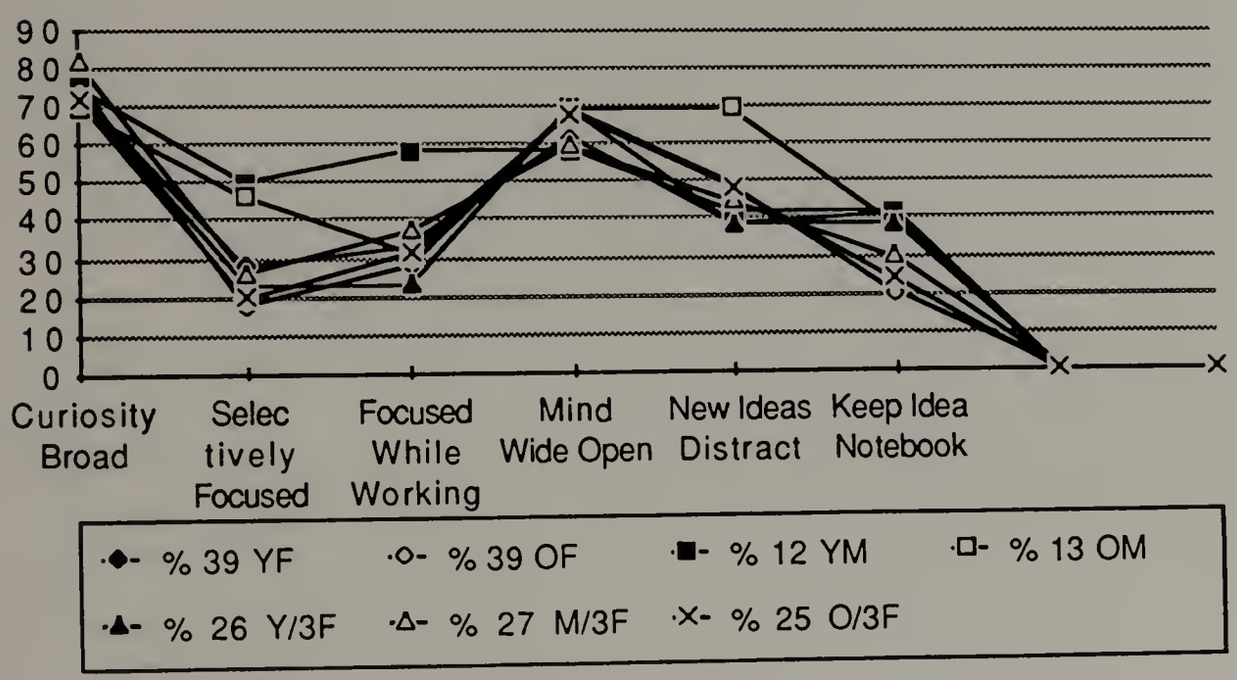


Fig. 39 Mind Styles and Patterns.
Sorted by Age and Gender

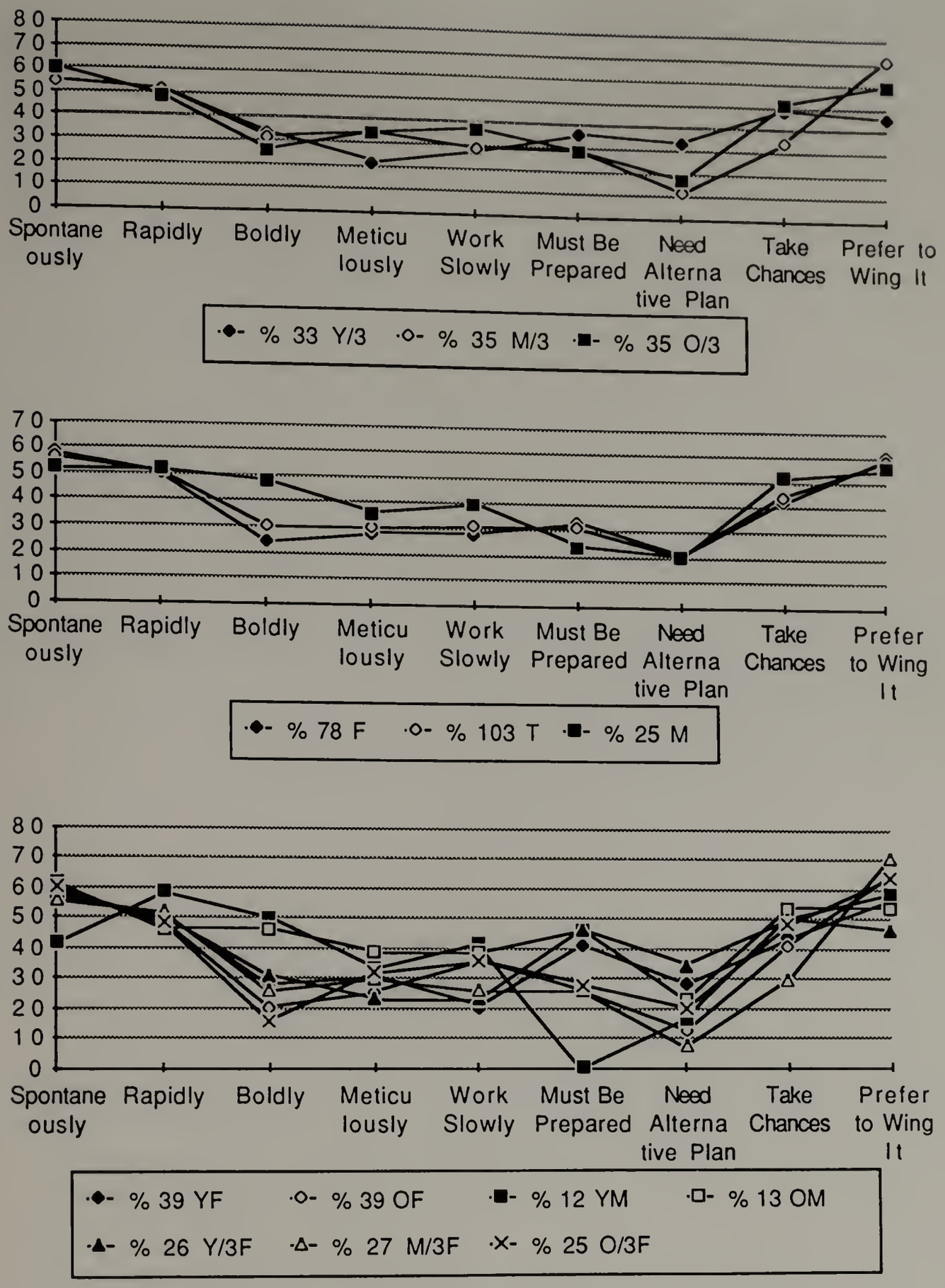
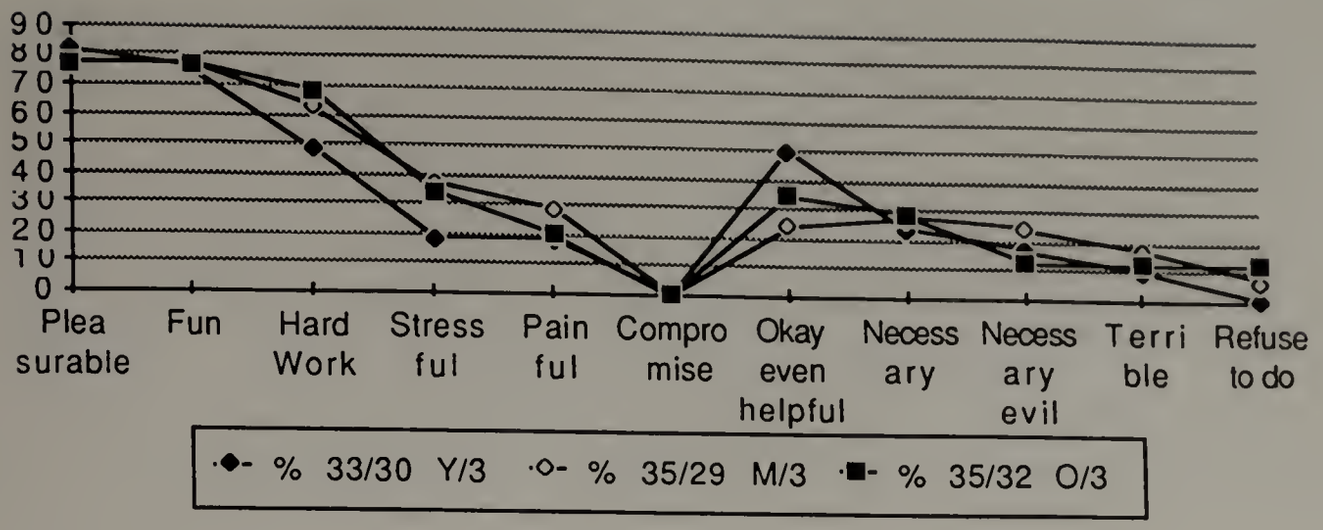
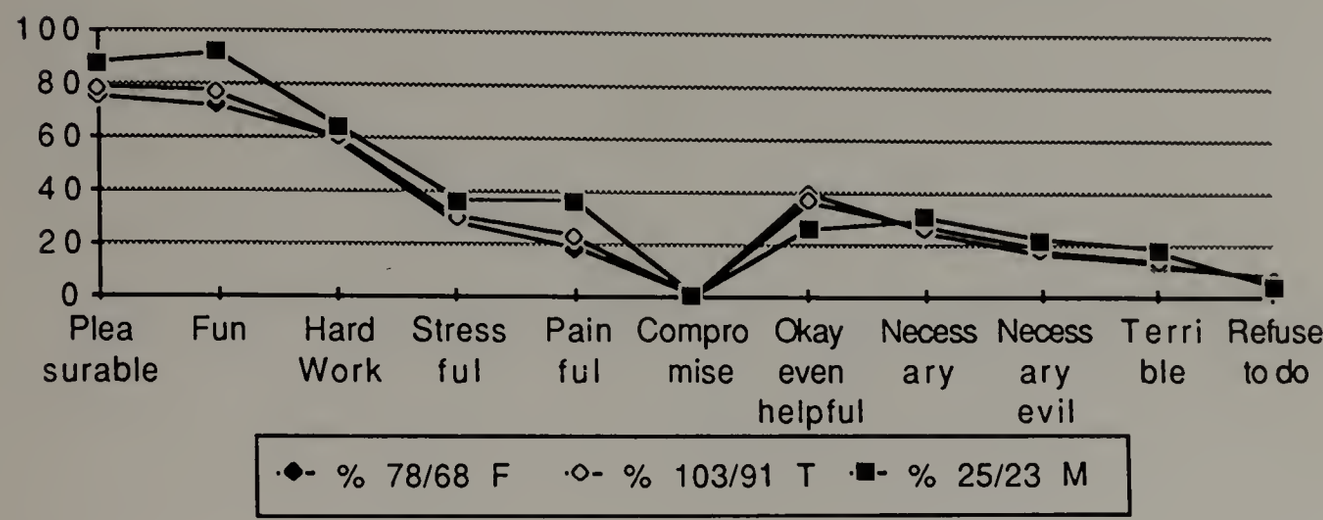


Fig. 40 Style of Creative Activity.
Sorted by Age and Gender





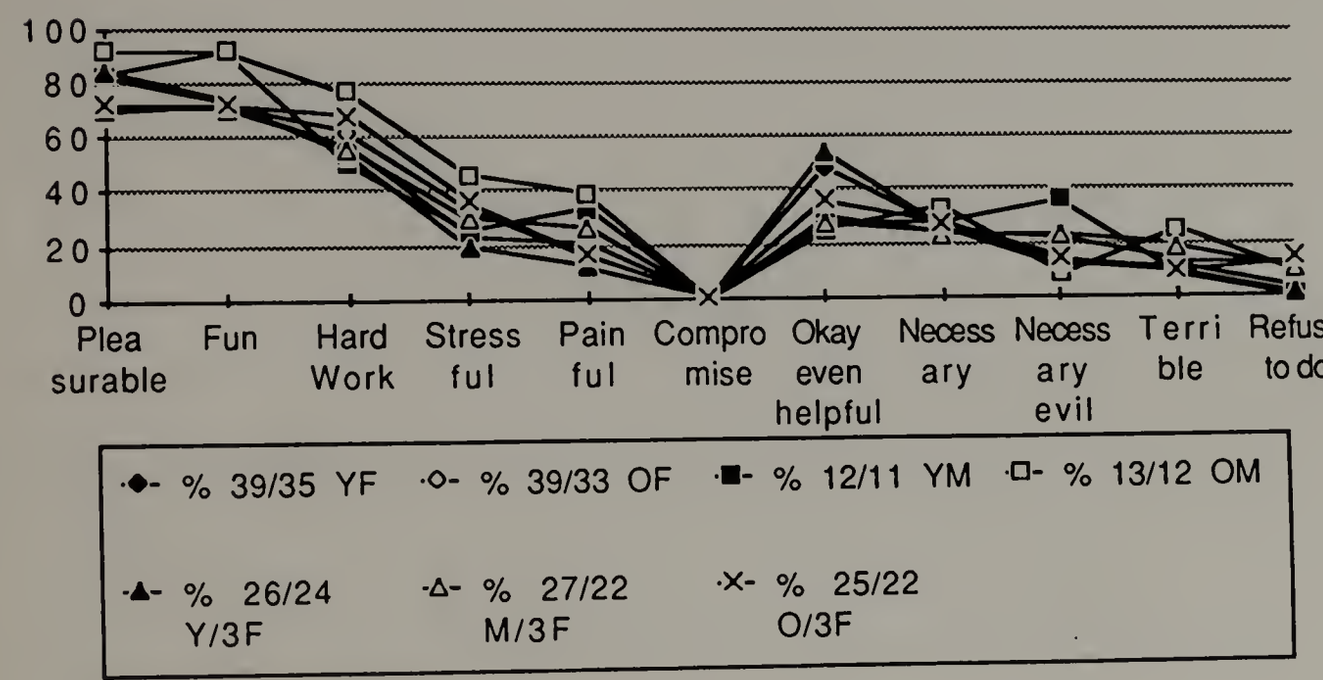


Fig. 41 Emotional Reactions to Creative Work; Feelings about Compromise. Sorted by Age and Gender

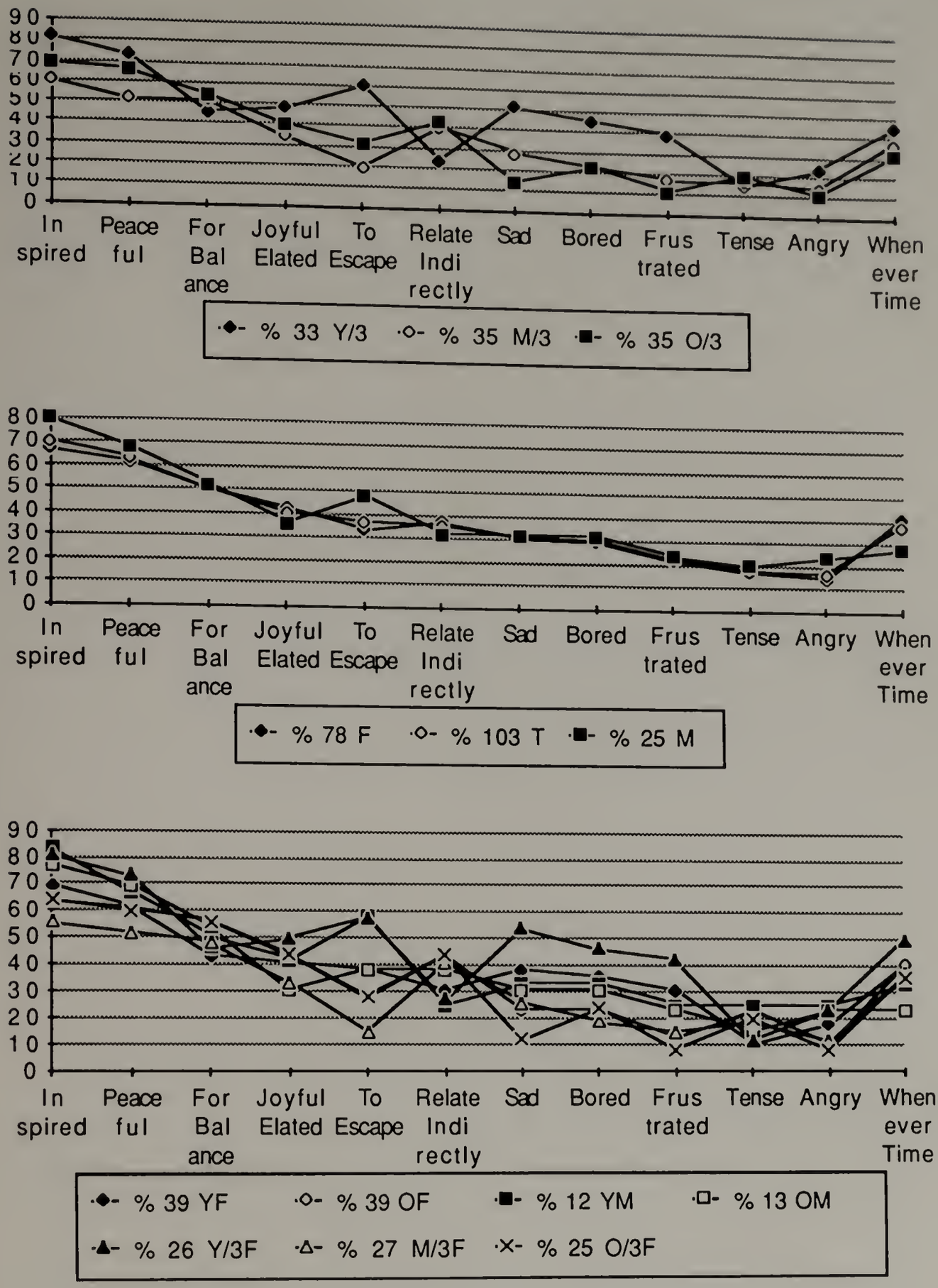


Fig. 42 When Respondents Create.
Sorted by Age and Gender

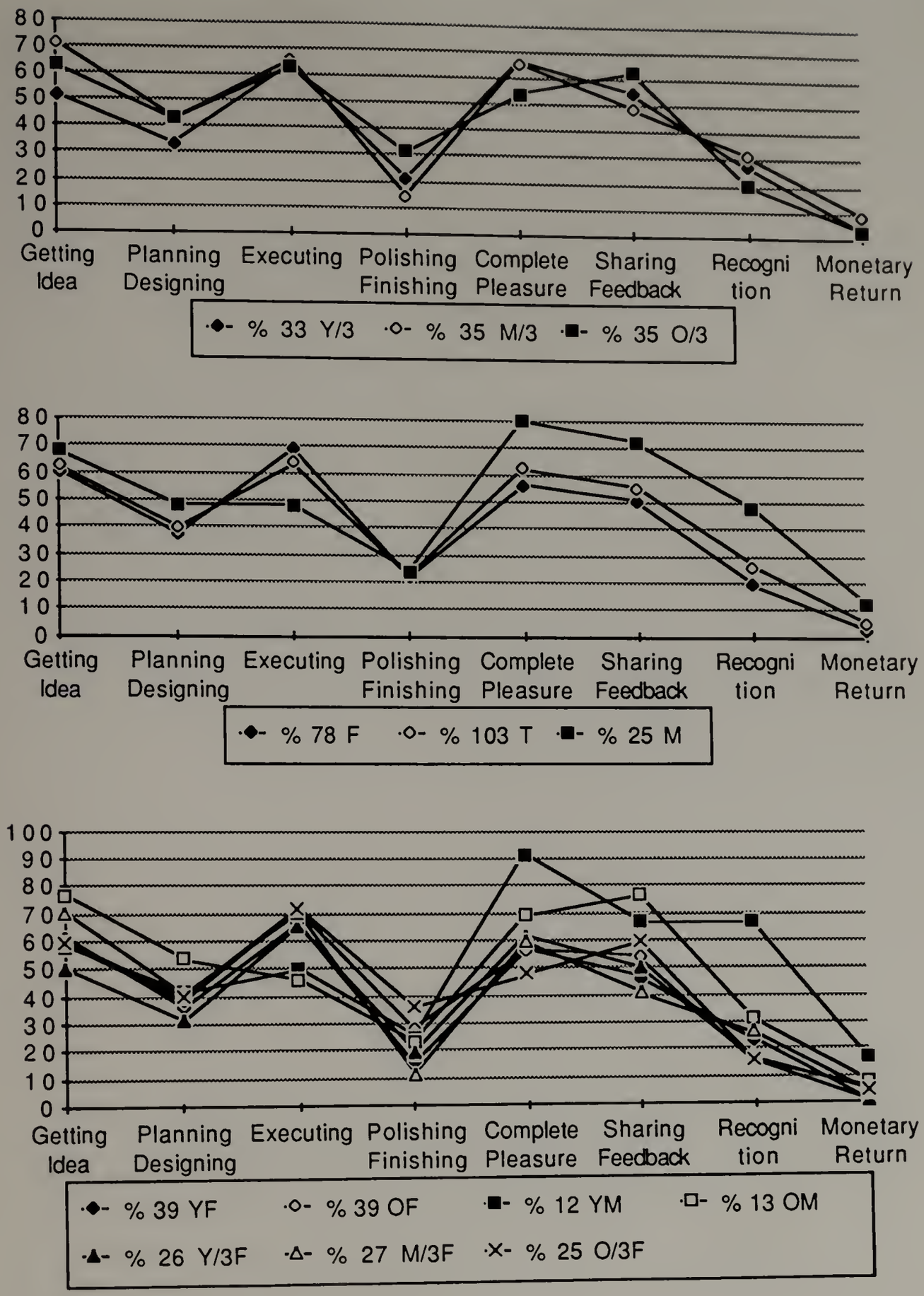


Fig. 43 Preferred Part of the Creative Process.
Sorted by Age and Gender

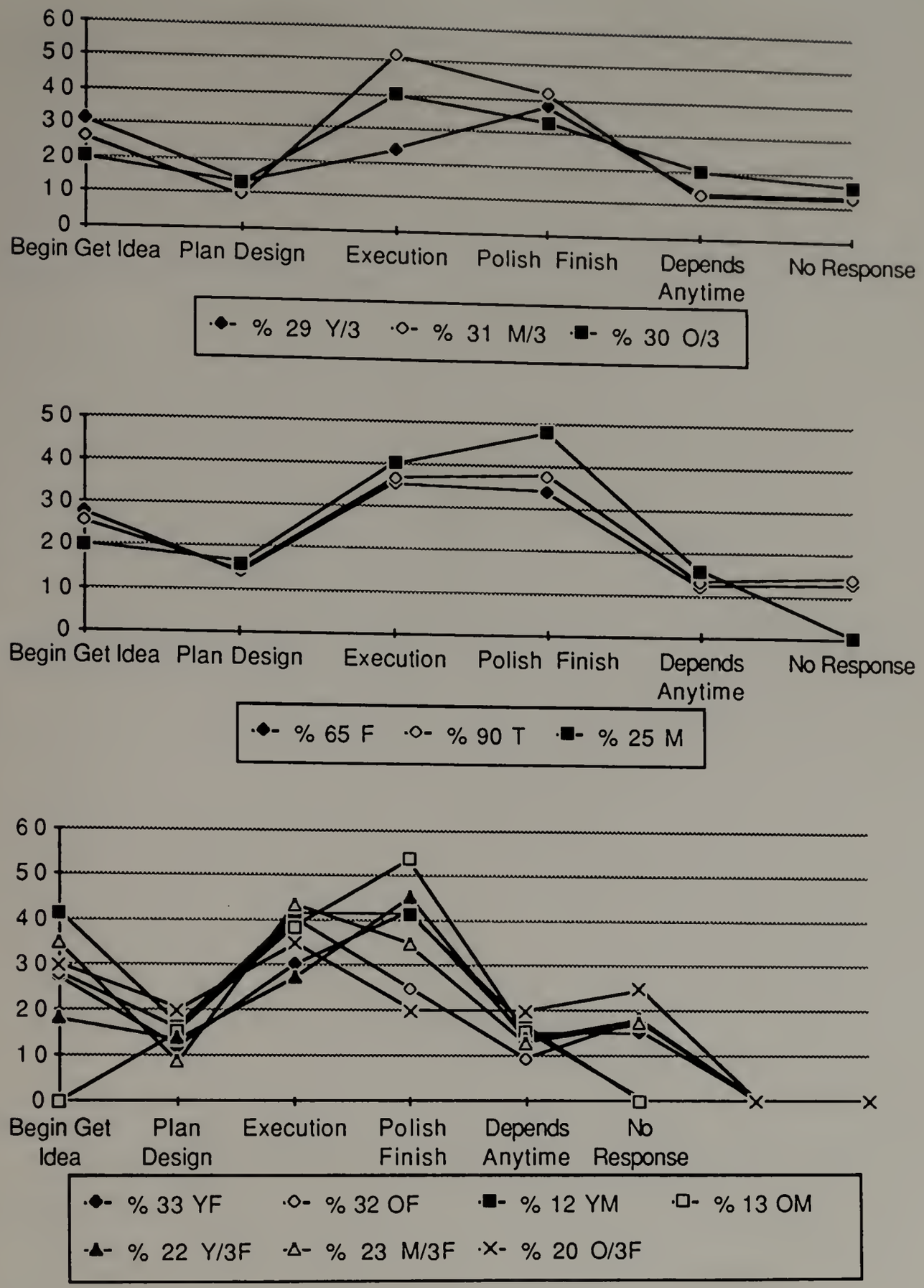
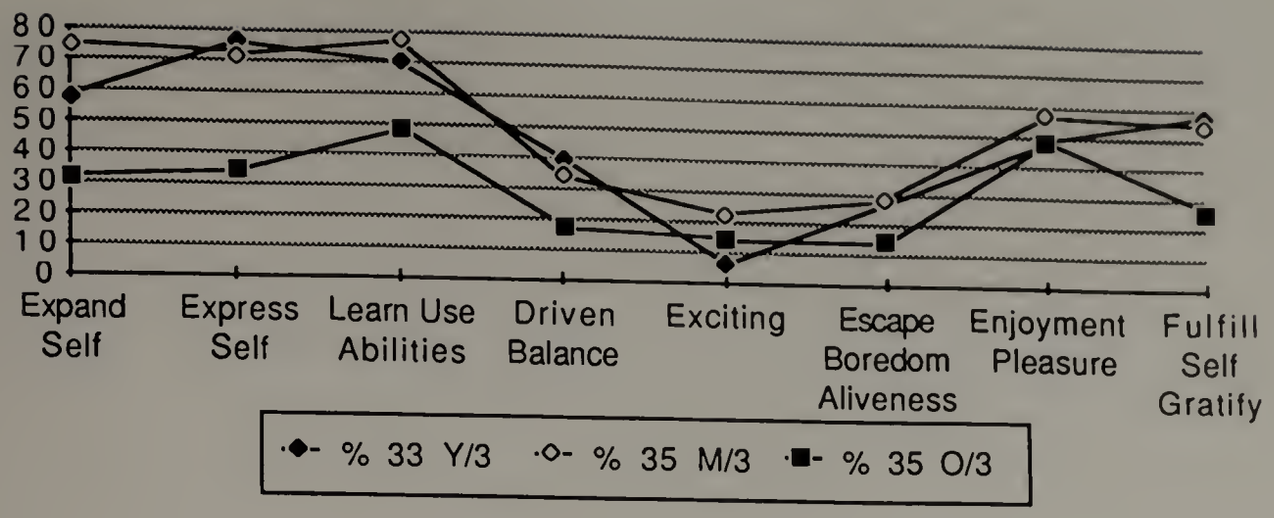
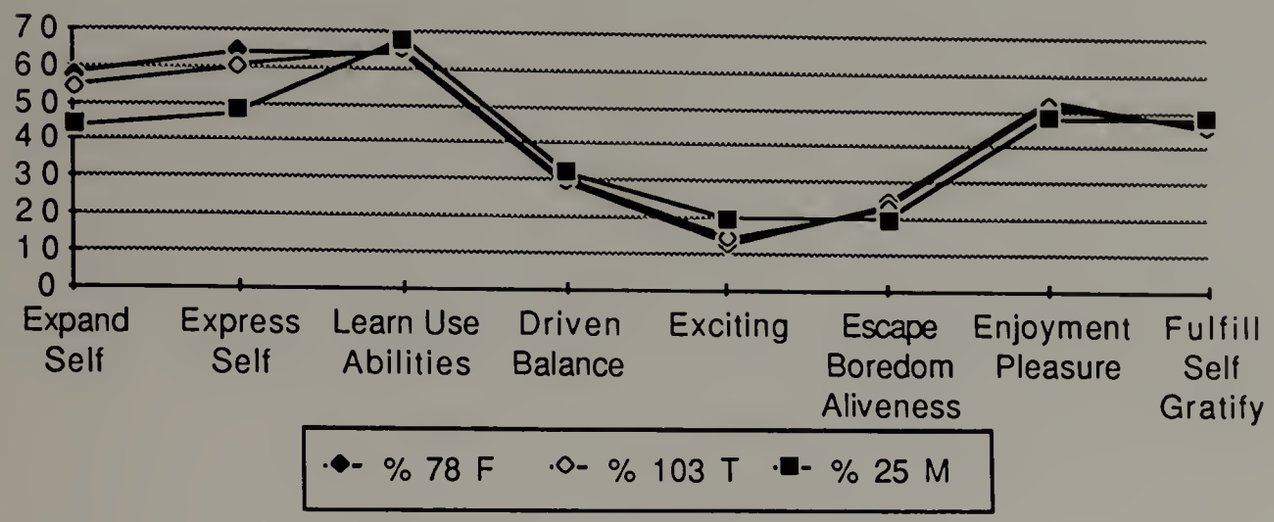


Fig. 44 Where Respondent Gets Bogged Down in the Creative Process Sorted by Age and Gender





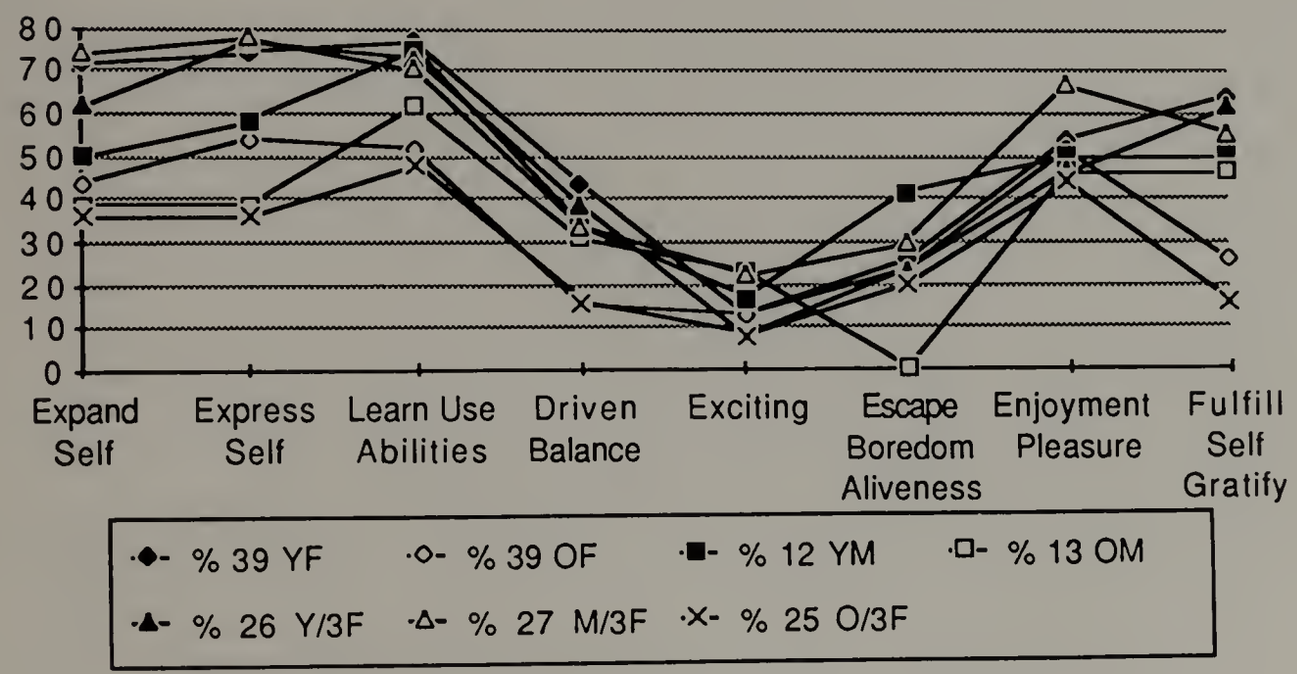
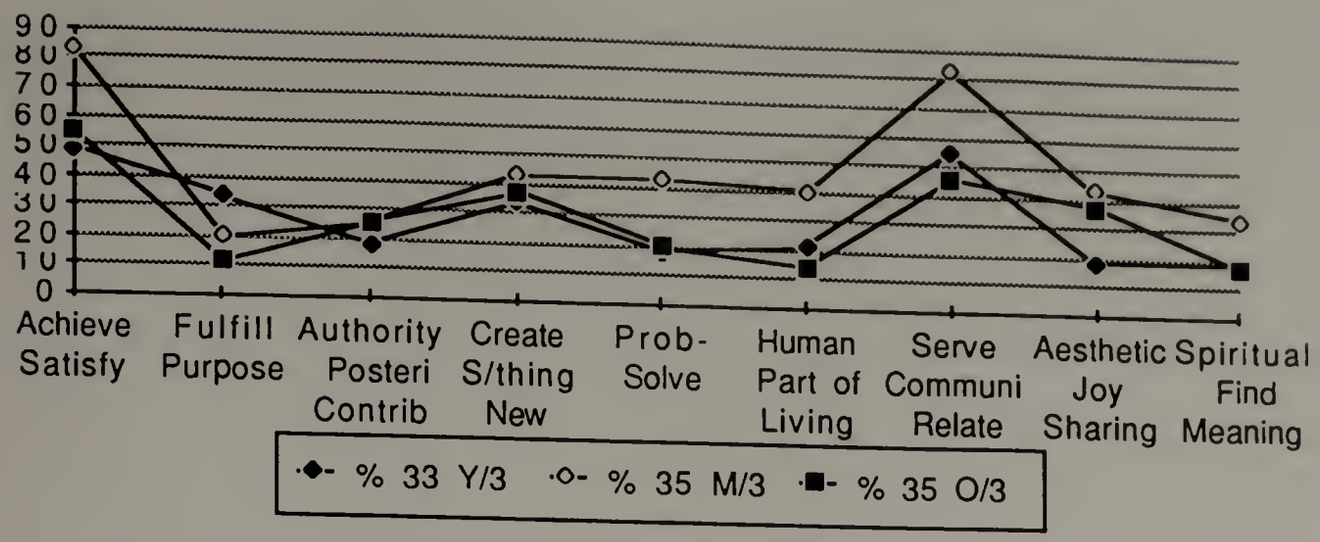
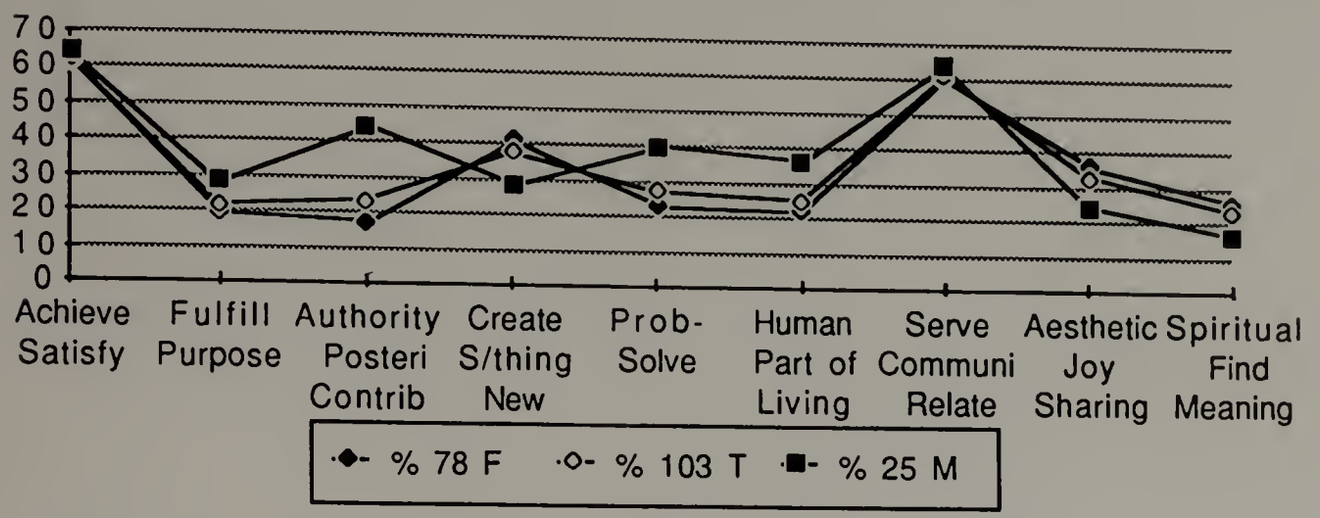


Fig. 45 Responses to the Question "Why do you create?" Continued Next Page.
Sorted by Age and Gender





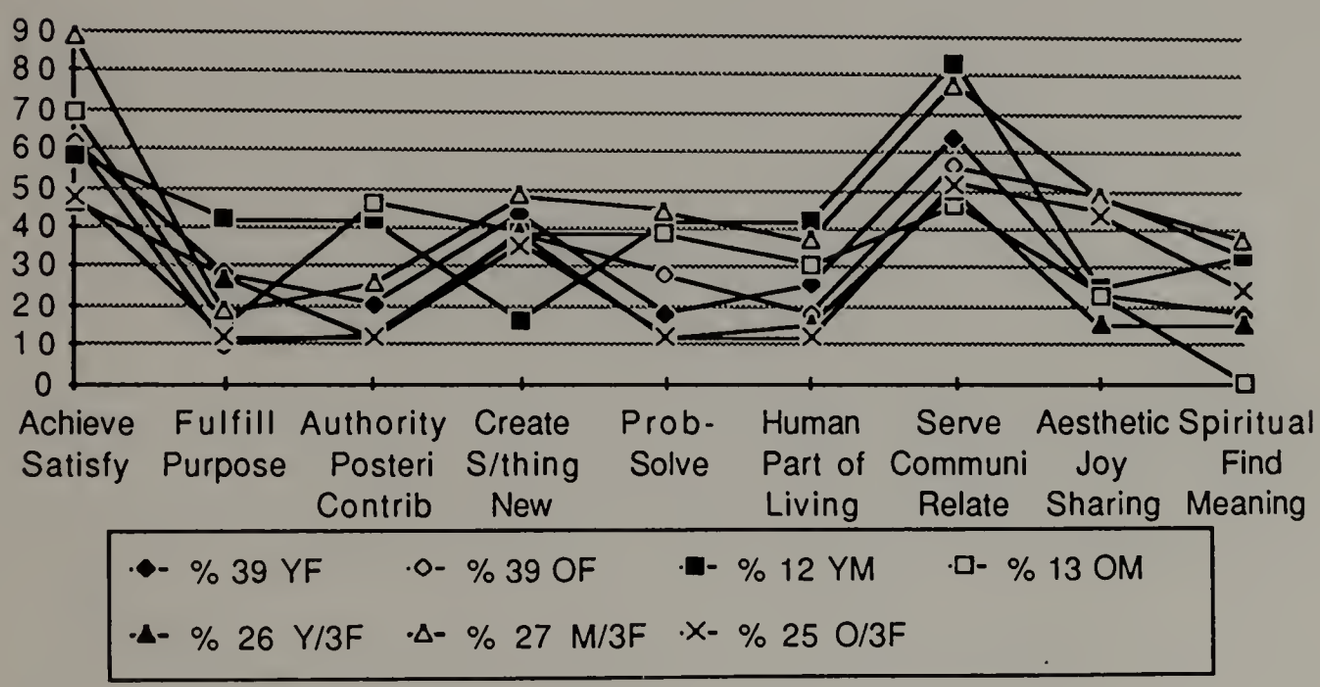
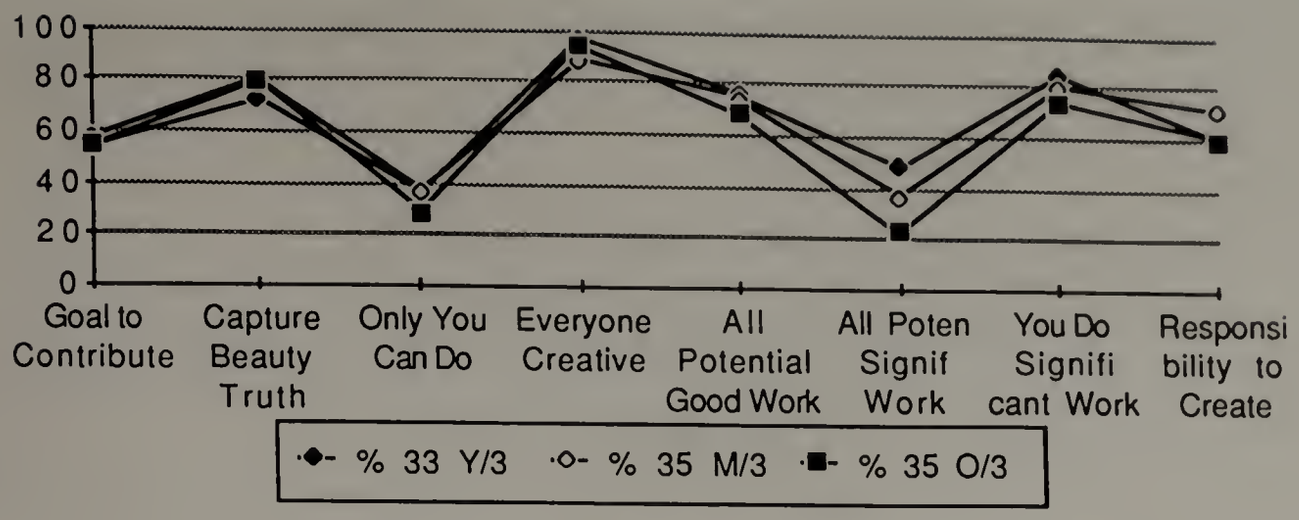
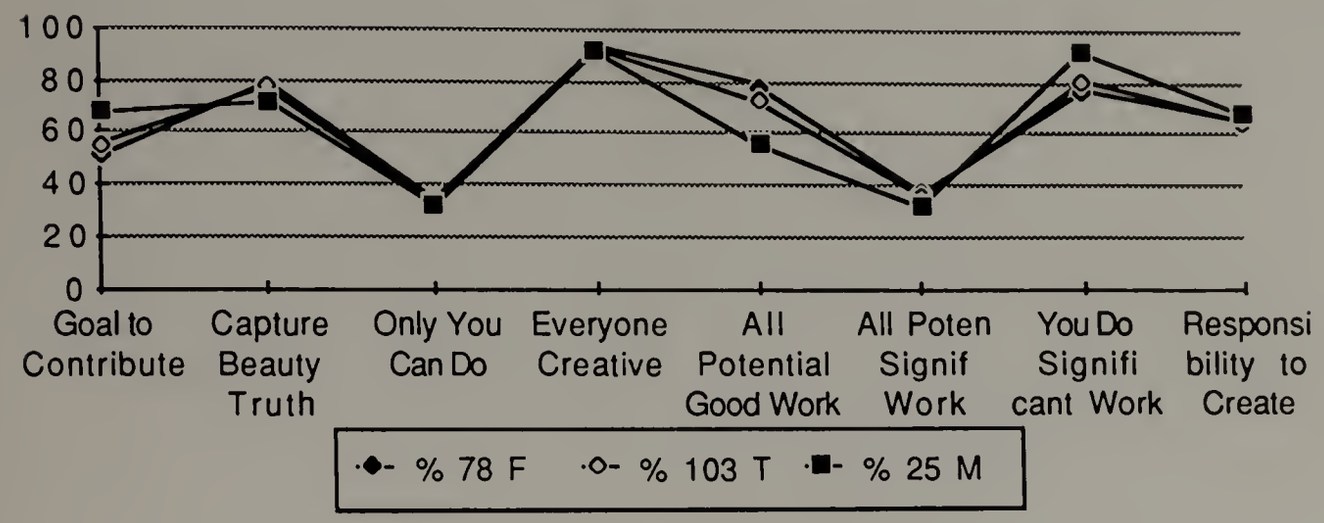


Fig. 45 Continued.





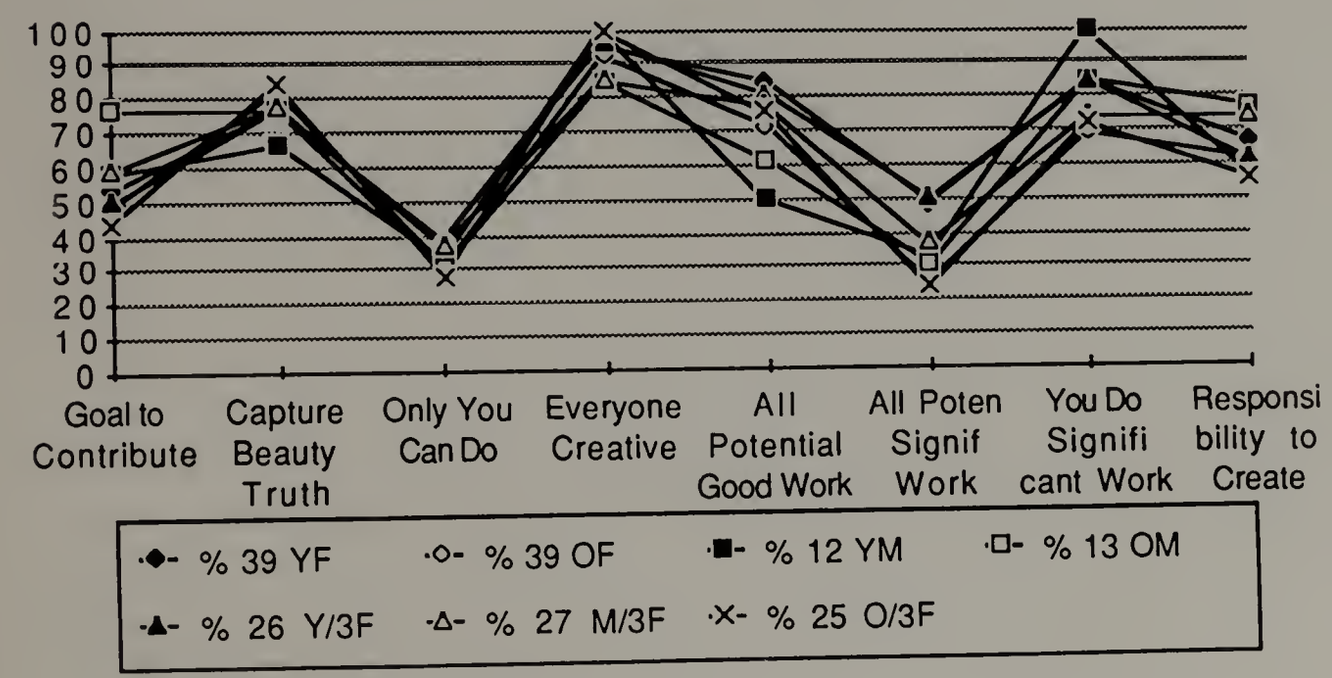


Fig. 46 Attitudes About Creativity.
Sorted by Age and Gender

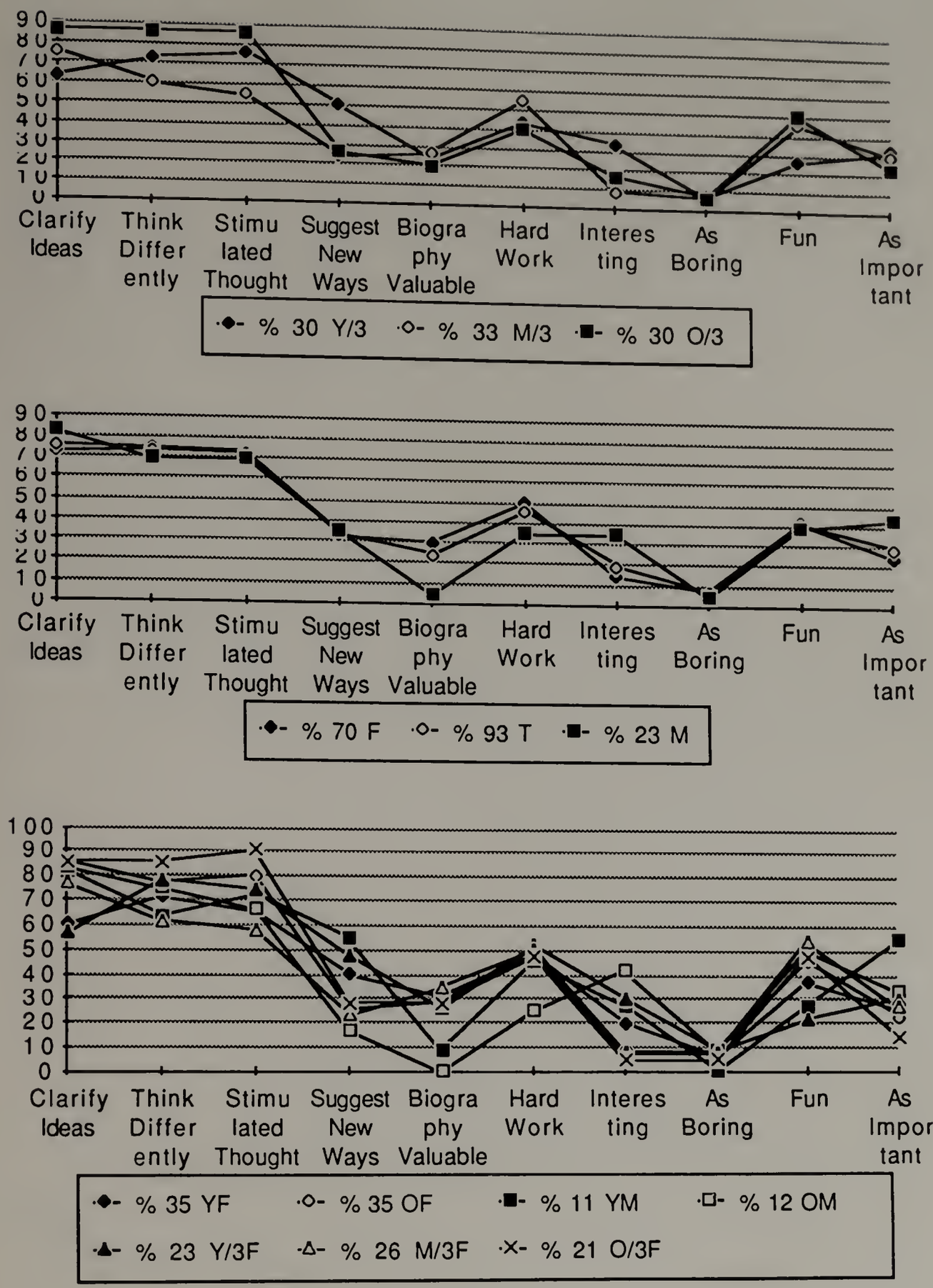


Fig. 47 Reaction to the Experience of Responding to the Queationnaire. Sorted by Age and Gender

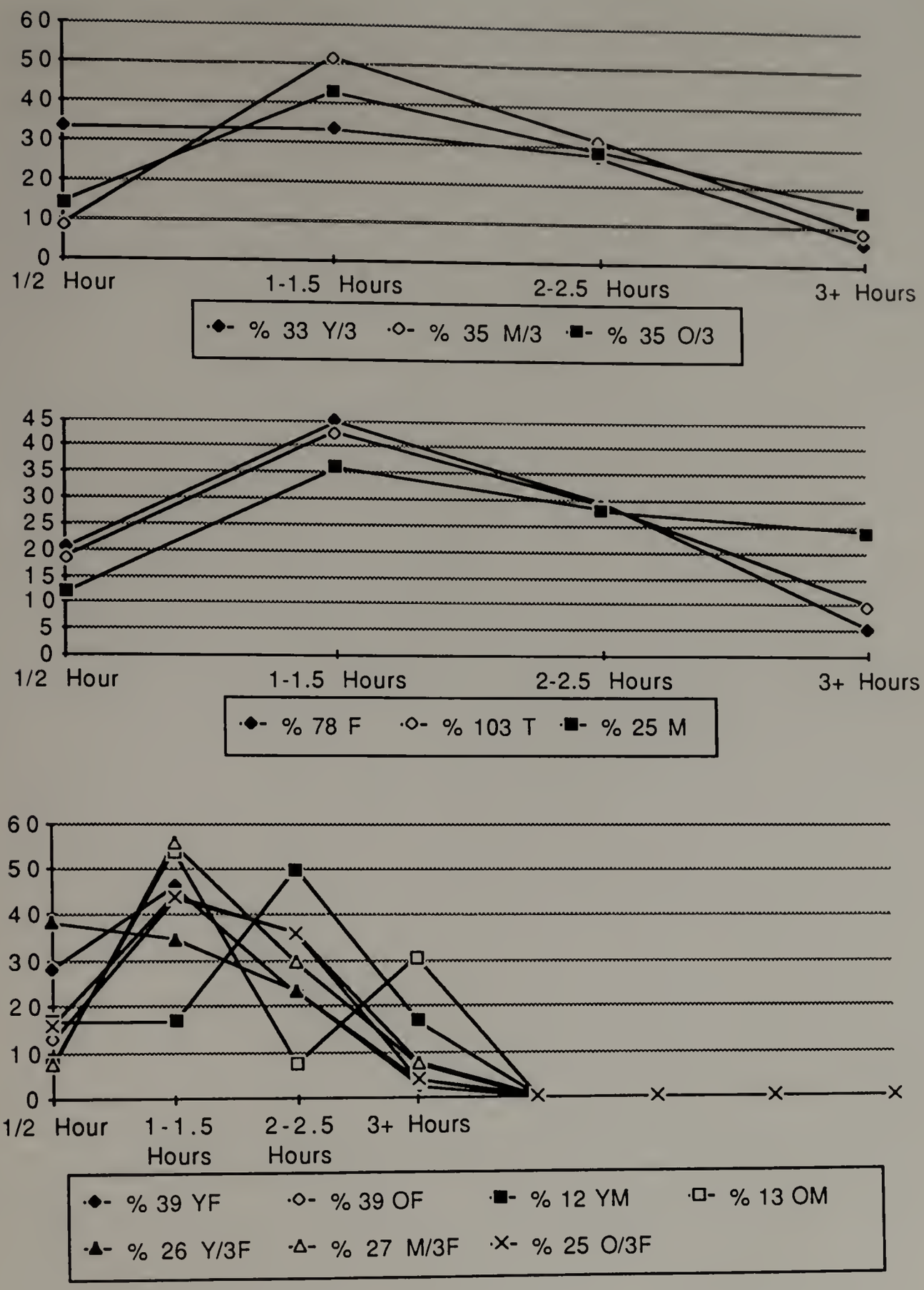


Fig 48. Time Spent on the Questionnaire.
Sorted by Age and Gender

CHAPTER 5

THE RESEARCH QUESTIONS

What discoveries have been made and what conclusions can be drawn from the results of this research? The analysis of the results and conclusions are structured around the six research questions.

The Universality of the Creative Experience

1 - Is the creative experience as reported by recognized "creatives" widespread and commonly experienced, known, and understood by the respondents to the questionnaire?

In the request for subjects for this research project it seems significant that many responded that they "were not creative" yet none denied familiarity with the creative experience. It is, therefore, also most interesting that 93% of the respondents believe that everyone is potentially creative. Seventy-three percent believe that everyone has the potential to do a good piece of creative work. Eighty-one percent believe that they, themselves, have the potential to do a significant piece of creative work. A corollary is that the respondents believe that the creative activity and creative experience is commonly known and understood. Many noted the word "potential." The assumption is that creative ability is there even if not accessed, and the implication is that creative ability can be accessed by some measure or other. Many feel that their creativity was repressed or depressed in their childhood through lack of encouragement or support, negative experiences with teachers, or through limiting factors in the environment of their childhood. Many also feel that they would be more creative if their present environment were more propitious with increased time, appropriate space, sufficient materials, more financial resources, freedom from personal problems or distractions, and personal support. That the pleasure and joy of creating is not

restricted to "creatives" is confirmed by the respondents. The emotions appear as part of the human experience built into our genes as perhaps even a mechanism of survival.

All of the questions and the many distractors included in the questionnaire are gleaned from the literature and research on creative people and an effort was made to incorporate some of the controversial and conflicting ideas and findings. It seems significant that none of the questions nor major distractors seems to have been unfamiliar to the respondents. Certainly there is evidence in the results of the research that the creative experience as encompassed by the questionnaire is commonly experienced, known, and understood by the respondents to this questionnaire.

The Uniqueness of the Creative Experience of "Creatives".

2 - Does the creative experience reported by "creatives" uniquely characterize them as experiencing creativity differently from the dissertation sample of respondents? What are the similarities and differences between the reports on the nature of the creative experience given by the recognized creatives and the respondents?

Seminal to this research project were the generalizations made by Rosner and Abt in The Creative Experience [1970]. One of the ways to try to answer the question is to compare the answers of the respondents to the generalizations that Rosner and Abt made from their study.

There are many difficulties in trying to compare the two studies. An examination of the sample of creatives that provided the basis for their conclusions reveals that all but one are male, all are older than 40, all are white, 60% are Jewish, and 30% are foreign born. When comparing the generalizations made by Rosner and Abt it is important to bear in mind that their conclusions are based essentially on the older male creative experience somewhat comparable to the older male subgroup in this study.

Another limiting factor is that the sample sizes are small: 24 creatives from Rosner and Abt, and in this study 13 older men, 25 males and 102 total respondents.

Another complication is that all the questions used in the Rosner and Abt study on creatives were open-ended. Rosner and Abt made no attempt to tabulate their results into a form suitable for statistical analysis or comparison nor tabulate their results in support of their generalizations. Furthermore every question was not asked of each respondent and there are no definitions provided for words such as some, many, or most. Nevertheless, there is evidence that the experiences described are familiar and similar to those of the respondents of this study, especially in the older male subgroup and it is perhaps illuminating to compare the results of this research to the seminal study by Rosner and Abt. Their generalizations are paraphrased [1970, pgs. 379-392] with a commentary comparison with the findings of this study:

> 1] Feelings of pleasure and excitement accompany creative work and is often associated with insights, seeing new principles and discovering unexpected relationships.

Almost 80% of the respondents find creative work pleasurable and/or fun - a higher percent of the older men than the older women (92% to 70%). Excitement, as the spice of life, is given as part of the definition of creativity and motivation for creating by 40% of the respondents, especially the younger men (70%). New insights and new perspectives are more often mentioned by women as a part of their definition than men. Discovery is seldom mentioned as part of the definition although 40% checked it as one of the offered distractors in Fig. 32. (Figs. 18, 19, 30, 32, 41, 45,)

> 2] There is often a feeling of urgency stimulated by the fear that the idea will be lost if not worked on immediately.

Among the respondents, curiously, urgency is experienced more before the idea comes than afterwards (50% to 45%) and more often by men before the idea comes than

women (64% to 46%). After getting the idea urgency is experienced more often by older respondents (54%) and least by the younger men (18%). (Figs. 29, 30)

3] Commonly there is a sense of surprise and mystery in the creative process with the birth of ideas and during the development of them.

Only about 25% of the respondents feel a sense of mystery about getting the idea. Only about 20% experience the idea as a surprise and slightly more than 25% experience the product as a surprise - more men than women (44% to 21%; p=.02). (Fig. 30, 32)

4] That there is a sense of mystery related to the sense that one does not know where the work is leading, that in a sense the creator is passive and that the solution does not actually come from him, that the source of the idea is external and separate from the individual. (Less than half of the Rosner and Abt creatives fulfill this generalization.)

Only about 35% of the respondents feel that they are a passive receiver. The majority think that the ideas are from their own unconscious (63%) and/or their own synthesis (58%) and that they (70%) are the active agents in getting the ideas (84% of the older men). Only 25% felt that the source is external yet 44% feel that the source is spiritual or a gift from God - especially the middle group of women (73%), and the Muse is not a stranger to 68% of the respondents (80% of the older men). (Figs. 28, 32)

5] There is often a sense of discovery and evolution rather than of the creation of something new.

A comparison between the Rosner and Abt "creatives" and the group of older men reveals that the older men have the smallest percent of any group who experience the idea as a discovery (23%) or as a new creation (15%), say the idea is like an unformed embryo which unfolds during the work (46%), or say that the idea is vaque or nebulous (15%). They have highest percent of any group who describe the idea as coming full blown, who say it is often a surprise, and 69% say that it gradually unfolds. In contrast

50% of the youngest women say the product is like a new creation, 50% of the younger men say it is a discovery, and 73% of the oldest women say it is like an unformed embryo. (Fig. 32)

6] There is a willingness to trust hunches and to stay open to surprise and accident or random events.

Only 15% of the respondents consider accidents misfortunes and cause only 9% to discard their work. About 64% use accidents to redirect their work. A higher percent of older men than those in other groups expect accidents (54%), and perceive them as gifts for a new direction (47%). Seventy-two percent of the respondents feel that being in a receptive mood is important. (Fig. 28, 34)

7] It is important not to pursue a problem doggedly but to leave the task temporarily and go on to something else. (There is among their group of creatives also those who do pursue a problem doggedly until a breakthrough is achieved.)

More than 70% of the respondents stop and try later when difficulty is encountered. The members of the group of older men differ from those in other groups in that a higher percent will stop and wait for an answer to come (54% in contrast to 25% of younger men) and also are more willing to abandon the pursuit (31% to 9% of the women). (Fig. 38)

8] Confidence and boldness are important.

Problems of confidence are a major block to creative activity for the youngest women. Over all the greatest confidence is experienced by older respondents. Of the 30% of the respondents who report that they work boldly the greatest contrast is between men and women (49% to 23%). The older men are the most willing to take chances (54% to 40% for older women) but a higher percent of the middle group of women prefer to wing it (70%). (Figs. 37, 40)

9] Curiosity and a questioning exploratory mind characterizes the creative person. Diverse thoughts not necessarily ordered or structured converge on the mind all at once but do not prevent focusing or selective perception.

Three quarters of all the respondents described themselves as having a broad curiosity and 65% say their mind is wide open while working. More men than women describe their mind as selectively focused (48% to 22%) and/or narrowly focused during work (43% to 30%). Differing from the "creatives" a higher percent of the older men found new ideas coming in during creative work distracting than those in the other groups (70% to 42%). (Fig. 39)

10] Stimuli for the creative act sometimes arise within the individual through dreams and fantasies or spontaneously; or from the work, the instruments of the work, or something from the environment.

Sure.

11] Collaborating with others is a stimulating source of ideas for some. (How many is some?)

A higher percent of the older men than those in other groups brainstorm to get an idea (79%). Only about a quarter of the sample find interacting with people a stimulating source of ideas or helpful for the creative work. More than half of the respondents need to be alone to do creative work. Interestingly a higher percent of the older men need to be alone 70% and a higher percent are also the most receptive to having people around as helpful (up to 40%). The highest percent of the older men say sharing and feedback is the most enjoyable part of the creative process in greatest contrast with the middle group of women (77% to 41%; p=.03). (Figs. 26, 33, 43)

12] Productivity is spurred by deadlines, need to get the job done, to earn money, etc. for some. Others found these conditions encumbrances.

The generalization doesn't make any distinctions. For the respondents about 65% thought a deadline helpful (78% of the older men to 58% of younger men) and 30% of the older men thought having a market helpful compared to only 17% of the younger men. (Fig. 36)

13] Concern with failure and preoccupation with problems of every day reality hinder productivity and work against the necessary open-mindedness.

Only 20% of the older men feared failure contrasting with 68% of the younger men. An interesting perhaps curious contrast found among the respondents is that personal problems were most often cited by older men (76%) and the youngest women and least often cited by older women (29%). (Fig. 37)

14] Motivation for production varied widely. Some were spurred to work by desperation and depression or by irritation and dissatisfaction. (This is a generalization that does not seem valid from the reading of the Rosner and Abt interviews unless some is a very small figure.)

Less than a third of the respondents in this study report that they create when negative emotions are being experienced. Most create when inspired (70%, 77% OM), peaceful (62%, 69% OM), or to find balance (50%; 54% OM). (Fig. 42, 45)

15] Self-expression is one of the significant motives behind creating. It may be finding release, to find self-identity, to escape from boredom and despondency or as a soporific. Work is essential to their psychic economy, for a fuller life, for balance, as an easier way to relate to the world.

Among the answers to the question "Why do you create?" 60% of the respondents create to express themselves - a higher percent of the middle and younger women than the older men and women (75% to 39%), 55% say they create to expand themselves - again the middle women more than the older men and women (70% to 39%). Nearly 70% create to learn or to use their abilities, 50% to fulfil themselves, 63% for achievement and satisfaction and/or to serve, communicate or relate. Nearly 80% of the older men say they want to make a contribution. Less than 30% of the respondents create to problem-solve, as a part of living, to escape boredom or create when

experiencing negative emotions including boredom and depression. None create as a soporific. Most (63%) create when they feel peaceful and 70% when inspired. About half of the respondents create to find balance in their lives, and only 35% create to relate indirectly. (Figs. 42, 45, 46)

16] There is often a desire to leave a significant mark on the science or the art world. There is a belief in the meaningfulness of the creative work and the importance and uniqueness of the individual's contribution. Some have a sense of responsibility to the world and to the future and see themselves as exemplars of their age.

More than 47% of the older men in contrast to less than 20% of the women say they create to become an authority in their field, for posterity, and or to make a contribution and 66% (77% OM to 56% O/3F) feel they have a responsibility to use their creative ability. Only 35% seemed to value their uniqueness as in only they could do this piece of work but 80% felt they themselves could do a significant piece of creative work (all of the younger men). (Figs. 45, 46)

17] Some believe that everyone is creative to some degree.

More than 93% of the respondents believe that everyone is creative and 74% believe that everyone has the potential to do a good piece of creative work. (Fig. 46)

18] Rosner and Abt conjecture that ambition often expresses the frustrated ambitions of their fathers.

Twenty-three percent of the respondents feel they are fulfilling the ambitions of their fathers with no significant age or gender difference. Very few view it negatively. (Fig. 13)

19] Mothers were recalled as a great source of encouragement. Siblings and colleagues are sometimes acknowledged as a source of inspiration.

A higher percent of the male respondents - especially the older men (85%) say that their mother was the greatest influence in their lives with their father being

included by less than 16%. About 40% included a sibling or other extended family member as important in their childhood. Seventy-five percent of the respondents remember positively influential teachers and 73% have had mentors. (Fig. 14)

20] A history of shyness and feelings of isolation as children is not infrequent. Loss of parents or unhappy home-life is also observed.

This is a curious observation to make as distinctive of creatives. There surely is a much larger percent of the population who have not joined the ranks of recognized creatives who have experienced shyness, isolation and unhappy home life than in the selected Rosner and Abt sample. Furthermore much of the research on creative enhancing environments find that negative environments depress creative expression and none supports Koestler declaration that "an unhappy childhood is a necessary condition for creative achievement." Sixty percent of the respondents describe themselves as shy and about a third as feeling isolated and lonely as a child. Fifty-eight percent judge their childhood to have been happy overall, 63% (80% OM) say they had a positive and 37% (20% OM) say they had a negative crucial event as a child. (Figs. 14, 15)

21] Most viewed formal schooling as stifling and stayed with it because of a single inspiring professor.

More of the younger than the older respondents found school stifling (54% to 30%), and scary (54% to 24%). However 80% of the respondents and 100% of the older men found school fun/easy and 84% (100% of the older men) found it exciting, challenging and expansive. The responses of the older men who are the respondents most highly educated and have the highest achievements, do not support this Rosner and Abt generalization. (Figs. 14, 15)

Overall do the answers support that there is a distinguishing difference between the generalizations of the reports on the nature of the creative experience given by the

the Rosner and Abt creatives and the respondents? The Rosner and Abt generalizations do not seem to be supported as being unique to recognized creatives or to uniquely distinguish "creatives." Even the correspondences between the essentially older male "creatives" and the older male respondents is quite mixed. Furthermore is hard to read the responses to the questionnaire or examine the tabulated results and continue to believe that there is an essential difference between the creative experience of "creatives" and the respondents to this questionnaire. Even the variations support the similarities rather than distinguishing among them.

The questionnaire questions were constructed from the reported creative experiences of creative people. The many choices in the distractors came from the diversity of experience reported and an effort was made to provide a wide, inclusive choice. Buried in the questionnaire because the questionnaire incorporates the diversity is perhaps the doubt that there is a distinguishing creative experience distinctive to "creatives." That the responses of the respondents, as well as the Rosner and Abt "creatives", also incorporates this diversity suggest similarity in the diversity rather than unique differences between "creatives" and the respondents.

Gender Differences in the Creative Experience

3 - Are there major gender differences in how creativity is defined with consequences affecting the experience itself; and are there differences in the creative experience between men and women?

In order to answer these questions, the data in which there are differences between the answers of men and women relevant to the question of gender difference are extracted and listed in the appendix. Out of the 26 sub-categories delineated for definitions there is a significant difference at the p=.05 level between men and women in only 5 sub-categories and suggestive differences in only a few more. Out of the 24 sub-

categories delineated for focus of creative activity only the category of homemaking is significantly distinguished by gender. Out of the 17 sub-categories of motivations for creativity there is only one with a significant difference and two with a suggestive difference. There are significant gender differences in the creative experience in only about 10% of the sub-categories. The similarities are remarkable. However the differences are not unimportant. A characterization of the creative experience of the male and the female is hypothesized from the important differences in the responses.

A Woman.

A woman is likely to define creativity with reference to herself. She is less likely to think of creativity as in the traditional Aristotelian definition of creativity. She is not likely to define creativity as producing a useful, tangible, and concrete product separate from herself but when she does she is concerned that a product be an aesthetic product. She does not think of creativity as problem-solving. She most often puts her creative energy into creating a congenial and aesthetic home environment which often includes a concentration on fine arts and crafts where it is likely she is in fact producing both useful, tangible, and concrete products. She may say about what she does "that it is not very creative." She is likely to consider that her own development is her creative product. She is inclined to believe that creativity involves developing and expressing ideas. These definitions often relate directly to her profession as therapist and/or teacher where she applies her creativity. Her definition of creativity often refers to the intangible. Her creative focus on relationships and in her profession produces no concrete, tangible product.

To get an idea she will more likely than a man seek out a friend or do a task. Her muse is less apt to come and go and she may feel the source of her idea is spiritual. Before the idea comes she does not experience inner stillness or a sense of urgency. Compared to her male counterpart the idea is less often experienced as coming in words

and the product is less often experienced as a surprise. She is more likely to experience immersion in her work and has a harder time resuming her work after an interruption. She does not expect accidents but can use them to redirect her work when they happen. She most needs uncommitted time and a neat place in which to work. She is reluctant to abandon a work that has run into difficulties. She also feels less successful in overcoming blocks or obstacles. She is less likely than her male counterpart to describe her mind as selectively focused, to say she works boldly, or to say that creative work is fun or painful. The part of the creative process she most enjoys is the doing of it. She enjoys less than the male pleasure from completion, sharing and feedback, and recognition. She does not create to become an authority, for posterity, or to contribute to society with her creative effort. She believes that everyone has the potential to do a good piece of creative work but she is less confident than the male that she can do a significant piece of work.

The women were more likely to find that thinking about their own biography with reference to their creativity helpful and valuable yet they found responding to the questionnaire less interesting and less important or helpful than the men. They spent substantially less time responding to the questionnaire averaging 1.4 hours compared to the 2.2+ average time for the men.

A Man.

A man is more likely to think of creativity as producing a concrete, tangible, and useful product. Although very few define creativity as discovery and invention, it seems likely that a man would more readily agree with a definition which included both as an integral part of problem-solving and the joy of fit or solution. He finds creative work exciting and is not very much concerned with aesthetics. He gives his creative energy to

his profession and almost none to his home environment. In contrast to his female counterpart he creates to become an authority in his field, for posterity, to make a contribution, and to solve problems.

To get an idea he is less apt to seek out a friend to talk to or do a task. He experiences the muse as coming and going but seldom considers the source of his idea to be spiritual. Before the idea comes he experiences inner stillness and urgency. The idea often first comes in words. His product is often a surprise to him. He is less apt to become immersed in his work and is more able to resume his work after an interruption. He is more likely to expect accidents and to be able to use them to give hoped-for freshness to his work rather than to redirect his work. Often he can make a happy accident happen. For creative work he has a greater need to be free from distractions but less need for uncommitted time and a neat place in which to work. His self-confidence is more reliable. He will abandon a work more readily than his female counterpart and he is also more confident about successfully overcoming blocks when they occur. He is more likely to describe his mind as selectively focused and to say he works boldly. He finds creative work more fun and more painful. The parts of the creative process he most enjoys are completion pleasure, sharing and feedback, and recognition. He enjoys the execution stage less than his female counterpart. He has less confidence that everyone can do a good piece of creative work but is quite certain that he can do a significant piece of creative work.

For the men responding to the questionnaire served to clarify their thinking about creativity. They were more likely to find the questionnaire interesting, important, and helpful and less likely to find thinking about their own biography valuable or helpful. They spent more time on the questionnaire than their female counterparts averaging 2.2+ hours to 1.4 hours.

That a woman is more likely to focus her creative energy in the culturally approved areas of homemaking, the fine arts, crafts, and the helping professions is not surprising. However the differences in definitions are not insignificant. Given the great discrepancy in the creative achievements of men and women it seems important to discover that a man is likely to think of creativity in terms of the production of a useful, concrete, tangible product and as problem-solving whereas a woman does not. When a woman thinks in terms of a product it must be an aesthetic product giving her aesthetic pleasure. A man creates because it is exciting and he experiences joy of fit in the solution to problems. That a man creates to become an authority, for posterity, or to make a contribution is another important difference.

It seems as if a woman is more inward in her creativity defining creativity in terms of self-expression and self-development and in focusing her creative energy toward aesthetic pleasure in the fine arts and in creating a congenial, aesthetic home environment. She becomes immersed in her work with little tolerance for interruptions, and enjoys most the more meditative, aesthetic, and perhaps spiritual aspects of the execution of an art or craft. She seems less likely to try to encounter the external world even in the choice of her profession which is often concerned with more intimate personal relationships. She rarely tries to produce a separate, external, concrete, useful, invented product to put out in the world for sharing and feedback, for recognition, and for making her mark. She is less confident that she can do a significant piece of creative work or contribute to society by her creative effort. Why women seem to be less intensely involved and have less emotional investment in creativity may be because of a lack of support or a scarcity of rewards for her in her society, or it may be because what she desires, finds meaningful or valuable is different from the male.

The male creative orientation follows the traditional, largely Aristotelian, philosophical modes of thought and definitions from the male heritage of our culture defining creativity as problem-solving and in terms of creating a useful and concrete

product separate from themselves. Men seem to be more out in the world with their creative energy. Men are more outwardly turned toward achievement, toward gaining recognition, and toward having an effect on the world. They are more selectively focused, bolder, and more interactive in sharing and feedback. They are more tolerant of interruptions and are less concerned with aesthetics. Men are more often involved creatively in the more impersonal relationships.

For creative achievement there are greater rewards in the culture and there is greater support from teachers, mentors, parents, and wives for men. It is not surprising that men have a higher level of self-confidence in their own abilities to do significant work than women, have a greater and more positive emotional investment in creativity, and find completion of a work, sharing and feedback, and recognition more pleasurable than their female counterpart.

Age Differences in the Creative Experience

4 - Is there a difference in the way creativity is defined that varies with age and does the way that the creative experience is reported vary with the age of the respondent, and if so, in what ways?

Of the more than 250 distractors in the sections on the definition of creativity, the creative focus, and the creative experience, the three age groups differ significantly from each other in about 23%. The three-way age division makes it possible to see an age group as distinct from both of the other groups or as part of a sequence that apparently varies with maturity and life experience. The significant age differences have been extracted and listed in the appendix. The significant differences that vary with increasing or decreasing age are starred. Concentrating mostly on the differences among the several groups, it is possible to characterize each of the three age groups as they differ from each other.

The Youngest Group of Respondents

The respondent in the youngest group is quite likely to say that a product is not essential, that the product can be intangible, or that the self is the product. Creativity may involve giving a form to the intangible. That a product be original is important. He or she does not define creativity as problem-solving. He or she may define creativity as producing a concrete product and as rearranging and combining things. Creativity is more likely to be thought of as self-expression rather than with connecting or sharing with others. The youngest respondent focuses his or her creative energy in the arts and often in creative use of free time as play. More than the others the youngest respondents create for self-expression, to fulfill themselves, or to fulfill a purpose.

To get an idea, the youngest respondent is likely to play music. He or she does not experience being a passive receiver of the idea from an external source. Getting the idea is exciting and he or she feels relief and gratitude after the idea has come. There seems to be little urgency about getting on with it. The idea is more likely than for the others to come as an image or kinesthetically. The idea is more often than for the older respondents felt to be a new creation rather than gradually unfolding. During creative work he or she will have a constant inner dialogue, and is unlikely to experience timelessness. More than for the others a lack of energy after essential work is finished is seen as the major obstacle to creative achievement. The youngest respondent feels that having more money would increase his or her creativity. Limits are not likely to be considered helpful. The youngest respondent is apt to suffer from fear of failure and a severe inner critic. An idea may be considered too small to be worth doing. New ideas coming in while working is not distracting and he or she is likely to keep a notebook of the ideas that come. The youngest respondent is most likely to feel the need to have an alternative plan and is least willing to risk winging it. He or she is least likely to consider creative work hard work or stressful and will turn to creative work when

feeling inspired, sad, bored, frustrated, or feels the need to escape rather than to relate indirectly or to find balance. More than those in other groups the youngest respondent believes that everyone has the potential to do a significant piece of creative work.

More often than the older respondents the youngest respondents said that responding to the questionnaire served to clarify their thinking about their own creativity and to suggest new ways of working and being creative. They were least apt to say it was fun. The youngest respondents spent the least time responding to the questionnaire averaging 1.4 hours.

The youngest respondent is more closely connected to the sensory world of impressions and experiences and more relational to the concrete than the abstract yet also may say that the product can be intangible or is not essential. He or she reports a greater connection with emotional aspects of the creative experience. The youngest respondent appears to be less inwardly directed or introspective and more outwardly directed in self-expression and being interactive in the world although not especially interactive with others nor involved in relationships.

The Middle Group of Respondents

The respondent in the middle group is most likely to define creativity in terms of the elements of creativity and in terms of self-expression or of the self as self-development or the self as product. More than the others he or she thinks of creativity as problem-solving, and as involving originality. He or she is least likely to define creativity as rearranging and combining things. The product may be defined as intangible. The creative focus of the respondent in the middle group is on problem-solving, relationships, a profession, and/or on self-development and is least likely to be focused in the arts. Of the 12 motivational categories that have a significant difference among the age groups, the respondents in the middle group have the highest percent in

eleven. A higher percent than both the older and the younger respondents create to expand themselves, to express themselves, to learn, use their abilities, to fulfill themselves, for achievement and satisfaction, to solve problems, because it is part of being human, in order to communicate with, relate to and serve others, for aesthetic pleasure, or to find meaning.

The respondent in the middle group is somewhat more likely to experience the first form of the idea as words than as an image or to have a sensory connection with getting the idea. Before the idea comes, he or she is less excited and less apt to feel pleasure and relief than the others after the idea has come. He or she needs to be alone during creative work and is likely to experience timelessness. He or she is least likely to say that interruptions can be used to give perspective to their work or to find music helpful. The product is experienced as gradually unfolding. Accidents can be received as a gift for giving a new direction for the work. Like those in the youngest group the middle respondent says having more money would increase his or her creativity and the greatest blocks are fear of failure having a severe inner critic. The middle group respondent has less need for an alternative plan. He or she is likely to find creative work stressful and is least likely to experience compromise as acceptable and/or helpful. He or she is less likely to turn to creative activity when inspired, to escape, or when bored. The most enjoyable part of the creative process is getting the idea and the execution stage is the stage where the process is most likely to get bogged down.

In responding to the questionnaire the middle group respondents were less apt to say that it made them think differently or that it stimulated their thinking about creativity and more said it was hard work. The average time that the respondents in this group spent on responding to the questionnaire was 1.5 hours.

The middle respondent at the transition age of around 40 is the most motivated, energized and active in his or her creativity. He or she is less involved with the

concrete and is more involved in the more abstract world of ideas. He or she is both inward and self-analytical and with a more spiritual perspective, and outward in being interactive in the world and interactive with others in relationships.

The Oldest Group of Respondents

The respondent in the oldest group is most likely to define creativity as rearranging, combining, expressing, and developing ideas. He or she is least likely to define creativity in terms of producing an original product, as giving form to the intangible, as the self as product, as an intangible product, or to say that a product is unnecessary. He or she is least likely to define creativity as gaining new insights and perspectives, expanding options, or as rearranging and combining things nor as likely to define creativity as the expression of emotions or of the unique individual. He or she is not as likely as those in the middle group to focus creative energy on a profession, on relationships, or on self-development. The oldest respondents have the smallest percent of any group in 10 of the 12 categories of motivation that have a significant difference among the groups. The smallest percent create to expand themselves, to express themselves, to learn or use their abilities, because they feel driven, to fulfill themselves, to fulfill a purpose, to solve problems, because it is part of being human, in order to communicate with, relate to and serve others, or to find meaning.

To get an idea the respondent in the oldest group is most likely to go to a special room and is least likely to play music. The oldest respondent considers him or herself to be the active agent in getting the idea and is least likely to consider the source spiritual. Before the idea comes the oldest respondent experiences excitement. After the idea has come, he or she experiences less excitement but more pleasure and a greater sense of urgency than the others. The idea is less likely to come as an image or kinesthetically. The idea most often is seen as coming as a new combination rather than as a new creation. During creative work the oldest respondent often experiences timelessness and has less

inner dialogue than those in other groups. The older respondent is more likely to play music as an aid to creative work. He or she feels that having more money would not increase his or her creativity or make a difference in his or her creative activity. The oldest respondent suffers less from blocks and obstacles than any other group. He or she is not likely to fear failure, suffer from an inner critic, experience lack of, wavering of, or loss of self-confidence. A lack of energy is less apt to interfere with creative activity of the older respondent than for those in other groups. The older respondent is most likely to find creative work hard work. He or she may turn to creative activity to relate indirectly but not when sad, bored, or frustrated. More often than the others he or she enjoys polishing and finishing the creative work. He or she is least likely to believe that everyone has the potential to do a significant piece of creative work.

More of the oldest respondents said the questionnaire clarified their thinking about their own creativity, made them think differently, stimulated their thinking about creativity, and was fun to do. Fewer said that it suggested new ways of working. The oldest respondents spent more time on the questionnaire than any other age group averaging 2.0+ hours.

The oldest respondent does not lack self-confidence or lack energy for creative work. He or she does not lack the resources or the environmental conditions. Yet his or her motivation is markedly depressed relative to the middle age group. The creative activity seems to be more inward and less interactive in the world.

There do not appear to be age related differences that can be attributed to the very different social, economic, and political environments during the maturing years of those in the three age groups. The age related differences are not especially surprising. Some of the major changes that take place with age are increasing self-confidence, increasing sense of urgency, decreased need for money, less optimism about the universality of creative potential, perhaps less emotional involvement and a greater

sense that creative activity is hard work. What is not so expected is that originality becomes relatively less important and that a product becomes essential or relatively more important.

Age and Gender Differences in the Creative Experience

5 - Are there differences in the creative experience that are characteristic of groups divided by both age and gender?

The significant differences among the gender groups are relatively few involving only about 10% of the sub-categories and 23% of the sub-categories among the age groups. The number of significant differences increases to 50% when the respondents are divided by both age and gender. It is interesting to observe 1) the gender differences within an age group, 2) the contrasts within gender groups as between the younger and older men and as among the three age divisions of women, and 3) the unique differences of one group from the others. The significant differences in the data that uniquely distinguishes each of the five age/gender groups are extracted and listed in the appendix. The elements that have a significant difference within the gender are starred. A hypothesized characterization of each group is created from the significant differences.

The Creative Experience of the Youngest Women

A women in the youngest group is likely to say that creativity is producing an original product or giving a form to the intangible. She is even more likely to say a product is not necessary or that the product is herself. She is likely to define creativity as self-expression, as rearranging, combining, expressing, and developing ideas and is likely to say that creativity is gaining new insights, new perspectives, or expanding options. She does not say that creativity is problem-solving. She is least likely to say it is for connecting with others. She focuses her creative energy in creating her home, in arts and crafts, and in her profession which is often teaching in secondary schools. She

creates because she wants to express herself, to learn, to use her abilities, and to fulfill herself rather than for an achievement, to become an authority, to solve problems, or to connect and share with others. She may feel driven to create.

When she needs an idea her first choice is to find a friend to talk to. She will play music, write, or brainstorm about it. She is unlikely to go to a quiet place, meditate, or pray. She often makes a sensory connection with getting the idea. The idea often comes kinesthetically or as an image and less often than the others in words. She believes the idea comes from her own unconscious and she is less likely to experience being a passive receiver yet she is also less likely to say she is the active agent or that the idea is the result of her own synthesis. Getting the idea is exciting and seems like a new creation that more often seems to come full blown rather than as gradually unfolding. She has less need to be alone during the creative process and is more likely to say that having people around is okay or helpful. Although she does not consider an accident a gift she is better able to use it to redirect her work. More than any of the others she needs a neat place in which to work and is least able to see chaos as evocative. Her greatest need is for uncommitted time rather than solitude or freedom from distractions. More than all the others she feels that having more money would make a difference, would enable her to be more creative. She finds lack of time, space, energy, and personal problems the main obstacles to her creative expression and is more often blocked by her inner critic, a wavering self-confidence, or a loss of self-confidence during the work. She may feel blocked because the idea seems too small. She feels less successful than the others in overcoming blocks.

She is not likely to describe her mind as selectively focused and is least likely to say that her mind is narrowly focused while working. She is least likely to experience timelessness and does not find new ideas coming in while she is working distracting. She is likely to keep an idea notebook. She desires to be prepared ahead of time when working with other people and needs to have an alternative plan. She is least likely to

want to wing it. She finds creative work pleasurable, not especially hard work, stressful, or painful. Compromise to meet the needs of others is acceptable and even may be considered as helpful. More often than the others she will turn to creative activity when she is inspired, peaceful, joyful, sad, bored, frustrated, to escape, or whenever there is time. Along with the other women she finds the execution part of the creative process the most enjoyable. She finds getting the idea, planning and designing, and the recognition stages less enjoyable than do the others. She does not enjoy sharing and feedback. She is least likely to get bogged down in the execution stage and along with the older men is most likely to get bogged down during the polishing and finishing stage. She is the most likely to believe that everyone has the potential to do a good and even a significant piece of creative work.

The youngest women, along with the younger men, were most likely to say that responding to the questionnaire served to suggest new ways to be creative. The youngest women were least likely to say that it clarified their thinking about their own creativity, but along with the other women, were likely to say that thinking about their own biography in connection with their creativity was valuable. The youngest women tended to find responding to the questionnaire was hard work rather than fun and spent the least time on the questionnaire averaging 1.3 hours.

The youngest women creates more for herself than for others with her creativity defined as self-expression and focused inward toward herself as fulfilling herself rather than outward toward relating with others, problem-solving, creating a product, or making a contribution. Yet she is social and interactive in her creative activity and tolerant of distractions with less need of and desire for solitude. She is more open to sensory experience. She creates for its pleasure and she turns to creativity in every mood. She is willing to compromise her work to meet the needs of others. She suffers the most from a fragile self-confidence that is not shared by her male counterpart.

Whereas the younger man most enjoys completion pleasure, recognition, and sharing and feedback, she is least likely to say she enjoys completion and may withdraw from sharing her work or putting it out in the world for recognition. She is optimistic that everyone can be creative but is not quite as certain as her male counterpart that she can produce a significant piece of creative work.

The Creative Experience of the Middle Group of Women

A woman in the middle group is likely to define creativity in terms of the elements of creativity, with reference to the self, and with reference to emotions. She is likely to define creativity as developing, and expressing ideas, and as gaining new insights, new perspectives, or expanding options. Originality is important. She does not think of creativity as the production of a useful product or as rearranging and combining things. She may say the product can be intangible. She defines creativity as self-expression and is to help connect and share with others. She creates for aesthetic pleasure rather than for excitement or to meet a challenge. A woman in the middle group is both unique from and also in many ways transitional between the younger and older women. She defines creativity as directed both toward herself as in self-expression, as gaining new insights, expanding options, and as development of her ideas; and outward toward connecting and relating to others. Her areas of focus for her creative energy are broader than for any other group and are again focused both inward toward her home, personal relationships, and self-development and outward toward her profession and organizational relationships. She is relatively less involved than the others in the arts although she is likely to focus some of her energy on crafts and on the homemaking arts. She gives more of her creative energy to her profession which is often administration or a helping profession.

She is the most involved in creativity and the most motivated with her focus both toward others to solve problems, to communicate, relate to, and to contribute; and

toward herself as self-development, to expand herself and express herself, for aesthetic joy. Her creative experience is connected more than the others to spirituality and meaning. She creates to create something new, to learn and use her abilities, to fulfill herself, for satisfaction of achievement, and to find spiritual meaning. She creates to escape boredom and feel alive, because it is part of being human. She takes her creativity more seriously - less for fun, pleasure, or excitement. She is least likely to turn to creativity when she is inspired, peaceful, bored, or to escape. She needs both quiet solitude and freedom from interruptions but also interaction with others, in encountering her world, and in her helping professions. She is not competitive in her creativity. What is perhaps noteworthy is that she does not choose the motivation sub-categories most frequently chosen by her male counterpart: fulfillment of purpose, to become an authority, for posterity, or to make a contribution to society.

To get an idea a higher percent of the middle group of women will do a task, write about it, meditate, or pray and is likely to seek out a friend to talk to. She is less likely to persist or go for a walk. She often feels as if she is a passive receiver and is less likely than the others to believe that she is the active agent in getting the idea. She is the most likely to say that the idea is from an external spiritual source, as a gift from God. She is less likely to feel excitement or a sense of urgency either before or after getting the idea. She is likely to make a sensory association with getting it. The idea often comes as intuited and less often than the others as an image. The idea often comes full blown and seems like a discovery. She may say it gradually unfolds but the product is not likely to be experienced as a surprise. Perhaps because she is the most likely to experience both timelessness and immersion during creative work she has greatest difficulty resuming her work after an interruption or using it to give perspective to her work. She may say that interaction with people is a necessary part of her creative process. Accidents are expected but she is least able to use an accident to give freshness to her work. She seldom tries for a happy accident and does not succeed in making one happen.

Her greatest need is for quiet solitude for her creative work and she is least likely to find music helpful. She needs a neat place in which to work and uncommitted time. She does not say that creative work is challenging. She considers that more money would help her be more creative. She is seldom blocked because she considers the idea too small to be worth doing. She is less affected by all the crises of confidence that her younger counterpart suffers but is more affected than those in the oldest group. She is the least likely to abandon a work when it becomes blocked. She is unlikely to describe her mind as selectively focused or that she works boldly. She is least willing to take chances yet she is less likely to feel she needs to have an alternative plan and enjoys winging it more than those in any other group. As her confidence level has risen with maturity she resists compromise. She is less likely to turn to creative activity when she is inspired, peaceful, joyful, to escape, or when bored. She enjoys most the execution stage and the beginning stage. She does not enjoy polishing and finishing or sharing and feedback. She may get bogged down in the beginning stage.

The middle group of women were less likely than the others to say that responding to the questionnaire stimulated their thinking or caused them to think differently about creativity but the highest percent found the biography questions valuable. They were likely to say responding to the questionnaire was hard work and fun. The middle group of women averaged 1.4 hours answering the questionnaire.

The woman in the middle group does not think of creativity as making a contribution for personal posterity or the production of a concrete useful product. She rarely produces a product. She is more out in the world than the other women in career professions which affects her definition, motivation, the experience itself, and where she devotes her time and energy.

The Creative Experience of the Oldest Women

A woman in the oldest group is least likely to define creativity as problem-solving, as creating an original, useful, concrete product, or as giving form to the intangible. She is least likely to say that the product can be intangible, that the self is the product, or that a product is not necessary. She is least likely to say originality is important or to define creativity as gaining new insights, new perspectives, expanding options, or as integration or synthesis. The smallest percent say creativity is emotional expression, self-expression or refer to the joy of fit or solution. She defines creativity as connecting and sharing with others and refers to the aesthetic pleasure of beauty. She is most likely to put her creative energy into her family and personal relationships and into creating a congenial and aesthetic home environment. She often chooses some aspect of the fine arts for a creative activity. Overall her motivation to create is depressed relative to the others. Her primary motivations follow her definition as connecting and sharing with others and aesthetic pleasure.

A women in the oldest group is relational with her past, her parents, her family, her home, her organizations, and her profession if she has one. She focuses her creative energy on creating and maintaining good relationships. She is a nurturer in her family and her profession. She is most likely to focus her creative energy in the aesthetics of her home environment. She pursues the fine arts to beautify her home rather than to put out in the market place to sell. She does not define creativity as the production of a useful or concrete product. She seems to have a steady-as-she-goes sort of relationship with her muse who does not seem to leave her as frequently as she does the others and seldom surprises her. She does not expect her muse to trip her up with unplanned happenings.

To get an idea a woman in the oldest group is likely to go for a walk, meditate, or go to a special room or a quiet place. She is more apt to persist and to set a deadline and less apt to write about it, brainstorm, or play music than those in other groups. She is

less likely to talk to a friend. She considers that she is the active agent in getting the idea. She is unlikely to believe that the source is spiritual. Before the idea comes she feels excitement and tension. She does not experience inner stillness or much urgency about it. She is likely to make a sensory association with getting the idea and is less likely to say the idea comes in words or as an image. After the idea has come she experiences an urgency about getting started and pleasure but less excitement. She is unlikely to describe the idea as coming full blown yet the product is seldom experienced as a surprise. She experiences immersion and timelessness during creative work and she, like the women in the middle group, has the greatest difficulty in resuming work after an interruption. Often, however, she can use an interruption to gain perspective on her work. She says her greatest need is for uncommitted time, a neat place, and quiet solitude. She may find that music is helpful for her creative process. She is the least likely to say that more money would make a difference in her creative work or enhance her creativity. She is less likely than all the others to say that lack of time, space, energy, or personal problems are obstacles to creative work. Along with the older men she suffers least from fear of failure, an inner critic or lack of self-confidence. She is least likely to experience loss of self-confidence during the work, or be blocked because of preliminary work that needs doing. She may feel she gets stuck in a pattern. She is unlikely to abandon a work that is blocked. She is least likely to feel she is successful in overcoming blocks. Although she is least often blocked by almost all of the various blocks and obstacles that get in the way of the others she has the least motivation to do creative work or desire for achievement. She has the least confidence in the significance of her contribution and she does not look for or enjoy the rewards of creative work in the outward sense that the men do.

The oldest woman does not describe her mind as selectively focused and is least likely to keep an idea notebook. She is unlikely to describe her style of working as bold. She often prefers to wing it. She is more likely than the others to turn to creative

activity to relate indirectly and is less likely to turn to creative activity when she is sad, bored, or frustrated. She is not as interactive with others as those in other groups as part of the creative process. Overall her emotions are damped down compared to those in other groups. She experiences less pleasure and fun, less stress, less pain and less motivation and or heart to do it. More than all the others she most enjoys the execution stage and the polishing and finishing stage of the creative process. She enjoys completion pleasure and recognition least. She is least likely to get bogged down in the polishing and finishing stage. She is unlikely to have as a goal to make a contribution to society. Although she believes that everyone is creative she is least likely to believe that everyone has the potential to do a significant piece of work and least likely to believe that she can. She is the least likely to feel she has a responsibility to use her creative abilities.

It is surprising that of all the groups the group of oldest women have the highest percent (86%+) of those who said that responding to the questionnaire clarified their thinking about their own creativity, stimulated their thinking, and caused them to think differently. Along with the other women, a higher percent felt that thinking about their own biography valuable. Yet the lowest percent - less than a quarter, said that the questionnaire was interesting or important. Almost half said answering the questionnaire was hard work and/or fun. The oldest women averaged 1.6 hours responding to the questionnaire.

The picture that emerges from the patterns and differences that are unique to the oldest women is that a woman from the oldest group is someone who is confident in herself and is not conflicted about who she is, but she often does not believe her ideas are important enough to make a significant contribution or even to preserve in a notebook. She is not driven by the desire to produce a great work. She creates for its intrinsic pleasure and aesthetic joy. She enjoys the doing of the work most - the execution stage -

more than completion or putting it out in the world. She does not enjoy or seek recognition. She seems content to go her own way - to search for the aesthetic as beauty and truth whether she produces a product or not.

The differences that characterize the older women suggest their creative experience is more inwardly directed and personal, where they experience meaningfulness and their confidence is most secure Although they are outwardly directed toward relating and being connected to others they are less outwardly directed toward being effective in or making a significant contribution to the larger society. There appears to be a depressed vitality relative to creativity. It can be hypothesized that the older women have been discouraged more than those in other groups under the sustained societal limitation of options and refused recognition and support that is directly related to the very restricted opportunities for women in the time in which they grew to maturity. It could also be that what gives the older women pleasure and meaning is different from that of the younger women and the men.

The Creative Experience of the Younger Men

The younger man is full of vitality. He is very much in the world being more sensory oriented to the concrete world around him and feeling more akin to the concrete than the abstract in his thinking. He defines creativity as problem-solving. He defines creativity as producing a useful, concrete product or finding a form for the intangible. He thinks of it in terms of rearranging and combining things more than ideas. He is not concerned with aesthetics or originality. He is also more likely to say that the created product can be intangible or that a product is not necessary. He defines creativity as self-expression and says creativity is the spice of life. He is more likely to focus on music and dance than crafts. He does not focus on homemaking. He is quite likely to focus on his profession such as in teaching, on problem-solving, and in creative play. He creates primarily to learn, to use his abilities, to serve, communicate and relate to

others. He may say he creates because it is man's nature to create or to escape boredom and to feel alive. He does not feel driven. He may create to fulfill a purpose or perhaps to find spiritual meaning but not simply to create something new. He may be motivated by the desire for posterity, by wanting to become an authority in his field, and by wanting to contribute. He is least likely to want to capture truth or beauty.

To get and idea the younger man is likely to meditate, perhaps play music, or do some physical exercise. He is less likely than the others talk to a friend, do a task, go to a special room, set a deadline, or write about it. He does not experience being a passive receiver of the idea from an external or spiritual source but he believes that the idea is a result of his own synthesis. Yet more than the others he experiences the muse as coming and going. He seems to relate more exclusively with his muse than do others needing interaction with people less. While waiting for the idea he experiences an inner stillness, that he is working hard, and a sense of urgency about getting it. In greatest contrast to the older men he is least likely to feel tension, restlessness, frustration, confusion, or that it is painful waiting. After getting the idea he experiences a sense of resolution, relief, tension release, perhaps surprise, and that it was painful getting it. He no longer has a sense of urgency about getting on with it. He is most likely to have the idea come to him as words and/or as an image or in another sensory mode. He is more likely than the others to feel the idea is a discovery and less likely to say that it comes full blown, gradually unfolds or is intuited. The product is often experienced as a surprise. During creative work he is the least likely to experience immersion in the work or a sense of timelessness. He can keep an appointment in mind, is least disrupted by an interruption, and can readily resume his work. Yet he is least likely to say that having other people around during creative work is okay or helpful to his creative process. Accidents are expected and are most often used to give hoped for freshness to his work. He is the most likely to try for a happy accident and is most likely to succeed in making it happen. He needs quiet solitude yet he feels less need for uncommitted time and

freedom from demands than the others. Limits challenge him. He believes that having more money would increase his creativity. The major obstacle to creative activity is lack of time and space. He is likely to be blocked by fear of failure and his own inner critic but least likely by a wavering self-confidence. He may feel he gets stuck in a pattern. He may abandon a work that is blocked. More than the others he feels he is successful in overcoming blocks. He is stimulated by challenges and in interaction with others but is not characterized by interdependence with others. He is alternately quite confident in his own abilities and capabilities and yet fearful of failure.

He describes his mind as selectively focused and narrowly focused while working. New ideas do not distract him. He most often keeps a notebook of his ideas. He works boldly and rapidly, does not feel a need to be prepared ahead of time, and is willing to take chances. He finds creative work fun rather than hard work or stressful. He looks upon compromise as a necessary evil, not as helpful. He turns to creative activity when he is inspired or to escape rather than to relate indirectly or for balance. The parts of the creative process he finds most enjoyable are completion, sharing and feedback, and recognition. He does not enjoy the execution stage where he is likely to get bogged down. He also is more likely than the others to get bogged down in getting the idea and beginning. Although he believes everyone is creative he is less likely to believe that everyone can do a good piece of creative work. He is, however, the most certain that he can do a significant piece of work and make his mark. He is unlikely to feel he has a responsibility to use his creative ability.

The younger men were more likely than the others to say that responding to the questionnaire suggested new ways for them to be creative and more than the others found the questionnaire interesting, important, and helpful. The average time spent responding to the questionnaire by the younger men was 1.9 hours.

The Creative Experience of the Older Men

A man in the older group is the most likely to define creativity as problem-solving and as creating a useful, concrete product or as giving form to the intangible. Eighteen percent of the older men define creativity as invention or discovery in contrast to the average of 6% and 3%. A man in the older group is least likely to say the product can be intangible, that a product is not necessary or that the self is the product. He does not define creativity as the gaining of new insights, new perspectives, or expanding options or as rearranging and combining things. He is more interested in abstract ideas and is the most likely to define creativity as integration and synthesis. He may define creativity as emotional expression involving spontaneity. He refers to creativity as exciting, as the spice of life, as challenging, as giving joy in solution and rightness of fit. He may include originality as part of his definition but does not include aesthetics either in reference to the product or as aesthetic pleasure. He is least likely to focus on relationships but when he does he is least likely to give his creative energy to the more personal relationships of his spouse, family, or parenting choosing instead the more impersonal relationships in groups and organizations. He does not focus on improving his home environment. It is perhaps not surprising that his greatest obstacles or disruptions to his creativity are personal problems and demands made on him by others. The creative energy of the older man seems to be directed outward into the larger, more impersonal society. He is likely to focus his creative energy on his profession such as administration and is unlikely to focus on the arts. However, if he is a teacher, he gives less energy to his teaching than those teachers in other groups. He may focus on self-development and leadership. He is less likely to create to expand or to express himself, to escape boredom and feel alive, to fulfill a purpose, to serve, communicate, or relate, for aesthetic pleasure, or to find spiritual meaning. He creates to to solve problems. He creates to become an authority in his field, for posterity, and to make a contribution to society, and for achievement and its satisfaction.

To get an idea the older man is likely to brainstorm about it, to write about it, or go to a quiet place. He is not likely to go for a walk or play music. Before the idea comes he experiences restlessness, frustration, confusion, and/or that it is painful waiting, and to have a sense of urgency about getting the idea. He is least likely to make a sensory association with getting the idea. After the idea comes he experiences getting the idea as pleasure rather than excitement and feels an urgency about getting on with it. The new idea does not come kinesthetically or as intuited. He believes in the power and success of his own effort as the maker and the doer. He considers himself the active agent in getting and synthesizing the idea which he is most likely to believe comes from his own unconscious rather than as a gift from the gods. The idea seems to him to be a new combination rather than a discovery or new creation and comes full blown and/or gradually unfolds. It is often a surprise. During the creative work he is likely to experience timelessness. He is able to resume his creative work after an interruption. More than the others he needs to be alone during creative work but also has greater need for interaction with others. He is the most likely to expect accidents which he often can consider as a gift for a new direction for his work. He is often successful in making a happy accident happen.

His greatest need is to be free from demands and distractions. He has the least need for a neat place in which to work and may find chaos evocative. Having more money is viewed as not making any difference in his creativity. Personal problems and lack of time and space are considered his major obstacles to creative work. He is the most secure in his sense of his own competence and ability to do important creative work which will be rewarded by society and given respect by his colleagues. He does not suffer from lack of confidence or from his inner critic. He does not fear failure or getting stuck in a pattern. He may be stopped because the idea is too small to be considered worth doing but not because it is too big. He feels successful in overcoming blocks but when blocked he is more likely than the others to abandon the work. He is

likely to describe his mind as selectively focused and to say that new ideas coming in while he is working distract him. He is likely to keep an idea notebook. He describes his style of working as bold. He feels he must be prepared ahead of time and is less likely to prefer to wing it, yet he is also more willing than all the others to take chances. He is more intensely emotionally involved in creative work than those in any other group. He finds creative work pleasurable, fun, hard work, stressful, and painful. He considers compromise terrible, necessary, but not helpful. He, more than the others, finds getting the idea and beginning, the planning and designing, and the sharing and feedback the most enjoyable parts of the creative process. He is more interactive with others in his creative activity both in the getting of ideas and sharing of the work. He is least likely to enjoy the execution stage. Compared to those in other groups he is most likely to get bogged down in the polishing and finishing stage and often in the execution stage. He does not get bogged down at the beginning or in getting the idea. He is least likely to believe that everyone is creative and has the potential to do a significant piece of work, but along with the younger men and youngest women he is confident that he can do significant work. He believes more than the others that he has a responsibility to use his creative ability.

The older men said that responding to the questionnaire clarified their thinking about their creativity but they were less likely to say that it suggested new ways of working. None said that thinking about their own biography was valuable. They not think that responding was hard work and considered the questionnaire interesting and fun. The older men spent the most time on the questionnaire averaging more than 2.5 hours. Thirty percent spent more than three hours on the questionnaire.

The group of older men are in marked contrast with their female counterparts and in many instances with the younger men. Many of the differences may be attributed to the different social climate for men and woman 60 or so years ago and to the different maturation routes for men and women over that time span.

The Effects of Responding to the Questionnaire

6 - What are the effects of responding to the questionnaire? (Fig. 57)

About three-fourths of the respondents said that answering the questionnaire clarified their ideas about their own creativity, made them think differently, and stimulated their thinking about creativity and the creative process with a significantly higher percent of the older (87%) than the younger in all three sub-categories. It is not clear why this should be so. Not surprisingly a higher percent of the young said the questionnaire suggested new ways of working (50% to 23%) - especially the younger men in greatest contrast to older men (55% to 17%). The smallest percent of the youngest group said it was fun (27% to 50%). The highest percent of the younger men said that the questionnaire was important and helpful. The highest percent of the the middle group of women said the biographical connection was valuable, and more than most other groups that the questionnaire was hard work and fun. It is interesting that a higher percent of the oldest women than the middle women said it made them think differently about creativity (86% to 62%), and stimulated their thinking about creativity (90% to 58%). The oldest women seem to have been most stimulated by the thinking involved in answering the questionnaire, yet the smallest percent said it was interesting, important, or helpful. It is curious that although it seems as if the positive effect of the questionnaire was the smallest for the older men in that that none found the biographical section valuable, the smallest percent said that the questionnaire suggested new ways to be creative, and the smallest percent said that answering the questionnaire was hard work, they spent considerably more time in answering the questionnaire averaging more than 2.5 hours compared to 1.3 hrs for the younger women. Overall there seems to have been a positive therapeutic effect to responding to the questionnaire.

CHAPTER 6

CONCLUSIONS AND IMPLICATIONS FOR FUTURE RESEARCH

The conclusions that can be drawn from the results of this study relate to the universality of the creative experience and the variations in the experience that correlate to age and gender. Some of the more interesting variations seem to be unique to a specific age/gender group. Some of the important results and differences among the groups are summarized and the implications for further research are discussed.

Summary of Conclusions

The Universality of the Creative Experience

The respondents amply demonstrated their familiarity with the creative experience in the ready responses to the questions based on the creative experience of "creatives" as reported in the literature. This research project has not uncovered any distinguishing differences which uniquely characterize the creative experience reported by "creatives" as different from that reported by the respondents. The differences remain blurred even when the comparison groups are matched for age and gender. There appears to be a marked agreement in the belief that everyone is creative and has undeveloped potential with the implication that it can be made accessible.

The Effect of Responding to the Questionnaire

There appears to have been a positive effect on the respondents from responding to the questionnaire in clarifying, stimulating, and often changing their thinking about their own creativity and the creative process. The breakdown of the creative experience and process into separate elements also seems to have been of value for the respondents by increasing awareness of individual patterns, blocks, emotional responses, and motivations.

Differences that Correlate to Age

When the sample is divided into 3 age groups there seem to be few differences correlated to the age of the respondents that seem to be related to the changes in the society and culture over the life span of the respondents. The major differences seem to be related to maturity and changing life experiences. The young define creativity as self-expression, define the product as more incidental, and think more in terms of concrete things. The older respondents have greater need for quiet solitude and connect creativity to the more abstract world of ideas. The young turn to creativity in every emotional mood whereas the older respondent requires being in a positive emotional state. The psychological blocks and insecurities based on self-image, lack of skills, and limited experience decrease with age for both men and women freeing up creative potential.

Gender Differences

The major gender differences seem to revolve around differences in how creativity is defined, the differences in motivations and goals, and a self-image related to confidence. There are gender differences that seem to be genuine gender differences, some that seem to be culturally imposed, and some that seem to be a mixture of gender and cultural conditions that differ for men and women and also have differed for the different age groups during their maturing years. The several categories do not seem to have clear boundaries nor does the data provide for definitive categorization but it is possible to speculate to what the differences can be attributed.

Differences that May Be Genuine Gender Differences

Some gender differences may be true gender differences unrelated to the different cultural conditions. For instance, the man thinks of creativity in terms of the production of a useful, concrete product but a women does not. The man defines

creativity in terms of a product separate from himself. The woman does not. The man is more objective toward his creative productions and interactive rather than interdependent in his relationships. The woman seems to be more subjectively connected to her creative activity and is interdependent in her relationships. She puts her creative energy into helping others and into her relationships with others with a more personal and less objective focus. The product becomes incidental. A woman also is more concerned with aesthetics.

Men and women seem to have a different focus for finding meaning and purpose in their lives that is related to the creative experience and the motive for creative activity affecting the kinds and level of creative achievement. The man is more akin to Aristotle with an emphasis on problem-solving, making products, and exploring his naturalistic, rationalistic world. The woman seems more akin to Plato with his spiritual source and with importance given to beauty and truth.

Somehow, the male definitions with their greater emphasis on a product external to the maker do not seem to fit the female psyche. It appears that there is a difference between men and women in what gives meaning to life and what is worth giving one's energy to. The fact is that the achievement level is markedly different. It remains an unknown whether differences are culturally determined or if there are in fact innate physical and psychological gender differences with regard to creative activity that even may be correlated to the differences in the brain structure. The lateralization of the male brain seems to result in the goal focus and directionality so often characteristic of the male - once so important for the hunter for the survival of the species. The female contribution for survival as gatherer and bearer of children required the more diffuse brain, more open to the subtleties of the environment, with the need to be immersed, still, and aware, to be less focused and directional. It is interesting that the men are more likely to describe their mind as selectively focused and that the women are more

likely to experience immersion in their work. It is interesting that a man seems to be able to resume creative work after an interruption more readily than a woman.

Gilligan's [1982] research findings that a woman is more relational, more open and aware, tuned into feelings, and thinks differently about what is important is supported by the data in this research. The women more than the men pour their creative energy into the personal relationships of the family, into caring for children at home, into teaching, into the helping professions, into the role of the peacemaker for her environment, and into homemaking. Her creative energy rarely produces a concrete created product but when it does it will most likely be a product related to her personal life and relationships rather than as a contribution to society. It is interesting that a woman is less likely than a man to abandon a work that is blocked.

The female creative goal seems to be to function within the network of relationships where she finds her meaning rather than to produce a product external to it. Cooking, sewing, decorating, flower arranging, etc - all the traditionally feminine crafts are the kinship with Hestia, the Greek goddess of the hearth and home. There are few Artemesian women who take on the traditionally male characteristics of solitary single-mindedness of purpose, of sending the arrow to the mark. It is undoubtedly the Artemesian woman who makes it into the realm of the recognized creative. The male world may not suit, may not fulfill the female in the ways that it does the male. For the male there is often a need or desire to make a contribution, to have made a difference, to leave one's mark that is centrally connected to his creativity.

Gender Differences that May Be Culturally Determined

Some of the gender differences seem to be correlated with or can be attributed to the very different and unequal socializing and educational environment in which the male and the female child reach maturity and unequal adult opportunities for creative expression. Some of the gender differences can be related to the lack of support for the

female child for creative achievement in her family and the school system. The adult woman has fewer career choices and economic opportunities and there is a scarcity of rewards in society for the woman who tries for the larger creative achievement. It does not seem unrelated that men suffer less from crises of confidence, feel more successful in overcoming blocks, and are more certain they can use their creative ability to make a significant contribution than a woman. It may be that the very different cultural conditions at least partially account for the differences in gender preferences for different parts of the creative process - that women most enjoy the execution stage of the creative process and are much less likely to enjoy completion, sharing and feedback, or recognition than men.

Gender Differences as the Effect of Both Gender and Culture

Some of the significant gender differences seem to be due to a mixture of both both genuine gender differences and differences rooted in the culture. Observing the male and female responses from the perspective of aging and maturation, it is interesting that the younger and older men differ from each other in very different ways than the younger and the older women as in, for instance, motivations. The younger men and women often begin in different places but even when they are similar when young, the aging paths diverge in unexpected ways. The implication is that the divergence is the effect of a mixture of genuine gender differences, different cultural conditions in the past relative to the present, and the very different, varying, and unequal social and educational opportunities for the male and female over the age span of the respondents. For instance, creative activity is less often considered pleasurable and fun by women than men and the difference widens with age. Overall the older man is emotionally involved with his work whereas the emotions of the oldest woman with respect to her creativity seem depressed. She is less involved. Although the older men and older women differ so little in levels of self-confidence and freedom from blocks, their

involvement in creativity is quite disparate. With increased age creative activity becomes more connected to concern with purpose, meaning, and existential issues quite differently for men who create for posterity and to make a contribution to society, and women who use their creative energy to relate to and to connect with others. A higher percent of the youngest and middle women define creativity as gaining new insights, new perspectives, and expanding options than the men and the older women. It is not clear why this should be so.

Differences Among the Five Age and Gender Groups

There are significant differences among the five age/gender groups that seem related to gender, to the different socializing milieu of the male and female, to the diverging gender maturation routes, and to the changes in society and culture through time. A comparison of some of the differences between and middle and the older groups of women makes an effective illustration. The middle group of women consist of women who have reached a level of maturity for substantial creative work and reached maturity at a time when there were substantially greater opportunities for creative development and expression for women. In contrast, the group of older women reached maturity at a time when opportunities for creative development and expression for women was narrow and limited. The older women tend to limit their definition of creativity to connecting and sharing with others and refer to aesthetic beauty. The middle group of women are much more likely to define creativity as problem-solving, as gaining new insights, new perspectives, and expanding options, and as self-expression or self-development. They are more likely to say that the product can be intangible, and refer to originality as important. A large but smaller percent include connecting and sharing with others and refer to aesthetic beauty. The question is: Can this distinct difference in pattern be the result of the effect of aging or the result of major changes in society? Do the

similarities reflect genuine female characteristics? It would be interesting to see how the responses of the middle group of woman twenty years hence would compare to the present responses of the older group.

Compared to the middle group of women there is a sparse consensus of choices for creative focus that reflects the limited cultural opportunities for the oldest women. Although less than half of the oldest women focus on relationships, of those that do the highest percent (71%) focus on relationships in the family and parenting. Forty-two percent focus on homemaking and about two thirds focus on the fine arts. The creative choices of the middle group of women are broader including a substantial percent with a professional focus and a focus on self-development. They also include homemaking and relationships which have been enlarged to include the more interpersonal and impersonal relationships in organizations and groups.

In response to the question about motivation there is a striking difference between the two groups from each other and from all other groups. The differences may be a reflection of a markedly changed environment for women. A higher percent of the middle group of women are motivated in more of the sub-categories of motivation than any other group. A higher percent than all the others say they create to expand themselves, to express themselves, for enjoyment and pleasure, for achievement, for satisfaction, for aesthetic joy, to find spiritual meaning, to create something new, and to solve problems. They create to escape boredom and feel alive, because it is part of being human, and to serve, communicate, or contribute. They create to learn and use their abilities and to fulfill themselves.

The older women have lowest percent of their responses of any group in 12 of the 17 categories of motivation. Less than 20% create because they feel driven, because it is exciting, or create to escape boredom or feel alive, to fulfill themselves, to fulfill a purpose, to become an authority, for posterity, or to contribute, to solve problems, or because it is innately human to do so. Less than 40% create to expand themselves, to

express themselves, to create something new, or to find spiritual meaning. The motivations chosen by the highest percent of the oldest women are for achievement and satisfaction, to communicate, serve, and relate to others, and for aesthetic joy. In response to the two direct questions about goals the oldest women have the smallest percent who desire to make a contribution to their society and the largest percent who have as a goal to capture beauty and/or truth (84%). Overall there is a striking contrast and an apparent abrupt change in patterns and responses from the middle to the older women.

Each of the age and gender groups in comparison with the other groups provide informative contrasts and additional information relevant to the age, gender, and cultural questions. Two pairs of groups, the group of older men in contrast to the group of oldest women and the group of older men in comparison to the middle group of women, are particularly interesting.

Differences that Are Not Easily Attributed to Age, Gender, or Culture

In addition to the differences discussed above that relate to the influences of age, gender, and culture there are also differences that seem unique to each group that are not easily explained. For instance, the middle group of women have spiritual concerns which are not vital to the men, the younger, or the older women. It is curious that there is such a wide difference in percent of answers to what seem to be loaded distractors such as "Do you create when inspired?" (82% YM to 56% M/3F) and "Do you enjoy completion pleasure?" (92% YM to 48% O/3F). Why do half of the respondents not create when inspired or experience pleasure on the completion of a work and why is the greatest difference between younger men and older women? It is also curious that the youngest complain the most of lack of energy and the oldest women the least; and that a higher percent of the older men contrasting with the smallest percent of the oldest women say personal problems are a major obstacle to their creative work.

There are also unexpected pairings of groups not related by age or gender with similarities of responses that seem counterintuitive. For instance, a higher percent of the youngest women and the older men brainstorm to get and idea, say personal problems are a major obstacle to creative work, feel they must be prepared ahead of time, and define creativity as integration and synthesis.

Implications for Future Research

An area fruitful for further investigation is suggested by the responses about the effect of responding to the questionnaire. If this questionnaire, designed as a research tool for another purpose, has the therapeutic effect reported by many, it may be possible to design a questionnaire that is a therapeutic tool for freeing creative potential. it would be valuable for this purpose to have follow-up interviews with the respondents to ask what, if any, had been the effects on their creativity or creative expression from the thinking about their own creativity while responding to the questionnaire and what parts of the questionnaire were most responsible for the effect. It would be valuable to know what rewards for creative work they would most enjoy and what would stimulate them to increase creative activity. It would also be most interesting to ask why they think there is such an enormous discrepancy between the creative achievement of men and women in every field of endeavor.

It might be therapeutically valuable to pursue with women the biographical connection with creativity. It may be possible to help a respondent search out and identify the events and factors that suppressed and obstructed creative development and those that promoted and increased creative behavior in her personal history. It might be a way to help women gain new perspectives and insights into the negative effects of the culture in which they have been immersed on their creativity. The identification and the insight accompanying the identification of the factors involved is therapeutic in itself. It might be interesting to pursue the question why the men did not seem to find thinking

about their own biography valuable or relevant. The developmental paths are different for men and women. The life tasks or goals of the male seem to have to do with separation, autonomy, and individuation whereas the life tasks or goals of the female seem to have to do with attachment, relationships, and connectedness. These different paths seem to be supported in the results of this study. The effect of the different developmental paths on creative activity and the creative experience itself could be pursued for greater clarity.

It might also be interesting to explore the gender differences that are so pronounced and unexpected in several areas. For instance, what are the implications of the quite different emotional involvement of men and women in creativity? Why are such different stages of the creative process most and least enjoyed so different for men and women? Why are the definitions and motivations so different? Would the gender differences in definition and motivation persist if questions were asked differently or distractors provided for choice? It seems that there is a suggestion in the data that the scale of thinking about creative achievement is relatively small for women and large for men. Is this in fact true and, if so, why?

The results of the study have many implications and some of the distinctions are tantalizing and curious. A larger study with a much larger sample and an equal gender balance is warranted. It would be most valuable to test the age and gender distinctions. In the process of analyzing the data, the first age cut was made to divide the respondents into older and younger groups. The surprising results were that there were almost no significant differences related to age. The three-way cut was dramatically different. It is obvious that how the respondents are divided into groups determines what can be seen and what is hidden in the averaging. There are many ways a larger sample might be divided that might provide new distinctions and insights. Groups could be formed from both the biographical data such as occupational categories or parental status, or from similarities and differences in responses to certain of the more important sub-

categories of definition, creative choice, and experience. An even a finer cut of the age differences might further refine the results of this study.

The questions vary widely as to their value for the research. A revision of the questionnaire is now possible concentrating on honing those questions that best discriminate among the groups and pruning or revamping those that do not seem valuable. Several questions that seemed promising failed to make distinctions. A different format or wording could be tried. Some of the most evocative differences among the groups came from the two major open-ended questions. One aspect of the open ended question that proved every bit as interesting was that it was also a measure of what the respondents did not think of as well as what they did think of. It would be interesting to now use the sub-categories identified by the respondents as distractors and again have the respondents answer the reformatted questions. Would the results make the same discriminations? Would the prompting from the multiple choice erase the free associations and thus the distinctions made from tabulating the open-ended questions? The question has a corollary: How much would have been very different if more of the questions had omitted the multiple choice distractors in, for instance, questions about blocks to creative activity, environmental needs, nature of the idea, or mind styles?

The problem of motivation is central for the promotion and development of creative potential. Questions that probe more deeply into why individuals create and why they do not need to be asked.

More research needs to be done which includes women as well as men as subjects. Women deserve to be asked if indeed what the male says about the women's creativity and creative experience is true for women. Some of the researchers need to be women who bring their unique feminine view and their differently structured feminine brain to the quest to understand creativity. The whole field of gender differences based on, in so far

as possible, objective scientifically controlled studies is a neglected field of research. It is an essential first step toward affirming the value of the female's creative potential and for freeing the untapped creative resources of women.

Final Comments

There are very great differences in the forms and expression of creativity. Those who dedicate their creative pursuit to the fine arts such as writing poetry or musical composition are involved in a much more intense way with the Plato's creative muse probing into the intangible, the abstract, and the mystery than are those whose creative energy is poured into homemaking, parenting, counseling, teaching, or organizations. The creative product of the latter seems to vanish with its success - that which is cooked is eaten, the child successfully parented or the client successfully counseled becomes his or her own unique and independent individual rather than being a material product of the parent or the therapist, the organization creatively created becomes its own successful entity. An aesthetic and nurturing home environment is a creative achievement but is intangible and exists only in the present. There is no material or concrete product in the end. The student well taught and mentored similarly graduates into his or her own power and cannot be considered a product belonging to the teacher or mentor. The parent, the counselor, the organizer, the teacher, and the mentor are enablers who enable the individual to access his or her abilities and to become his or her own person.

Scientific research is another form of creative endeavor. It is discovery and invention of tools for discovery and it is combining things and ideas in new ways to fit a puzzle together, to build a model, to create a theory, to explain a phenomena, or to uncover a relationship that existed unseen in the Aristotelian naturalistic world by using Aristotelian rationalism. The goal is to push back the frontier of knowledge bit by

bit. Its product is most often the expansion of the known into the realm of the unknown. The unknown is the place of mystery and wonder and may be joined to the realm of the poet and artist.

There are two extremes. It is a wholly different thing to put all of one's creative effort toward a single area of achievement exclusively at the center of one's life, eclipsing every other aspect of life, than it is to live creatively in the moment, in being, in doing whatever there is to do in the flow of the moment, in the relationship - holding the goals as being creative now, not in the future, not toward the production of a product. Few live at either extreme and most are creative intermittently and at a variety of levels. Sometimes there is a product, often a new insight or break-through idea is sufficient. It may be that a new way to enjoy the moment or of finding a way of overcoming the stress and distress of problems is the creative manifestation.

What is it that determines the difference? Why is it that some are so motivated that they focus their lifetime effort into a major creative achievement, that some are motivated to develop their creativity for their own lives or to live more successfully in the present, and some are so lacking in motivation that they let their ability atrophy and their potential become encrusted and buried in the trivia and perhaps desperation of ordinary lives? Why do some individuals persist - have intentionality, found meaning, and focused energy for the great achievement and others do not?

It is very hard work to be creative. Why is it so rarely discussed by the creatives or by the respondents to the questionnaire? It is interesting that although about 60% of the respondents say creative activity is hard work, they do not complain about it or say they stop creative activity because it is too much hard work. It is also interesting to notice that the percent who say it is pleasure and fun is always greater than the percent who say it is hard work, stressful and painful. Perhaps this is true

because the joy and pleasure accompanying creative activity is often homospatially congruent with the stress, the pain, and the frustration of the prolonged effort to achieve the creative result.

It well may be so that the creativity of the human species has created the emergency in the life of our planet. It also well may be that our world, planet, and society needs now more than ever before creative action to preserve it. There is now a greater need to know not only how to access the creative potential but how to promote intentionality and persistence in life-enhancing creativity.

APPENDIX

SIGNIFICANT DIFFERENCES AMONG THE AGE AND GENDER GROUPS

The significant differences among the age and gender groups are listed below in percents for the end members groups with the chi squared p values. The ± sign indicates that the numbers involved are small. The distinguished differences not indented have a 95% or better probability of not occurring by chance. The distinguished differences indented have a 90% or better probability of not occurring by chance.

Significant Gender Differences

A Higher Percent of Women than Men

- define creativity with reference to themselves (87%>64% M; p=.001)
- define creativity as the creation of an aesthetic product (28%>8% M; p=.04)
- refer to creativity as giving aesthetic pleasure (61%>18% M; p=.002)
- focus on on some form of homemaking (43%>8% M; p=.001)
- focus on fine arts (52%>25% M; p=.03)
    - focus on on crafts (36%>17% M; p=.09)
    - will find a friend to try to get an idea (54%>32% M; p=.06)
    - will do a task to get an idea (51%>32% M; p=.09)
- cannot readily resume creative work after an interruption (54%<76% M; p=.05)
- use accidents to redirect their work (69%>48% M; p=.05)
- need a neat place in which to work (62%>32% M; p=.001)
- will less often abandon a creative activity when blocked (9%<28% M; p=.02)
    - feel less successful in overcoming obstacles (69%<88% M; p=.06)
- prefer the executing part of the creative process (69%>48% M; p=.05)
- believe that everyone has the potential to do a good piece of creative work (78%>56% M; p=.03)
    - are less confident that they can do a significant piece of creative work (77%<92% M; p=.10)
    - fewer have a goal to contribute to society by their creative effort (51%<68% M; p=.08)
- said that the thinking about their own biography valuable (30%>4% M; p=.01)
- average time answering the questionnaire: (1.4 hrs<2.2 hrs. M)

A Higher Percent of Men than Women

- define creativity as problem-solving (50%>26% F; p=.03
- define creativity as producing a useful product (29%>8% F; p=.01)
    - define creativity as producing a concrete product (46%>27% F; p=.09)
    - refer to creativity as exciting (59%>35% F; p=.08)
    - refer to the joy of fit or solution (71%>45% F; p=.07)
- create in order to become an authority in their field, for posterity, to contribute to society (44%>17% F; p=.01)
    - create to solve problems (40%>23% F; p=.10)
    - experience an inner stillness before the idea comes (40%>22% F; p=.07)
    - experience tension release after the idea has come (32%>17% F; p=.10)
    - have the first form of the idea in words (64%>42% F; p=.06)
- experience their product as a surprise (44%>21% F; p=.02)
- can resume work after an interruption (76%>64% F; p=.05)
- can use accidents to give hoped-for freshness (36%>16% F; p=.03)

- can make happy accidents happen (40%>17% F; p=.02)
- will abandon a creative activity when blocked (28%>9% F; p=.02)
    - feel successful in overcoming obstacles (88%>69% F; p=.06)
- describe their mind as selectively focused (48%>22% F; p=.02)
- work boldly (48%>24% F; p=.02)
- experience creative work as fun (92%>72% F; p=.04)
    - experience creative work as painful (36%>18% F; p=.06)
- say that completion pleasure is the most enjoyable part of the creative process (80%>56% F; p=.03)
- most enjoy sharing and feedback (72%>50% F; p=.05)
- say that recognition is the best part of the creative process (48%>19% F; p=.004)
    - have as a goal to contribute to society by their creative effort (68%>51% F; p=.08)
- a smaller percent believe that all have the potential to do a good piece of creative work (56%<78% F; p=.03)
    - are confident that they can do a significant piece of creative work (92%> 77% F; p=.10)
- said the questionnaire was interesting (35%>14% F; p=.03)
    - said the questionnaire was important (43%>24% F; p=.08)
- average time on the questionnaire. (2.2 hrs >F 1.4 hrs)

Significant Age Differences

The differences that vary with increasing or decreasing age are starred.

A Higher Percent of the Youngest Group

- *include originality of a product as part of the definition (63%>31% O/3; p=.01)
- *say the product may be intangible (56%>22% O/3; p=.005)
    - *define creativity as giving form to the intangible (47%>25% O/3; p=.07)
- *say a product is not essential (75%>9% O/3; p=.0001)
- *say the product is self-actualization (56%>28% O/3; p=.02)
- define creativity as rearranging and combining things (40%>21% M/3; p=.04)
- *define creativity as self-expression (M/3 83%; 86%>43% O/3; p=.002)
- *focus on play and use of free time (29%>8% O/3; p=.03)
- *create for self-expression (76%>34% O/3; p=.0003)
- *create because they feel driven or need balance (39%>17% O/3; p=.04)
- *create to fulfill themselves (58%>26% O/3; p=.01)
- *create to fulfill purpose (33%>11% O/3; p=.03)
- *play music to help get an idea (58%>26% O/3; p=.01)
- *experience excitement after getting the idea (85%>63% O/3; p=.04)
    - *experience relief after the idea has come (42%>26% AO; p=.09)
- *experience gratitude after getting the idea (27%> 9% O/3; p=.04)
- *say the first form of the idea is an image (85%>52% AO; p=.002)
    - *experience getting an idea as kinesthetic (21%>6% O/3; p=.06)
- *experience the idea as a new creation (48%>27% AO; p=.03)
- *say that more money would help their creativity (91%>34% O/3; p=.002)
- *are blocked by a fear of failure (AO 55%>23% O/3; p=.003)
- *are blocked by an inner critic (AO 63%>29% O/3; p=.002)
- *suffer loss of self-confidence (AO 33%>6% O/3; p=.002)
- *are blocked by a lack energy after essential tasks have been done (85%>54% O/3; p=.01)
    - *keep an idea notebook (39%>26% O/3; p=.08)
- create when inspired (82%>60% M/3; p=.05)

- create to escape (61%>20% M/3; p=.001)
- *create when sad (52%>14% O/3; p=.001)
- *create when bored (45%>23% AO; p=.02)
- *create when frustrated (39%>11% O/3; p=.001)
- *believe everyone has the potential to create a significant work (48%>23% O/3; p=.05)
- *said the Q. suggested new ways of being creative (50%>25% AO; p=.02)

A Smaller Percent of the Youngest Group
- define creativity as solving problems (19%<47% M/3; p=.01)
- define creativity in terms of elements (76%<97% M/3; p=.01)
- focus on relationships (53% O/3; 55%<80% M/3; p=.01)
- focus on self-development or leadership (13% O/3; 14%<53% M/3; p=.02)
- create for achievement or satisfaction (48%<83% M/3; p=.003)
- create to solve problems (18% O/3; 18%<43% M/3; p=.03)
- say the idea seems to come from and external source (15%<37% M/3; p=.04)
    - have a sense of urgency after the idea comes (36%<57% O/3; p=.06)
    - say the idea gradually unfolds (52%<71% M/3; p=.09)
- experience timelessness while working (36%<63% O/3, M/3; p=.01)
    - find new ideas coming in during work distracting (39%<51% O/3; p=.08)
- prefer to wing it (45%<71% M/3; p=.03)
    - say creative work is hard work (48%<69% O/3; p=.09)
    - say creative work is stressful (18%<37% M/3; p=.07)
    - create to relate indirectly (24%<43% O/3; p=.06)
- enjoy getting the idea (52%<71% M/3; p=.05)
- get bogged down in the execution stage (24%<52% M/3; p=.03)
- said that the Q. clarified their thinking about creativity (63%<87% O/3; p=.04)
    - said that the Q. was fun (27%<47% AO; p=.06)

A Higher Percent of the Middle Group
- define creativity in terms of elements of creativity (97%>76% Y/3; p=.01)
- define creativity in terms of the self (94%>66% O/3; p=.003)
- define creativity as problem-solving (47%>19% Y/3; p=.01)
- say the product can be intangible (56% Y/3; 53%>22% O/3; p=.005)
- define creativity as self-expression (86% Y/3; 83%>43% O/3; p=.002)
- focus their creative energy on relationships (80%>53% O/3; 55% Y/3; p=.01)
    - focus their creative energy on psychotherapy (35%>15% Y/3; p=.10)
    - focus their creative energy on the academic (35%>15% Y/3; p=.10)
- focus their creative energy on self-development (53%>13% Y/3F, O/3F; p=.02)
- create to expand themselves (74%>31% 0/3; p=.001)
- create to express self (76% Y/3; 71%>34% O/3; p=.001)
- create to learn or use abilities (77%>49% O/3; p=.01)
- create to fulfill themselves (58% Y/3; 58%>26% O/3; p=.01)
- create for achievement and satisfaction (83%>48% Y/3; p=.003)
- create to fulfill a purpose (33%>11% O/3; p=.03)
- create to solve problems (43%>18% Y/3, O/3; p=.03)
- create because it is part of being human (40%>14% O/3; p=.02)
- create to communicate with, relate to and serve others (83%>46% O/3; p=.001)
- create to find meaning (34%>17% O/3, 18% Y/3; p=.03)
    - experience being a passive receiver when getting the idea (43%>24% Y/3; p=.10)
- feel that the source of the idea is external (37%>15% Y/3; p=.04)
- believe the idea comes from a spiritual source (69%>26% O/3; p=.001)

- experience timelessness during the creative process (63% O/3;63%>36% Y/3; p=.01)
    - say that the product gradually unfolds (71%>52% Y/3; p=.09)
- must be alone for creative work (66%>42% Y/3; p=.05)
- prefer to wing it (71%>45% Y/3; p=.03)
- fear failure (52% Y/3; 51%>23% O/3; p=.003)
- are blocked by their inner critic (58% Y/3; 57%>29% O/3; p=.002)
- are blocked by a lack of self-confidence (43%>26% O/3; p=.02)
- are blocked by loss of confidence during the process (30% Y/3; 31%>6% O/3; p=.002)
    - find creative work is stressful (37%> Y/3 18%; p=.07)
- most enjoy getting the idea (71%>52% Y/3; p=.05)
- get bogged down in the execution stage (52%>24% Y/3; p=.03)

<u>A Smaller Percent of the Middle Group</u>
- define creativity as rearranging and combining things (18%<40% Y/3; p=.04)
- focus on the arts (66%<87% Y/3; p=.04)
- focus on homemaking (35%<65% Y/3, O/3; p=.02)
- go to a special room to get an idea (23%<46% O/3; p=.04)
- believe they are the active agent in getting an idea (67%<86% O/3; p=.05)
- experience pleasure after getting the idea (49%<77% O/3; p=.02)
- have the first form of the idea as an image (51% O/3; 54%<85% Y/3; p=.02)
- find music helpful during the process (14%<34% O/3; p=.05)
- need an alternate plan (11%<33% Y/3; p=.03)
- create when inspired (60%<82% Y/3; p=.05)
- create to escape (20%<61% Y/3; p=.001)
- create when bored (23% O/3; 23%<45% Y/3; p=.02)
- said the Q. made them think differently (61%<87% O/3; p=.02)
- said the Q. stimulated their thinking about creativity (55%<87% O/3; p=.006)

<u>A Higher Percent of the Oldest Group</u>
- go to a special room (46%>23% M/3; p=.04)
- experience being an active agent in getting the idea (86%>66% M/3; p=.05)
- experience excitement before the idea comes (77%>54% M/3; p=.04)
- experience pleasure after getting the idea (77%>49% M/3; p=.01)
    - *experience urgency to begin after getting the idea (57%>38% Y/3; p=.06)
- *experience timelessness (63% M/3; 60%>36% Y/3; p=.01)
- *say that more money would make no difference (43%>9% Y/3; p=.005)
- say that music is helpful during creative work (34%>14% M/3; p=.05)
    - *say that creative work is hard work (69%>48% Y/3; p=.09)
    - *create to relate indirectly (43%>24% Y/3; p=.06)
    - enjoy polishing and finishing (31%>14% M/3; p=.09)
- said the Q. clarified their thinking about creativity (F87%>63% Y/3; p=.04)
- said the Q. made them think differently about creativity (87%>61% M/3; p=.02)
- said the Q. stimulated their thinking about creativity (87%>55% M/3; p=.01)
    - *said that answering the Q. was fun (47% AO>27% Y/3; p=.06)
- *spent more time on the questionnaire. (2 hrs > Y/3 1.4 hrs)

<u>A Smaller Percent of the Oldest Group</u>
- define creativity with reference to the self (66%<94% M/3; p=.003)
- define creativity in terms of an original product (31%<63% Y/3; p=.01)
- say the product can be intangible (22%<56% Y/3, 53% M/3; p=.005)
    - define creativity as giving form to the intangible (25%<47% Y/3; p=.07)

- say the product is not essential (9%<75% Y/3; p=.001)
- say that the self is the product (28%<56% Y/3; p=.02)
- define creativity as rearranging and combining things (18% M/3; 20%<40% Y/3; p=.04)
- define creativity as self-expression (43%<86% Y/3, 83% M/3; p=.002)
- focus on relationships (53%<80% M/3; p=.01)
- focus in self-development category (22% Y/3; 22%<54% M/3; p=.001)
- focus on self-development or leadership (14% Y/3; 13%<53% M/3; p=.02)
- focus on play (8%<29% Y/3; p=.03)
- create to expand themselves (31%<74% M/3; p=.001)
- create to express self (34%<76% Y/3; 71% M/3; p=.001)
- create to learn or use abilities (49%<77% M/3; p=.01)
- feel driven to create (17%<39% Y/3; p=.04)
- create to fulfill themselves (26%<58% Y/3; 58% M/3; p=.01)
- create to fulfill a purpose (11%<33% M/3; p=.03)
- create to solve problems (18%<43% M/3, O/3; p=.03)
- create because it is part of being human (14%<40% M/3; p=.02)
- create to communicate with, relate to and serve others (46%<83% M/3; p=.001)
- create to find spiritual meaning (17%<34% M/3,18% Y/3; p=.03)
- play music to get an idea (26%<58%; p=.01)
- experience the idea as coming from a spiritual source (26%<69% M/3; p=.001)
- experience excitement after the idea comes (63%<85% Y/3; p=.04)
- experience the first form of the idea as an image (54% M/3; 51%<85% Y/3; p=.02)
- experience the idea as a new creation (26%<48% Y/3; p=.03)
- say that more money would not make them more creative (34%<91% Y/3; p=.002)
- are blocked by fear of failure (23%<55% Y/3; p=.003)
- are blocked by their inner critic (29%<63% Y/3; p=.002)
- lack self confidence (25%<42% Y/3; p=.02)
- suffer from loss of self-confidence during work (6%<33% Y/3; p=.003)
- are stopped because of lack of energy (54%<85% Y/3; p=.006)
- keep an idea notebook (26%<39% Y/3; p=.08)
- create when sad (14%<52% Y/3; p=.001)
- create when bored (23% M/3; 23%<45% Y/3; p=.02)
- create when frustrated (11%<39% Y/3; p=.01)
- believe that everyone has the potential to a significant work (23%<48% Y/3; p=.05)

Significant Age and Gender Differences

The elements that have a significant difference within the gender are starred.

A Higher Percent of the Youngest Women

- *define creativity as producing an original product (59% M/3F; 68%>23% O/3F; p=.002)
- *define creativity as giving form to the intangible (50% M;44%>18% O/3F; p=.03)
- *say a product is not essential (76%>8% OM; 14% O/3F; p=.001)
- *define creativity as self-actualization (60%>32% O/3F; 33% M; p=.05)
- define creativity as gaining new insights, perspectives, options (65% M/3F; 67%>44% OF; p=.02; >44% M; p=.01)
- define as the combining, developing, and expressing ideas (63% F; 71% YF>33% YM; p=.04)
- *define creativity as integration and synthesis (82% OM; 52%>29% O/3F; p=.004)
- *refer to the joy of rightness of fit or solution (86% OM>56% YF>33% OF; p=.004)
- *say creativity is self-expression (90% YM; 86%>42% O/3F; p=.01)

- focus their creative energy in homemaking (54%>0% YM; p=.001)
- focus in the arts (92% YM; 83%>63% M/3F; p=±.O3)
- focus on crafts (47% M/3F; 40%>9% YM; 21% 0/3F; p=.04)
- *create to express self (77%>36% O/3F; p=.004)
- *create to learn, to use abilities (73%>48% O/3F; p=.02)
- *create for self-fulfillment (62%>16% O/3F; p=.002)
- create for balance or because they feel driven (44%>16% O/3F; p=.002)
- *will find a friend to talk to to get an idea (62%>44% O/3F; >17% YM; p=.01)
    - *will write about it to get an idea (56% M/3F; 58% OM; 58%>32% O/3F; 33% YM; p=.07)
- *will brainstorm to get an idea (54%>24% O/3F; p=.03)
- will play music to get an idea (54%>15% OM; p=.03)
    - *experience inner stillness before the idea comes (31%>12% O/3F; p=.10)
- *make a sensory association with getting an idea (60% O/3F; 65%>37% M/3F; 38% OM; p=.04)
- * experience excitement getting the idea (88%>62% OM; >63% M/3F; p=.03)
- feel gratitude for getting the idea (26% M/3F; 27%>8% OM; p=.04)
- *say the first form of an idea is as an image (83% YM; 81%>48% M/3F; p=.03)
    - experience getting the idea kinesthetically (23%>0% OM; p=.06)
- experience the new idea as a new creation (50%>15% OM;>28% O/3F; p=.04)
    - say the idea comes full blown (62% OM; 59% M/3F; 58%>42% YM; 40% O/3F; p=.07)
- *use an accident to redirect work (81%>33% YM;>56% O/3F; p=.01)
    - *can make a happy accident happen (27%>7% M/3F; p=±.06)
- need a neat place in which to work (69%>23% OM; p=.003)
    - need uncommitted time (73%>42% YM; p=.06)
- *say that having more money would increase their creativity (92%>28% O/3F; p=.001)
- *are blocked by their inner critic (65%>23% OM; p=.006;>32% O/3F; p=.02)
- *suffer from a wavering self-confidence (62% YF>25% YM; >31% OF; p=.03)
- *suffer from loss of confidence during creative work (35%>4% O/3F; p=.006)
- *may be stopped because the idea is too small (46%>15% M/3F; p=.01)
- *personal problems are an obstacle to creative work (81%>28% O/3F; p=.001)
- *lack time and space for creative work (92%>64% O/3F; p=.005)
- *lack energy for creative work (92%>52% O/3F; p=.001)
- keep an idea notebook (40% M; 38%>24% O/3F; p=.02)
- *must be prepared ahead of time (46%>0% YM; >26% M/3F; p=.007)
- *need to have an alternative plan (35%>7% M/3F; p=.01)
    - find creative work pleasurable (92% OM; 83% YM; 85%>70% M/3F; p=.09)
- *feel compromise is okay, even helpful (54%>25% OM; 27% M/3F; 27% YM; p=.03)
- *create when inspired (83% YM, 81%>56% M/3F; p=.04)
- *create to escape (58% YM, 58%>15% M/3F; p=.001)
- *create when sad (54%>12% O/3F; p=.001)
- *create when bored (46%>19% M/3F; p=.02)
- *create when frustrated (42%>8% O/3F; p=.004)
- most enjoy the execution stage of the creative process (69%F>48%M; p=.05)
- *get bogged down in the polishing and finishing stage (45%>20% O/3F; 54% OM; p=.04)
- *believe that everyone can do to do significant creative work (50%>24% O/3F; p=.03)
    - *said the Q suggested new ways of being creative (50% OM; 48%>23% M/3F; p=.06)

A Smaller Percent of the Youngest Women

- define creativity as solving problems (18% O/3F; 12%<58% OM; p=.003)
- define creativity as producing a useful product (8% F<33% OM; 25% YM; p=.001)
- refer to creativity as connecting and sharing with others (50% M; 41%<84% O/3F; p=.005)
- focus on self-development and leadership (0% O/3F; 14%<53% M/3F; 50% OM; p=.03)
- focus on relationships (54% O/3F;54% OM; 58%<78% M/3F; p=.05)
- say they create for achievement or satisfaction (46%<89% M/3F; p=.001)
- create to be an authority, for posterity, or to contribute (12% O/3F; 12%<46% OM; p=.002)
- create to solve problems (12% O/3F; 12%<38% OM; p=.01)
- create because it is part of being human (12% O/3F; 15%<42% YM; p=.03)
- create to serve or relate (46% OM; 50%<83% YM; p=.03)
- create for aesthetic joy (15%<49% OF; p=.006)
- meditate to get an idea (19%<40% AO; p=.05)
- pray to get an idea (12%<33% M/3F; p=.03)
- experience being a passive receiver of the idea (25%YM; 27%<41% M/3F; p=.05)
- experience being the active agent (67% M/3F; 69%<85% OM, O/3F; p=.05)
- say they feel they are working hard to get the idea (19%<50% YM; p=.05)
- say they have a sense of resolution after the idea comes (27%<67% YM; p=.004)
- say the first form of the idea is in words (38%<75% YM; p=.04)
    - say the first form of the idea is intuited (42% YM; 46% OM; 46%<67% M/3F; p=.07)
- experience the product as a surprise (21% F<44% M; p=.02)
    - say that the product gradually unfolds (50% YM; 50%<74% M/3F; 69% OM; p=.07)
- experience timelessness (35%<70% O/3F; 62% OM; 59% O/3F; p=.01)
    - must be alone for creative work (42%<69% OM; p=.10)
    - need interaction with others for creative work (15%<37% M/3F; OM; p=.08)
- need quiet solitude for their work (42%<70% M/3F; 67% YM; 64% O/3F; p=.02)
- need to be free of distractions (27%<62% OM; p=.03)
- say money would make no difference (8% YM;12%<60% O/3F; p=.001)
- will abandon a work that is blocked (9% F<28% M; p=.01)
- feel successful in overcoming blocks (64% O/3F; 65%<92% YM; 85% OM; p=.01)
- say their mind is selectively focused (18% O/3F; 22%<50% YM; 46% OM; p=.03)
- say their mind is narrowly focused while working (23%<58% YM; p=.03)
- find new ideas coming in while working distracting (38%<69% OM; p=.05)
- prefer to wing it (46%<70% M/3F; 64% O/3F; p=.03)
- *find creative work fun (72% F<92% M; p=.04)
- say creative work is stressful (19%<46% OM; p=.05)
- say creative work is painful (12%<38% OM; p=.05)
    - enjoy getting the idea and beginning (50%<77% OM; 70% O/3F; p=.06)
- enjoy sharing and feedback (41% M/3F; 50%<77% OM; 67% YM; p=.03)
- enjoy recognition (15%<67% YM; p=.001)
- bog down in the beginning (0% OM;18%<42% YM; 35% M/3F; p=.01)
- say that the Q. clarified their thinking about creativity (57%<86% O/3F; 83% M; p=.01)
- said that answering the questionnaire was fun (22%<54% M/3F; p=.02)
- spent the least amount of time answering the questionnaire (1.3 hrs < 2.5+ OM)

A Higher Percent of the Middle Group of Women

- define creativity in terms of elements of creativity (96%>75% YM; p=.02)
- define creativity in terms of the self (100%>46% OM; p=.001)
- *define creativity with reference to emotion (83% YM; 74%>48% O/3F; p=.04)
- define creativity as creating an aesthetic product (37%>8% M; p=.02)
- define creativity as producing an original product (68% Y/3F; 59%>23% O/3F; p=.002)
- *define creativity in terms of an intangible product (67% YM; 56%>23% O/3F; p=.01)
- *say originality is important (65%>33% O/3F, YM; p=.02)
- define as gaining insights, new perspectives, expanding options (67% Y/3F; 65%>43% O/3F; 44% M; p=.01)
    - define as expressing and developing ideas (63% F>33% YM; p=±.08)
- define as self-expression (90% YM; 86% Y/3F; 78%>42% O/3F; p=.01)
- define as connecting with others (84% O/3F; 70%>41% Y/3F; p=.01)
- refer to aesthetic pleasure (83% O/3F; 70%>14% OM; 18% M; p=.04)
- *refer to joy of fit and solution (86% OM; 60% YM; 55%>17% O/3F; p=.004)
- focus on relationships (78%>54% OM; 54% O/3F; 58% Y/3F; p=.05)
- focus on homemaking (54% Y/3F; 43% F>8% M; p=.001)
- focus in the self-development category (56%>19% O/3F; p=.01)
- focus on self-development and leadership (50% OM; 53%>0% O/3F; 14% Y/3F; p=.03)
- focus their creative activity on crafts (47%>9% YM; 21% O/3F; p=.03)
    - focus their creative energy on their counseling profession (37%>0% YM; p=±.05)
- *create to expand self (74%>36% O/3F; p=.006)
- *create to express myself (78%>36 O/3F; p=.002)
- *create to learn, to use abilities (73% Y/3F; 70%>48% O/3F; p=.02)
    - *create for enjoyment, pleasure (67%>44% O/3F; p=.10)
- *create for achievement and satisfaction (89%>46% Y/3F; 48% O/3F; p=.001)
- *create to solve problems (44%>12% Y/3F, O/3F; p=.01)
- *create for aesthetic joy (48%>15% Y/3F; p=.01)
- create to find spiritual meaning (YM 33%; 37%>0% OM; p=.±01)
- create to create something new (48%>17% YM; p=.04)
- will do a task to get an idea (59%>25% YM; p=.05)
- will find a friend to get an idea (62% Y/3F; 56%>17% YM; p=.01)
- will write about it to get an idea (62% OM; 58% Y/3F; 56%>33% YM; 32% O/3F; p=.04)
    - *will meditate to get an idea (42% YM; 41%>19% Y/3F; p=.10)
- *will pray for an idea (33%>12% Y/3F; p=.03)
- *experience being a passive receiver of the idea (41%>25% YM;>27% Y/3F; p=.05)
    - experience the idea as from an external source (33%>8% YM; p=.09)
- *say the source of the idea is spiritual or from God (74%>25% YM; p=.002; >32% O/3F; p=.004)
- *experience tension before the idea comes (52%>25% YM; >31% Y/3F; p=.02)
- feel gratitude after the idea comes (27% Y/3F; 26%>8% OM; p=.04)
    - say idea is intuited (67%>44% M; 46% Y/3F; p=.07)
- experience the product as a discovery (50% YM;48%>23% OM; p=.04)
    - idea comes full blown (62% OM; 58% Y/3F; 59%>42% YM; 40% O/3F; p=.07)
    - *say the idea gradually unfolds (74%>50% Y/3F, YM; p=.07)
- experience immersion during creative work (68% O/3F; 67%>44% M; p=.05)

- *experience timelessness during work (62% OM; 59% O/3F; 70%>35% Y/3F; p=.01)
    - *interaction with others during work is needed (38% OM; 37%>15% Y/3F; p=.08)
    - accidents not expected (22%>0% YM; p=.08)
- *need quiet solitude for work (67% YM; 63% O/3F; 62% 0M; 70%>42% Y/3F; p=.02)
- *having more money would increase their creativity (92% Y/3F; 89%> 28% O/3F; p=.001)
- *prefer to wing it (64% O/3F; 70%>46% Y/3F; p=.03)
- most enjoy the execution stage of the creative process (69% F>48% M; p=.05)
    - enjoy the beginning (77% OM; 70%>50% Y/3F; p=.06)
- get bogged down in the beginning (42% YM; 35%>0% OM; 18% Y/3F; p=.01)
- said the biography section was valuable (35%>0% OM; p=±.02)
    - said the questionnaire was hard work (50% F>25% OM; p=.11)
- *said that answering the questionnaire was fun (54%>22% Y/3F; p=.02)

<u>A Smaller Percent of the Middle Group of Women</u>

- define creativity as producing a useful product (8% F<33% OM, 25% YM; p=±.001)
    - define creativity as rearranging and combining things (15%<44% YM; p=±.07)
- refer to creativity as excitement, as the spice of life (25%<70% YM; p=±.003)
- refer to creativity as a challenge (29% Y/3F; 30%<57% OM; p=.003)
- choose to focus their creativity in the arts category (63%<88% Y/3; p=.03)
- will persist to get an idea (22%<48% O/3F; p=.05)
- experience being the active agent (69% Y/3F; 67%<85% OM, O/3F; p=.05)
- experience excitement before getting the idea (48%<80% O/3F; p=.02)
    - experiences a sense of urgency before the idea comes (41%<64% M; p=.09)
- make a sensory association with getting the idea (38% OM; 37%<65% Y/3F; 60% O/3F; p=.04)
- say getting the idea is exciting (62% OM; 63%<88% Y/3F; p=.03)
- experience pleasure with getting the idea (44%<100% OM; p=.001)
- experience a sense of urgency to get on with it (42% Y/3F; 41%<60% O/3F; p=.02)
- say the first form of the ideas is as an image (48%<83% YM, 81% Y/3F; p=.03)
- say that in interruption gives perspective (19%<48% O/3F; p=.02)
- say that an accident gives hoped-for freshness to their work (7%<50% YM; p=.006)
- say they can make a happy accident happen (7%<42% YM, 38% OM; p=.05)
    - find music helpful for creative work (15%<36% O/3F; p=.08)
- experience the product as a surprise (21% F<44% M; p=.02)
    - say creative work is challenging (44%<75% YM; p=.06)
- say they are blocked because the idea is too small (15%<46% OM, Y/3F; p=.01)
- will abandon a work because it is blocked (9% F<28% M; p=.01)
    - say creative work is pleasurable (70%<92% OM; 83% YM; 85% Y/3F; p=.09)
- say creative work is fun (72% F; 70%<92% M; p=.04)
- say they need an alternative plan (7%<35% Y/3F; p=.01)
    - are willing to take chances (30%<52% M; p=.10)
- say compromise helpful (26%M; 25%<54% Y/3F; p=.02)
- create when inspired (56%<83% YM, 81% Y/3F; p=.04)
- create to escape (15%<58% YM, Y/3F; p=.001)
- create when bored (19%<46% Y/3F; p=.02)
- enjoy polshing and finishing (11%<36% O/3F; p=.04)
- enjoy completion pleasure (48% O/3F; 59%<92% YM; p=.03)

- most enjoy sharing and feedback (46%Y/3F; 41%<77% OM; 72% M; p=.03)
    - said the Q. made them think differently (64% YM; 62%<86% O/3F; p=.06)
- said the Q. stimulated their thinking about creativity (58%<90% O/3F; p=.01)

A Higher Percent of the Oldest Women

- define creativity as expressing and developing ideas (63% F>33% YM; p=±.04)
- *refer to aesthetic pleasure in their definition (83%>14% OM; >35% Y/3F; p=.04)
- *define creativity as connecting and sharing with others (84%>41% Y/3F; 50% M; p=.005)
    - are married (77%>42% Y/3F; p=.006)
    - have children (85%>27% Y/3F; p=.001)
- focus on the fine arts (58%>23% OM; 27% YM; p=.03)
- focus on homemaking (54% Y/3F; 43% F>0% YM; 8% M; p=.001)
- focus on creating their life style (60%>0% YM; p=±.02)
- *create for aesthetic joy (49% OF>15% Y/3F; p=.006)
- *will walk to get an idea (76%>38% OM;>44% M/3F; p=.02)
- *will persist to get an idea (48%>22% M/3F; p=.05)
- *will meditate to get an idea (40%>19% Y/3F; p=.05)
    - will go to a special room to get an idea (44%>17% YM;p=.09)
- will set a deadline to get an idea (28%>0% YM; p=.04)
- *say they are the active agent in getting the idea (84% O/3>67% M/3; p=.05)
- *experience excitement before the idea comes (80%>48% M/3F; p=.02)
- *experience tension before the idea comes (52%>25% YM;>31% Y/3F; p=.02)
    - *feel they are working hard to get an idea (40%>19% Y/3F; p=.10)
    - *experience pleasure after the idea has come (68%>44% M/3F; p=.09)
- make a sensory association with getting the idea (65% Y/3F;60%>38% OM; 37% M/3F; p=.04)
- *experience urgency to get on with it (60%>17% YM; >41% Y/3F; p=.02)
- experience immersion while working (67% M/3F; 68%>44% M; p=.05)
- experience timelessness while working (70% M/3F; 62% OM; 59%>35% Y/3F; p=.01)
- *can use an interruption to get perspective on their work (48%>19% M/3F; p=.02)
- need a neat place in which to work (69% Y/3F; 62% F>32% M; p=.01)
- need quiet solitude (70% M/3F; 67% YM; 64%>42% Y/3F; p=.04)
    - need uncommitted time (72%>42% YM; p=.06)
    - *say music is helpful for creative work (36%>15% M/3F; p=.08)
- *say more money would make no difference in their creativity (60%>8% YM; >12% Y/3F; p=.001)
- get stuck in a pattern (52%>8% OM; >30% M/3F; p=.007)
- prefer to wing it (70% M/3F; 64%>46% Y/3F; p=.03)
    - turn to creative activity to relate indirectly (43% O/3>24% Y/3; p=.06)
- most enjoy the execution stage (72% O/3F; 69% F>48% M, 46% OM; p=.05)
- *find polishing and finishing enjoyable (36%>11% M/3F; p=.04)
- *enjoy sharing and feedback (77% OM; 60%>41% M/3F; p=.03)
- *said the Q. helped clarify their thinking about creativity (83% M;86%>57% Y/3F; p=.01)
    - *answering the Q. made them think differently (86%>62% M/3F; 64% YM; p=.06)
- *said the Q. stimulated their thinking about creativity (90%>58% M/3F; p=.01)

A Smaller Percent of the Oldest Women

- define creativity as problem-solving (12% Y/3F; 18%<58% OM; p=.003)
- define creativity as producing an original product (23%<68% Y/3F; p=.002)

- define creativity as producing a useful product (8% F<29% M; p=.01)
- define creativity as producing a concrete product (14%<50% OM; 42% YM; p=.02)
- define creativity as giving form to the intangible (18%<50% M; p=.03)
- define the product as intangible (23%<67% YM; p=.01)
- say the creative product is the self (33% M; 32%<60% Y/3F; p=.03)
- say a product is not essencial (8% OM; 14%<76% Y/3F; p=.001)
- say originality is important (33% YM; 33%<65% M/3F; p=.02)
- define creativity as gaining new insights, new perspectives, expanding options (44% M; 43%<67% Y/3F; 65% M/3F; p=.01)
- define creativity in terms of integration and synthesis (29%<82% OM; p=.004)
- define creativity with reference to emotion (54% OM; 48%<83% YM; 74% M/3F; p=.04)
- refer to the joy of fit or solution (17%<86% OM; p=.004)
- say creativity is self-expression (42%<90% YM, 86% Y/3F; p=.01)
- focus on relationships (58% Y/3F; OM 54%; 54%<78% M/3F; p=.05)
- focus their creative activity on interpersonal relations (29%<71% OM; p=±.006)
- focus their creative activity on crafts (9% YM; 21%<47% M/3F; p=.03)
- focus their creative activity on administration (7%<50% OM; p=±.03)
- focus on self-development and leadership (14% Y/3F; 0%<53% M/3F; 50% OM; p=.03)
- say they create to expand themselves (38% OM; 36%<74% M/3F; p=.006)
- say they create to express themselves (38% OM; 36%<78% M/3F, 77% Y/3F; p=.002)
- create to learn, to use abilities (48%<77% Y/3F; 75% YM; p=.02)
- are driven to create or to find balance (16%<44% YF; p=.02)
- create for enjoyment and pleasure (44%<67% M/3F; p=.10)
- create to fulfill self (16%<64% YF; p=.002)
- create for achievement or satisfaction (46% Y/3F; 48%<89% M /3F; p=.001)
- create to fulfill purpose (12%<42% YM; p=.04)
- create to be an authority, for posterity, to contribute (12% Y/3F; 12%<46% OM, 42% YM; p=.002)
- create to solve problems (12% Y/3F; 12%<44% M/3F, 42% YM; p=.01)
- create because it is part of being human (12%<42% YM; p=.03)
- write to get an idea (33% YM; 32%<62% OM; 58% Y/3F; 56% M/3F; p=.04)
- brainstorm to get an idea (24%<69% OM; p=.01)
- experience that the muse comes and goes (56%<80% M; p=.07)
- experience inner stillness before getting the idea (12%<50% YM; p=.01)
- experience tension release after getting the idea (12%<42% YM; p=.05)
- say the first form of the idea comes as words (38% Y/3F; 40%<75% YM; p=.04)
- first form of the idea comes as an image (48% M/3F; 52%<83% YM; 81% Y/3F; p=.03)
- idea comes full blown (42% YM; 40%<62% OM; 59% M/3F; 58% Y/3F; p=.07)
- experience the product as a surprise (21% F<46% OM; 44% M; p=.02)
- can readily resume work after an interruption (48%<76% M; p=.04)
- say that money would help their creativity (28%<92% Y/3F; p=.001)
- fear failure (23% OM; 28%<67% YM; p=.03)
- are blocked by their inner critic (23% OM; 32%<65% Y/3F; p=.01)
- are blocked by lack of confidence (23% OM; 32%<49% YF; 38% Y/3F; 37% M/3F; p=.01)
- say they are blocked by loss of confidence during work (4%<35% Y/3F; p=.001)
- are blocked by personal problems (28%<77% OM, 81% Y/3F; p=.05)
- are blocked by lack of time or space (64%<92% YM, Y/3F; p=.005)
- suffer from lack of energy (52%<92% Y/3F; p=.001)

- when blocked stop and wait for an answer to come (24% YM; 25%<54% OM; p=.05)
- abandon a work when blocked (9% F<28% M; p=.02)
- succeed in dealing with blocks (65% Y/3F; 64%<92% YM; 85% OM; p=.01)
- describe their mind as selectively focused during work (20%<50% YM; p=.03)
- keep an idea notebook (24%<40% OM; 38% Y/3F; p=.04)
- describe creative work as fun (72% F<92% M; p=.04)
- say they work boldly (16%<50% YM, 46% OM; p=.04)
- create when sad (12%<54% Y/3F; p=.001)
- create when frustrated (8%<42% Y/3F; p=.004)
- enjoy completion pleasure (59% M/3F; 48%<92% YM; p=.01)
- enjoy recognition (15% Y/3F; 16%<67% YM; p=.001)
- get bogged down in the polishing and finishing stage (20%<54% OM; 45% Y/3F; p=.04)
- have as a goal to contribute by their creative effort (44%<77% OM; p=.05)
- believe that everyone has the potential to do significant work (69% OF<100% YM; p=.03)
- believe that they can produce a significant work (69%<100% YM; p=.03)
    - feel they have a responsibility to use their abilities (58% YM; 56%<77% OM, 74% M/3F; p=.09)
    - said that the questionnaire was interesting (5%<42% OM; p=±.01)
    - said the questionnaire was important (14%<55% YM; p=±.02)

<u>A Higher Percent of the Younger Men</u>

- define creativity as problem-solving (50% M; 58%>12% Y/3F; 18% O/3F; 26% F; p=.003)
- define creativity as creating a concrete product (50% OM; 42%>14% O/3F; p=.02)
- define creativity as creating a useful product (33% OM; 25%>8% F; p=.01)
- *are more likely to say the product can be intangible (67%>25% OM; 23% O/3F; p=.01)
- define creativity as giving form to the intangible (50% OM; 50%>18% O/3F; p=.03)
- *say a product is not essential (76% Y/3F; 67%>8% OM; 14% O/3F; p=.001)
- *define creativity as rearranging or combining things (44%>15% M/3F;>18% OM; p=±.07)
- *refer to the emotion category in defining creativity (74% M/3F; 83%>48% O/3F; 54% OM; p=.04)
- *refer to creativity as exciting (70%>25% M/3F; p=.003)
- *refer to the joy of fit or resolution (86% OM; 60% YM>17% OF; 45% F; p=.004)
- *define creativity as self-expression (86% Y/3F; 90%>42% O/3F; p=.01)
- focus in the arts (83% Y/3F; 92%>63% M/3F; p=.03)
    - focus on music, dance and drama (45%>8% OM; p=±.03)
    - focus on teaching (75%>52% OM; p=.-)
- create to learn, to use abilities (73% Y/3F; 75%>48% O/3F; p=.02)
- *create to escape boredom, make life more interesting (42%>0% OM; p=.01)
- *create to fulfill a purpose (42%>12% O/3F;>15% OM; p=.04)
- say creating is part of one's nature (42%>12% O/3F; p=.03)
- *create to serve, to relate, to contribute (78% M/3F; 83%>46% OM; p=.03)
    - create to find spiritual meaning (37% M/3F; 33%>0% OM; p=±.01)
- create to become an authority, for posterity, to contribute (46% OM; 42%>12% Y/3F, O/3F; p=.002)
    - meditate to get an idea (40% M/3F; 42%>19% Y/3F; p=.06)
    - experience the Muse as coming and going (83%>56% O/3F; p=.07)
- experience an inner stillness before the idea comes (50%>12% O/3F; p=.01)

- experience a sense of urgency before the idea comes (62% OM; 67%>41% O/3F; p=.09)
- feel that they are working hard before the idea comes (50%>19% Y/3F; p=.05)
- *have a sense of resolution after the idea has come (67%>27% Y/3F;>31 OM; p=.004)
- experience tension release after getting the idea (42%>12% O/3F; p=±.05)
- have the first form of the idea in words (64% OM; 75%>40% O/3F; p=.04)
- experience the idea in sensory modes - as sound, smell as an image (83%>48% M/3F; p=.03)
- *experience the product as a discovery (48% M/3; 50%>23% OM; p=.04)
- experience the product as a surprise (46% OM; 44% M>21% F; p=.02)
- can resume creative work after an interruption (77% OM; 75%>48% O/3F; p=.04)
- *say an accident gives hoped-for freshness (50%>7% M/3F;>23% OM; p=.006)
- are willing to take chances (54% OM; 50%>30% M/3F; p=.10)
- can make a happy accident happen (38% OM; 42%>7% M/3F; p=.05)
- find limits challenging (75%>44% M/3F; p=.06)
- need quiet solitude (70% M/3F; 64% 0/3F; 62% 0M; 67%>42% Y/3F; p=.04)
- *fear failure (67%>23% OM; p=.03)
- have a strong inner critic that blocks them (65% Y/3F; 50%>23% OM; p=.01)
- *are blocked by being stuck in a pattern (52% O/3F; 50%>8% OM; p=.007)
- are blocked by lack of time and space for work (92%>64% O/3F; p=.005)
- *say that having more money would increase their creativity (92% Y/3F; 89% M/3F; 75%>28% O/3F; p=.001)
- are willing to abandon a work that is blocked (28% M>9% F; p=.01)
- succeed in getting beyond obstacles (85% OM; 92%>64% O/3F; 65% Y/3F; p=.01)
- describe their mind as selectively focused (48% M; 50%>20% O/3F; p=.03)
- *describe their mind as narrowly focused while working (58%>23% Y/3F;>31% OM; p=.03)
- keep an idea notebook (M 40%; Y/3F 38%; 42%>24% O/3F; p=.04)
- experience creative work as pleasurable (92% OM; 85% Y/3F; 83%>70 M/3F; p=.09)
- say that creative work is fun (92% OM; 92% M>72% F; 70% M/3F; p=.04)
- work boldly (48% M; 50%>16% O/3F; 24% F; p=.04)
- consider compromise a necessary evil (36%>8% OM; p=.10)
- create when inspired (81% Y/3F; 83%>56% M/3F; p=.04)
- create to escape (58% Y/3F; 58%>15% M/3F; p=.001)
- *most enjoyable is completion pleasure (92%>56% F; p=.02;>48% O/3F;>59 M/3F; p=.03)
- enjoy sharing and feedback (77% OM ; 67%>41% M/3F; 59% Y/3F; p=.03)
- most enjoy recognition (67%>15% Y/3F, O/3F; p=.001)
- *get bogged down getting the idea and beginning (35% M/3F; 42%>0% OM; >18% Y/3F; p=.01)
- goal to contribute (68% M>51% F; p=.08)
- believe that they can do a significant piece of creative work (100%>69% OF; p=.03)
- said Q. clarified their thinking about their own creativity (86% O/3F; 83% M>57% Y/3F; p=.01)
- *said the Q. suggested new ways of being creative (50%>17% OM; p=.06)
- said the Q. is important (55%>14% O/3F; p=±.04)(45% M>24% F; p=.08)
- said that the questionnaire is interesting (35% M>14% F; p=.03)

A Smaller Percent of the Younger Men

- define creativity as producing an aesthetic product (8% OM; 8%<37% M/3F; p=.02)
- define the self as product (32% O/3F; 32% M<60% Y/3F; p=.03)
- define creativity in terms of elements (75%<96% M/3F; p=.02)
- say originality is important (33%<65% M/3F; p=.03)
- define creativity as gaining insights and expanding options (43% O/3F; 44% M<67% Y/3F; 65% M/3F; p=.01)
- define creativity as combining, developing, expressing ideas (33%<71% Y/3F; 63% F; p=±.04)
- refer to aesthetic pleasure (18% M<83% O/3F; p=.04)(18%<61% F; p=.002)
- define as connecting and sharing with others (41% Y/3F; 50% M<84% O/3F; p=.005)
- focus on the home (8% M; 0%<54% Y/3F; 43% F; p=.001); p=.004).
- focus on crafts (21% O/3F; 9%<47% M/3F; p=.03)(17% M<36% F; p=.09)
- focus on the fine arts (23% OM; 27%<58% O/3F; p=.03)(25% M<52% F; p=.03)
- create in order to make something new (17%<48% M/3F; p=.04)
- create because they feel driven (16% O/3F; 16%<44% Y/3F; p=.02)
- find a friend to get an idea (17%<62% Y/3F; p=.01)(32% M<54% F; p=.06)
- *write about it to get an idea (32% O/3F; 33%<62% OM; 58% Y/3F; 56% M/3F; p=.04)
- do a task to get an idea (25%<59% M/3F; p=.05)(32% M<51% F; p=.09)
    - go to a special room to get an idea (17%<44% O/3F; p=.06)
- set a deadline to get an idea (0%<28% O/3F; p=.04)
- experience being a passive receiver of the idea (25%<41% M/3F; p=.05)
    - believe the source is external (8%<OM 31%; <33% O/3F; p=.09)
- believe the source is spiritual (25%<74% M/3F; p=.004)
- experience tension before getting an idea (25%<52% M/3F, O/3F; p=.02)
    - experience confusion before getting an idea (8%<38% OM; p=.08)
- find it painful waiting to get an idea (0%<31% OM; p=.04)
- experience pleasure after getting the idea (44% M/3F; 50%<100% OM; p=.001)
- urgency to begin after getting the idea (17%<41% O/3F; p=.02)
    - feel idea is intuited (46% Y/3F; 42%<67% M/3F; 64% OM; p=.07)
    - product comes full blown (40% O/3F; 42%<62% OM; 59% M/3F; 58% Y/3F; p=.07)
    - say the product gradually unfolds (50% Y/3F; 50%<74% M/3F; p=.07)
- experience immersion during work (46% OM; 42%<67% M/3F; 68% O/3F; p=.05)
- experience timelessness (35% Y/3F; 42%<62% OM; 59% O/3F; 70% M/3F; p=.01)
    - need people around (17%<AO, 38% OM; p=.08)
    - use an accident to redirect their work (33%<81 Y/3F%; p=±.02)
    - need uncommitted time (42%<73% Y/3F,O/3F p=.06)
    - need to be free of demands (33%<69% OM; p=.07)
- say that more money would make no difference (8%<60% O/3F; p=.001)
- are blocked by wavering self-confidence (25%<58% Y/3F; p=.03)
- stop and wait for an answer to come when blocked (24% O/3F; 25%<54% OM; p=.05)
- must be prepared ahead of time (0%<46% OM; 46 Y/3F; p=.007)
- think creative work is stressful (19% Y/3F; 25%<46% OM; p=.05)
- say compromise is okay or helpful (25% OM; 27% M/3F; 27%<54% Y/3F; p=.02)
- enjoy the execution stage of the creative process (46% OM; 48% M; 50%<69% F; p=.05)
- believe that everyone has the potential to do a good piece of work (50%<85% YF; p=.01)(56% M<78% F; p=.03)

- *have a responsibility to use abilities (56% O/3F; 58% YM <77% OM; 74% M/3F; p=.09)
- said the Q. made them think differently about creativity (62% M/3F; 64%<86% O/3F; p=.06)
- said that the biography section was valuable (0% OM; 4% M<35% M/3F; 30% F; p=.01)

A Higher Percent of the Older Men

- define creativity as problem-solving (58%>12% Y/3F; 18% O/3F; p=.003)
- define creativity in terms of a useful product (25% YM; 33%>7% F; p=.01)
- define creativity as producing a concrete product (42% YM; 50%>14% O/3F; p=.02)
- define creativity as giving the intangible form (50% YM; 50%>18% O/3F; p=.03)
- *define with reference to originality (65% M/3F; 55%>33% YM; p=.03)
- *define as integration and synthesis (82%>29% O/3F; >44% YM; p=.004)
- *refer to creativity as a challenge (57%>21% OF>30% YM; p=±.O6)
- *refer to the joy of fit or resolution (86%>17% OF>60% YM; p=.004)
- focus on interpersonal relations (71%>29% O/3F; p=±.006)
- focus on administration (50%>7% O/3F; p=±.03)
- focus on self-development and leadership (53% M/3F; 50%>0% O/3F; 14% Y/3F; p=.03)
- create to become an authority, for posterity, to contribute (42% YM; 46%>12% Y/3F, O/3F; p=.002)
- *will write about it to get an idea (56% M/3F; Y/3F 58%; 62%>33% YM, >32 O/3F; p=.04)
- *will brainstorm to get an idea (69%>24% O/3F; 33% YM; p=.01)
- feel they are the active agent in getting the idea (84% O/3F, 85%>67% M/3F; p=.05)
- *think the idea comes from an external source (33% M/3F; 31%>8% YM; p=.09)
- feel a sense of urgency before the idea comes (67% YM; 62%>41% O/3F; p=.09)
- *feel confusion before the idea comes (38%>8% YM; p=.08)
- *find it painful waiting (31%>YM 0%; p=.04)
- *experience pleasure after idea comes (100%>44% M/3F; >50% YM; p=.001)
- *feel urgency to begin after the idea has come (60% O/3F; 54%>17% YM; p=.02)
- *idea comes full blown (58% Y/3F; 59% M/3F; 62%>40% O/3F; 42% YM; p=.07)
- say the product gradually unfolds (74% M/3F; 69%>50% YM; 50% Y/3F; p=.07)
- experience the product as a surprise (44% M; 46%>21% F; p=.02)
- *experience timelessness during work (70% M/3F; 59% O/3F; 62%>35% Y/3F; 42% YM; p=.01)
- can resume work after an interruption (75% YM; 77%>49% O/3F; p=.04)
- must be alone during creative work (69%>42% Y/3F; p=.10)
- *need interaction with others (37% M/3F; 38%>17% YM,15% Y/3F; p=.08)
- *can use an accident as gift to redirect the work (81% Y/3F; 62%>33% YM; p=.01)
- are successful in making a happy accident happen (42% YM; 38%>7% M/3F; p=.05)
- need quiet solitude (70% M/3F; 67% YM; 64% O/3F; 62%>42% Y/3F; p=.04)
- *need freedom from demands (69%>YM 33%; p=.07)
- need freedom from distractions (62%>27% Y/3F; p=.03)
- *say more money would make no difference (60% O/3F; 46%>YM 8%; p=±.03)
- are blocked because the idea is too small (46% Y/3F; 46%>15% M/3F; p=.01)

- say personal problems are an obstacle to their creativity (81% Y/3F; p=.002; 77%>28% O/3F; p=.05)
- say they lack of time and space for creative work (92% YM; 92% Y/3F; 85%>69% O/3F; p=.005)
- *stop and wait for a solution to come (54%>25% YM; 24% O/3F p=.05)
- are willing to abandon a blocked project (31%>5% OF; p=.01)
- succeed in overcoming blocks (92% YM; 85%>65% Y/3F; 64% O/3F; p=.01)
- describe their mind as selectively focused (48% M; 46%>20% O/3F; p=.03)
- keep an idea notebook (40% M; 38% Y/3F; 42%>24% O/3F; p=.04)
- *find new ideas during work distracting (69%>38% Y/3F; >42% YM; p=.05)
- work boldly (48% M; 50%>16% O/3F; p=.04)
- experience creative work as pleasurable (85% Y/3F; 83% YM; 92%>70% M/3F; p=.02)
- experience creative work as fun (92%>72% F; p=.04)
- *experience creative work as stressful (46%>19% Y/3F, 25% YM; p=.05)
- experience creative work as painful (38%>12% Y/3F,16% O/3F; p=.05)
    - *say they must be prepared ahead of time (46% Y/3F; 46%>0% YM; p=±.007)
    - are willing to take chances (50% YM; 54%>30% M/3F; p=.10)
- say sharing and feedback is the most enjoyable part of the creative process (67% YM; 77%>41% M/3F; 50% Y/3F; p=.03)
    - most enjoy getting the idea and beginning (70% M/3F; 77%>50% Y/3F; p=.06
- get bogged down in the polishing finishing stage (45% Y/3F; 54%>20% O/3F; p=.04)
- have as a goal to make a contribution (77%>44% O/3F; p=.05)
    - *feel they have a responsibility to use their abilities (74% M/3F;77%>56% O/3F, 58% YM; p=.09)
- Q clarified their thinking about their own creativity (86% O/3F; 83% M>57% Y/3F; p=.01)
    - said the questionnaire was interesting (42%>5% O/3F, 8% M/3F; p=±.01)
- said the questionnaire was fun (54% M/3F; 49% O/3F; 50%>27% YM; p=.02)
- spent the most time on the questionnaire (2.5+ hrs> 1.3 hrs YF; >1.8 hrs YM)

<u>A Smaller Percent of the Older Men</u>

    - define creativity in terms of an aesthetic product (8% YM; 8%<42% OF; p=±.03)
- say a product is can be intangible (23% O/3F; 25%<67% YM; p=.01)
- say a product is not essential (8%<76% Y/3F; p=.001)
- define the self as the product (32% O/3F; 33% M<60% Y/3F; p=.03)
- define creativity as gaining insights, new perspectives, expanding options (43% O/3F; 44% M<67% Y/3F; 65% M/3F; p=.01)
    - define as rearranging and combining things (15% M/3F; 18%<44% YM; p=±07)
- define creativity with reference to the self (46%<100% M/3F; p=.001)
- define creativity with reference to emotions (48% O/3F; 54%<83% YM; p=.04)
- refer to aesthetic pleasure (14%<83% O/3F; p=.04)
- define as connecting and sharing with others (41% Y/3F; 50% M<84% O/3F; p=.005)
- focus on relationships (58% Y/3F; 54% O/3F; 54%<78% M/3F; p=.05)
    - do not focus on parenting and family relationships (29%<71% O/3F; p=±16) spouse (0%), or friendship (0%)
- focus on homemaking (8% M<54% Y/3F; 43% F; p=.001)
- focus creative energy on the fine arts (27% YM; 23%<58% O/3F; p=.03)

- focus creative energy on music, dance, drama (8%<45% YM; p=±.03)
- create to expand self (36% O/3F; 38%<74% M/3F; p=.006)
- create to express self (36% O/3F; 38%<78% M/3F; p=.002)
- create to escape boredom and make life more interesting (0%<42% YM; p=.01)
- create to serve, relate, contribute (46%<83% YM; p=.03)
- create to gain spiritual meaning (0%<37% M/3F; 33% YM; p=±01)
- create to make something new (17%<48% M/3F; p=.04)
- walk to get an idea (38%<76% O/3F; p=.02)
- play music to get an idea (15%<54% Y/3F; p=.03)
- make a sensory association getting the idea (37% M/3F; 38%<65% Y/3F; 60% O/3F; p=.04)
- experience excitement with getting the idea (63% M/3F; 62%<88% Y/3F; p=.03)
- experience the first form of the idea kinesthetically (0%<23% Y/3F; p=±.06)
- intuit idea (42% YM; 46% Y/3F; 46%<67% M/3F; p=.07)
- experience the idea as a discovery (23%<50% YM; 48% M/3F; p=.04)
- experience the idea as a new creation (15%<50% Y/3F; p=.04)
- experience immersion during work (42% YM; 46%<68% O/3F; 67% M/3F; p=.05)
- need a neat place in which to work (23%<69% YF; p=.003)
- *fear failure (23%<67% YM; p=.03)
- suffer from an inner critic (23%<67% YF; p=.006)
- lack self-confidence (23% OF; 23%<49% YF; p=.03
- get stuck in a pattern (8%<50% YM, 52% O/3F; p=.02)
- say compromise and revision to meet a demand is helpful (27% YM; M/3F 27%; 25%<54% YF; p=.05)
- enjoy the execution stage of the creative process (48% M; 46%<69% F; p=.05)
- bog down in getting the idea and beginning (18% Y/3F; 0%<42% YM; 35% M/3F; p=±.01)
- said the Q. suggested new ways of working (17%< 50% YM; p=±.06)
- said that the biography section was valuable (4% M; 0%<35% M/3F; 30% F; p=.01)
- said answering the questionnaire was hard work (25%<52% Y/3F, 50% M/3F; p=.11)

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