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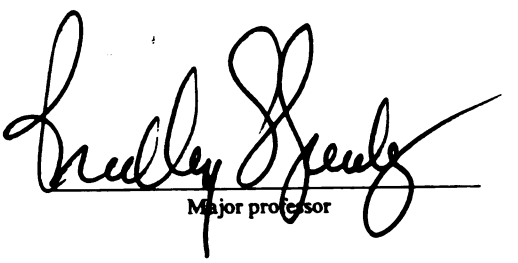

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INDIVIDUAL DIFFERENCES AND MEDIA EFFECTS: THE LINKAGE BETWEEN TEMPERAMENT AND MEDIA USE MOTIVATIONS

By

John L. Sherry

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ABSTRACT

INDIVIDUAL DIFFERENCES AND MEDIA EFFECTS:
THE LINKAGE BETWEEN TEMPERAMENT AND MEDIA USE MOTIVATIONS

by

John L. Sherry

As early as the Payne Fund studies, researchers have asserted that individuals differ in the way that they use media and in the way that the media affects them. Despite this, very little mass media research has addressed the issue of individual differences and most media effects theories are silent on the contribution of individual differences. As Tannenbaum recently wrote, "... we may be overlooking what may be a major result in communication (not to mention other social) research: that people are really quite different from one another in their predispositions to engage in various kinds of communication activity, in their selection of available communication fare, and in their responses to exposure to particular content."

This study answers the call for individual differences research by examining the relationship between television use motivations and individual differences in temperament. Temperament is a multi-dimensional variable which is biologically rooted, stable across the lifespan and accounts for how individuals differ in behavioral tendencies. A

survey was conducted of 285 undergraduates using the Dimensions of Temperament Survey- Revised and the Greenberg Uses and Gratifications scale. Results show temperament is a significant predictor of all five uses and gratifications factors (arousal, relaxation, pass time, diversion and learning), with each television use motivation demonstrating a different pattern of temperament predictors. Motivations that can be tied to central nervous system processing (arousal and relaxation) have more temperament predictors than motivations that appear to be more social in orientation (learning and diversion). The results suggest that media use is driven by the interaction between individual differences in biology and socialization.

Dedicated to the memory of my son

Thomas Bartholomew Sherry

Born/Died
November, 1995

ACKNOWLEDGMENTS

I am writing this acknowledgment section on the day I secured my first tenure track academic position. The events of the day cause me to pause and think of the long road I have traveled to reach this goal. And, of course, I must think of those who made this a possibility.

Family always comes first. I must begin by thanking my beautiful wife Bridget, who encouraged, supported and nagged me into finishing the degree. She sacrificed more than anyone, and the process has brought us closer together. I must thank my three daughters for the daily joy and stress reduction they give me. Particularly, I want to thank Maria for taking more interest in the dissertation than anyone else, Johanna for her smiles and hugs, and Anna for her inspirational enthusiasm. I also want to thank my son Thomas, for reminding us all of the importance and fragility of human life.

My parents sacrificed all during their adult years so their children could have better. I want to thank my father, a man who would have made a much better professor than I will ever be, for the inspiration of quietly doing whatever was necessary to keep the family going. He taught me how to be a man. I want to thank my mother for her warmth and humor, but most of all for her stories. I will never forget where I came from, because you let me know. My "second parents",

Peter and Madeline McClorey, provide unwavering support and encouragement. Its good to know my work is widely known in Sardinia!

Each of my siblings has touched my educational journey in a special way. My brother Michael drove me two hours one-way to school every Monday morning after working the midnight shift, just to make my life a little easier. My brother Donald patiently answered a million computer questions, saving me hours of work. And my sister Cathy gave me one of my most precious possessions-- a wristwatch for my undergraduate graduation. She doesn't know it, but the watch means very much to me because it says that my family is proud of my accomplishments. And I learned much from Terrence and Jenny, as we learned how to teach together.

I will forever be indebted to the faculty of Michigan State who taught me the rigor of academic discipline and its joyful rewards. The best of them taught me how to argue powerfully about ideas without disrespecting those who disagree. In particular, I need to thank my mentor and committee chair, Dr. Bradley Greenberg, who demonstrated impeccable class, caring and patience with me. I also need to thank Dr. Bella Mody who guided me in how to integrate morality with research. Dr. Charles Atkin and Dr. Charles Salmon showed me the importance of taking research outside the ivory tower, to try to make the world a little better place. I was fortunate to take classes from some wonderful teachers and scholars and I wish to thank them here: Dr.

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I'd also like to thank the friends I made while in school, who made the tough times bearable and the good times great. In particular, I'd like to thank Rick Busselle, Anne Hoag, Mahen Saverimuttu, Kathy Bradshaw, Lynn Rampoldi, David Weinstock, and Joe Harry. Phyllis Kacos was a great friend throughout, and I will always miss our lunches together.

Finally, I'd like to thank God for making all this possible.

--AMDG--

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Chapter 1

INTRODUCTION

Recently, I was struck by the difference in reaction between two teens who were playing highly violent fighting video games in a local arcade. The play of the game required each player to "fight" a series of video game characters with rapid sequences of punches, kicks, elbow strikes, etc. Both teens were highly adept, playing so well that they were able to advance through several levels. The first teen's eyes were riveted to the screen; only his fingers moved rapidly on the controls. Upon completion of the game, he calmly walked away to observe his friends playing equally violent games. Two machines over, another teen played the same fighting game. Similarly, his eyes were locked on the screen but his entire body moved along with the game mimicking the fighters' motions. At each break in the action, he stepped back and physically replayed the violence that had just taken place, imitating the punches, kicks and elbow strikes. The reactions represented a clear difference in how individuals react to the same stimuli. Why did they react so differently?

It has long been held that individuals differ in the way that they use media and in the way that the media affect individuals. The earliest media studies support this assertion. In the Payne Fund Studies, Renshaw, Miller and Marquis (1933) wrote, "We are convinced... that movie influence is a highly individual affair, and that each child presents a problem such that we can only study how he differs from himself when we look at him under the normal and the experimentally varied conditions." (p. 135) Nearly 30 years later, Schramm, Lyle and Parker (1961) reiterated this point in one of the most widely quoted statements on media effects:

> "For some children, under some conditions, some television is harmful. For other children under the same conditions, or for the same children under other conditions, it may be beneficial. For most children, under most conditions, most television is probably neither harmful nor particularly beneficial." (p. 13)

Calls continue to go out for research investigating the role of individual differences in media use and effects. Speaking to the need to address individual differences, Wober (1996) states, "To understand why people do things one needs to find out about their essential nature, as well as about the forces which impinge upon them." (p. 66) Tannenbaum (1996) asserts, "... we may be overlooking what may be a major result in communication (not to mention other social) research: that people are really quite different from one another in their predispositions to engage in various kinds of communication activity, in their selection of available

communication fare, and in their responses to exposure to particular content." (p. 225)

Despite the acknowledgment of individual differences and the calls for further research, little mass communication research has looked at individual differences (Tannenbaum, 1996). Instead, "... we generally delegate the quite substantial individual difference to the testing error term of statistical analysis." (Tannenbaum, 1996, p. 225) Experimental research consistently uses random assignment to condition to "control" for the effects of individual differences. Surveys report general trends in media use, often with large amounts of variance surrounding the media usage estimate (Plomin, Corley, DeFries, & Fulker, 1990). When differences are measured, they are usually too gross to provide any explanatory power (e.g. race, gender).

Wober (1996) suggests four reasons why individual differences have been ignored in media research. First, in haste to reach the ultimate target of inquiry (effects), researchers often ignore the roots of behavior. Researchers have often been more concerned with <u>whether</u> there is a reaction, rather than with the <u>process</u> underlying the effect (Dorr, 1986). Second, Wober suggests that most researchers take a social or environmentally deterministic ontological position, assuming most behavior "springs from outward prompts" of situational variables. Similarly, Capella (1997) has observed that paradigmatic discussions found in both the 1983 and 1993 <u>Ferment in the Field</u> issues of the

Journal of Communication fail to mention a biological role in human communication processes. He suggests, "the paradigms vying for explanation did not include any that acknowledged seriously the so-called 'wet wear' within which cognition and culture, text and message, and context and motivation operate." (p. 4) Third, Wober asserts that measurement of individual differences (e.g. personality variables) is difficult to do. Many personality batteries require careful individual administration. Finally, the need for individual administration of personality measures is at odds with one of the most common methodologies in media research-- the large-scale survey.

The present research represents an answer to the call for mass media research which considers individual differences. If Tannenbaum is correct, that there is a grave loss of explanatory power when media effects studies choose not to consider variance in individual responses, we will never have satisfactory theory which explains the process of media effects without consideration of the roots of individual differences. Rosengren (1974) once suggested that we leave the issue of individual differences to psychologists. Twenty years later, experience suggests that it is time for communication researchers to systematically seize all variables; psychological, sociological, etc., that can further our understanding of the process of media effects. This study represents an attempt to that end.

Therefore, this dissertation addresses the research question: How do certain individual differences relate to media usage?

Chapter 2

REVIEW OF LITERATURE

This chapter provides a brief review of media effects theories; how environmental and biological variables have been integrated in psychology research; the advent of contextualism in media effects research, including the uses and gratifications paradigm; and an explanation of temperament with relation to the present research problem.

Media Effects Theories

The dominant theories in mass communication effects research have not provided for individual differences. Effects theories can be divided into those that posit intra-psychic events (e.g. priming effects, arousal, hedonic model) and those that suggest environmental influence (e.g. social learning theory, cultivation, agenda setting). Intra-psychic theories are micro level psychological theories that posit intra-psychic processes that are the same for all individuals. For example, Berkowitz's priming effects theory (Berkowitz & Rogers, 1986) suggests that environmental experiences are stored in the mind through semantically related associative networks. Priming of memory nodes activates semantically related memory nodes, thus

predisposing the individual to react consistently with the prime. Berkowitz does not address how individuals may differ in their storage abilities, rate of acquisition or interpretation of messages. Nor does he note differences in how individuals may process messages. Similarly, Tannenbaum and Zillmann's (1975) arousal model simply states that someone aroused by media will be more likely to act aggressively than someone who is not aroused. They do not specify whether individuals will differ in arousal level. Baron's (1979) hedonic model comes closest to asserting a place for individual differences by theorizing that either arousal or distraction are possible outcomes of erotic media, depending on the individual's predisposition to the erotic material. However, he goes no further in explicating a role for individual differences in interpreting the erotic stimulus.

Environmental influence theories speak to both micro and macro level processes. The core assertion of these theories is the role of the environment (e.g. media messages) to influence attitudes, cognition or behavior. The individual is molded by the environment and brings no inherent traits to the process. Social learning theory, which arises from the behavioral tradition of Watson and Skinner (Dixon & Lerner, 1984; Muuss, 1988), speaks exclusively about the role of the environment in determining learning (Bandura, 1994). Individuals differ due to interaction with the environment, not because of enduring traits. Social learning theorists

assert, "Any consistency in behavior that can be observed is the result of similarity in the antecedent external social conditions rather than an internal trait." (Muuss, 1988, p. 287) The environment alone drives reactions to social situations.

Other media theories are equally environmentally deterministic in ontology. Cultivation theory "attempts to document and analyze the independent contributions of television viewing to viewers' conceptions of social reality." (Morgan & Signorielli, 1990, p.17) In particular, cultivation theory looks at differences between heavy and light viewers, who are believed to differ, "according to sex, income, education, occupation, race, time use, social isolation/integration, and a host of other demographic and social variables." (Morgan & Signorielli, 1990, p.17) Only sex and race can be considered trait variables; the remainder address environmental influences (although both gender and race are cultural constructions and therefore environmental). Agenda setting examines the role of the media in influencing our perceptions of the salience of various issues (McCombs, 1994). Effects may differ according to the individual's "need for orientation", but need for orientation is not conceived as a trait variable. Rather, it is seen as the interaction between uncertainty (cognitive) and obtrusiveness (a function of the issue relative to personal experience, not the individual) (McCombs, 1994).

Communication research has not been as systematic in examining individual differences as has psychology research. Whereas psychology researchers have carved out a major research area dedicated to creating parsimonious typologies of general individual differences, such as the Big Five personality traits or temperament (Buss, 1995), communication research has tended to see difference in terms of age, ascriptive social categories (gender, race, ethnicity), or achivement orientation categories (e.g. income, education, occupation) (Jeffries, 1997). Often, communication researchers create difference variables "customized" to the communication problem at hand. McCombs and Shaw's "need for orientation" is an excellent example. Need for orientation is a variable created to explain observed differences in agenda setting effects between respondants in the early studies (McCombs, 1994). McCombs and Shaw observed that the media were not having the same agenda setting effect on all the respondants. To explain this communication problem, they concluded that individuals must differ on how much they depend on the media for information (need for orientation). Thus, an individual difference variable was created out of an observed communication problem, not out of a theory-based understanding of how people differ in general. Other such problem specific individual difference variables in the communication literature include: communication apprehension, need for cognition, cognitive complexity/message design logics, and monitors/blunters.

Multi-Level Integration in Psychology Research

When developmental psychology emerged in the nineteenth century, many researchers thought that development was a natural unfolding of a biologically determined sequence of events. Rooted in Darwinian evolutionary thought, early developmental psychologists such as Gesell believed that a developing embryo and the developing child progress through the same stages as evolutionary humankind (Dixon & Lerner, 1984). For example, G. Stanley Hall's theory of recapitulation states that physiological mechanisms move human development through a series of universal, predetermined stages mirroring humankind's evolutionary path from "...animal-like primitivism, through a period of savagery, to the more recent civilized ways of life that characterize maturity" (Muuss, 1988, p. 21). Early development researchers attempted to record these stages of development in order to provide guidelines for what is to be expected at each stage. The descendants of this approach include: Kohlberg's stages of moral development; the stage dependent portion of Piaget's theory of cognitive development; and Erikson's stage theory of identity development. Freud also was a biological determinist, as expressed in his psychodynamic theory in which, "... psychological events are tied to energy, drives and instincts based on biological characteristics." (Muuss, 1988, p. 24) As is clear in the work of Freud and Piaget, these

researchers believed that, while biology determines a sequence of development tied to physiology (i.e. developing brain; hormonal changes in puberty), they do not deny the effect of environmental factors on development. For example, Piaget's stage independent theory stresses the interaction between the individual and the environment (e.g. assimilation, accommodation, etc.).

The opposing position of environmental determinism was philosophically based in the empiricism of Locke (Muuss, 1988). Locke felt that an individual begins life as a *tabula rasa* or "blank slate" and the process of development consists of filling in the blank slate with information garnered through empirical interaction with the world. In this view, societal influence, particularly of the mother, is the primary determinant of development. Modern paradigmatic descendants of this approach include behaviorism (e.g. Watson) and social learning theories (e.g. Miller & Dollard, Bandura). This approach is most dramatically illustrated by a quote from a proponent of this approach, behaviorist John Watson:

> "Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in, and I'll guarantee to take any one at random and train him to become any type of specialist I might select-- doctor, lawyer, artist, merchant-chief, and yes, even beggar man and thief, regardless of his talents, penchants, abilities, vocations, and the race of his ancestors." (cited in Thomas & Chess, 1977, p. 68)

Theories of environmental determinism are based in learning. At the most reductionist, behaviorists give little credit to individuals for choosing their own developmental

trajectory. That is, development is determined by operant conditioning due to a series of rewards or punishments. Social learning theorists are somewhat less deterministic, feeling that the developing child has the ability to choose attractive models to imitate. In both perspectives, individual differences have little to do with the developmental process.

While behaviorists and biological determinists still exist, the vast majority of developmental psychologists embrace a compromise position which stresses that development is a result of the interaction between nature and nurture. This compromise position has been referred to at various times as field theory (Lewin, 1951), interactionism (Thomas & Chess, 1977), contextualism (Lerner, 1987) or ecologicalism (Bronfenbrenner, 1986). Here, it will simply be referred to as the contextualist approach.

The contextual perspective "investigates the complex system of interlinked and interdependent relationships of our biological and social environment." (Muuss, 1988, p. 300) Such a perspective attempts to account for the contribution of biology (e.g. sex, physical appearance, temperament, hormones, etc.) and of the social environment (e.g. parents, peers, culture, etc.). Two key concepts are embeddedness and dynamic interaction (Lerner, 1987). The concept of embeddedness states that humans exist within a context made up of multiple levels of being (inner-biological; individual-psychological; dyadic; social network; community; societal;

cultural; outer-ecological; and historical). At any given time, variables from any and all of these levels may contribute to human functioning. The system is also characterized by dynamic interaction, in which influence occurs across levels of being, with variables at different levels having more or less influence at different times. Hence, the individual has the potential for plasticity, or change across the life-span (Lerner, 1987). Importantly, this perspective stresses that the person is the producer of his/her own development. As such, people have the potential to interpret stimuli in ways that are consistent with their needs, drives and desires. Therefore, the contextual systems perspective sees people as actively shaping their environment, which in the case of media effects, includes interpretation of media or choice to use media in the first place.

Bronfenbrenner's (1976) ecological model of development provides a useful heuristic for understanding contextualism (see Figure 2.1). For Bronfenbrenner, the developmental context is made up of four levels: micro-system; meso-system; exo-system; and macro-system. The system centers around the individual who brings biologically rooted traits to the environment (appearance, intelligence, temperament, physical abilities or infirmities, etc.). Micro-system variables refer to the interrelations between person and environment in the immediate setting, such as peers, family, etc. How do individuals within the person's life react to the person's

appearance, intelligence, etc.? How do the person's parents deal with the person's personality? Meso-system level looks at the relationships between micro-systems allowing analysis of the quality, frequency and influence on interactions between micro-systems. Do parents get along with peers? Do siblings approve of peers? Exo-system variables represent an extension of the meso-system embracing other social structures. Importantly, these variables do not themselves contain the person, but impact on the setting in which the person is found, such as a school board or a parent's employer. For example, a school board makes decisions that affect a student even though the student has little effect on the school board. Macro-system variables represent the cultural or ideological blueprint that underlies the organization of institutions in a society such as the Judeo-Christian tradition, national mass media, the Constitution, etc. Macro-system variables determine the cultural standards for what is permissible and/or fashionable, in addition to creating an economic milieu in which the individual and the individual's parents and friends must survive. For example, government determined full employment in China makes different demands upon people than the individually chosen competitive employment in the U.S.

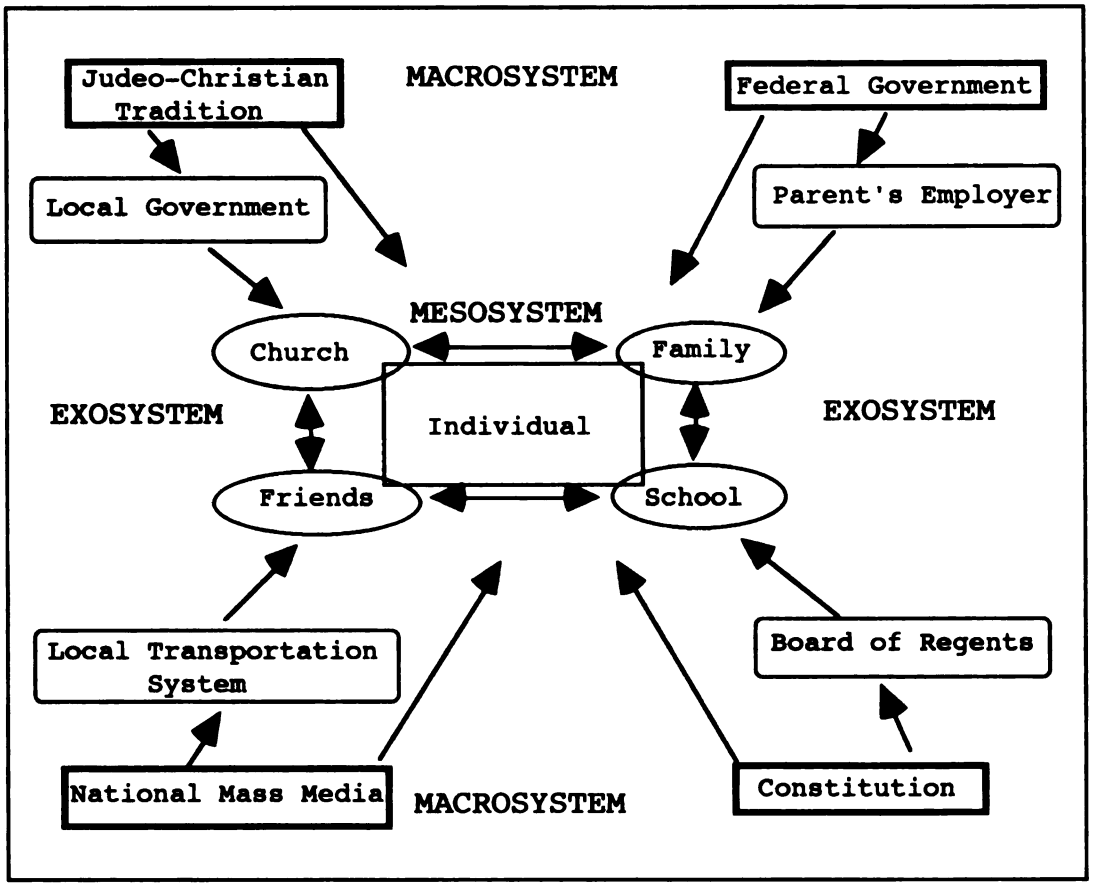

Figure 2.1. Bronfenbrenner's Ecological Model (adapted from Muuss, 1988)

With the advent of the contextualist paradigm, developmental psychologists have discovered patterns of development resulting from the interaction of biologically determined individual differences and the individual's environment in a variety of contexts. For example, there is ample evidence that physical appearance affects teacher attitudes and responses to students. Studies have shown that males often are given more attention by teachers than female students, particularly in math, resulting in higher achievement (Leinhardt, Seewald, & Engel, 1979). Additionally, teachers tend to rate handsome, well-kept children higher than less attractive, sloppy children (Lerner & Lerner, 1977; Lerner, Lerner, Hess, & Schwab, 1991). In a separate example, it is now suggested that biology may interact with the environment to determine sexual orientation. A new and controversial theory states that sexual orientation can be explained by the interaction between the biologically rooted individual differences in temperament and peer group acceptance/socialization (Bem, 1996). Biology-environment interactions are also implicated in a large body of literature examining changing social environments for adolescents entering puberty at different ages (Brooks-Gunn & Reiter, 1990). For example, the puberty literature examines how early or late pubertal change affects opportunities students have to participate in extra-curricular activities such as sports (Brooks-Gunn, Petersen, & Eichorn, 1985).

Social psychologists also have begun embracing a contextualist paradigm (e.g. Georgoudi & Rosnow, 1985, Jaeger & Rosnow, 1988, Rosnow & Georgoudi, 1986). For the social psychologist, the basic assumption of contextualism is that, "... human acts or 'events' are active, dynamic, and developmental moments of a continuously changing reality. Individuals are here accorded a primarily intentional role rather than a passive or reactive one in this process of change." (Jaeger & Rosnow, 1988, p. 65) Importantly, this perspective does not see human volition as the sole determinant of behavior. Rather, human action is both causal and teleological; people act out of both reaction and intention, "within the context of an historical, cultural and social milieu that is itself in transition." (Jaeger & Rosnow, 1988, p. 66) This position does not view context as synonymous with environmental situations or stimuli, as communication research traditionally does. Rather, contextualism refers to the ongoing processes of interaction across multiple levels of human being. The individual action cannot be separated from the context that gives rise to it in the same way that one cannot imagine, "smiles alongside or beside faces" (Bhaskar, 1983 cited in Jaeger & Rosnow, 1988).

Contextualism in Mass Communication Research

Contextualism is slowly beginning to gain a foothold in communication science. Ritchie and Price (1991) argue that mass communication research, by its nature, must look for

interactions across levels of analysis, particularly because we are interested in how messages constructed at the macro level impact individuals on the micro level. Pan and McLeod (1991) provide a heuristic for conducting this type of research, examining cross level linkages that are explicitly and implicitly stated in knowledge gap, spiral of silence and cultivation theories. Perry (1988) argues specifically for a contextualist approach to media effects research based on the contextualism of McGuire, stating that most media effects theories are true, but only in limited circumstances. In Perry's article, researchers are called upon to discover the circumstances in which various effects theories are most valid. In a separate application, a contextual approach has also been advocated for formative research for domestic, prosocial media interventions (Sherry, 1996).

One mass media tradition embraces a contextualist meta-concept, at least at the paradigmatic level. Originally conceived to understand what motivated people to use media, uses and gratifications research has enlarged its scope to include both uses and effects (Rubin, 1986). Importantly, uses and gratifications considers variables across multiple levels of analysis, focusing on the impact of both individual differences and societal variables on media use and media effects.

Beginning in the 1940's, uses and gratifications researchers sought to discover the reasons why people chose to use the media and what gratifications they received from

media use. Herzog's (1944) examination of reasons why women listened to radio soap operas is often credited with being the first major uses and gratifications study. Based on data from four large surveys, Herzog identified three gratifications listeners received from listening to the radio soap operas: emotional release at hearing about others who had similar problems; vicarious satisfaction of hearing about lives that were more joyful than theirs; and social learning about how to handle problems. Herzog examined several individual differences in the personalities of the listeners, but was unable to draw strong conclusions due to insensitive measurement.

In 1961, Schramm, Lyle and Parker published another major uses and gratifications study, Television in the Lives of Our Children. They suggested, "In order to understand television's impact and effect on children, we have first to get away from the unrealistic concept of what television does to children and substitute the concept of what children do with television." (p. 169) To this end, they identified three reasons why children watched television: entertainment, information, and social utility. Since the Schramm, et al. study, many researchers have identified similar uses and gratifications, expanding on their research in a number of smaller studies. In the ensuing 36 years, edited volumes (Blumler & Katz, 1974; Rosengren, Wenner, & Palmgreen, 1985); special editions of journals (Journal of Social and Behavioral Sciences, 1996:1; Journal of Broadcasting and

Electronic Media, 31:3; Communication Research, 6:1) and many book chapters (e.g. Palmgreen, Wenner, & Rosengren, 1985; Rubin, 1986; Rubin, 1994) have presented up-to-date summaries of findings and critiques of the approach. Perhaps the clearest formulation of the paradigm is provided in the edited volume by Blumler and Katz (1974).

Uses and Gratifications Paradigm

The classic formulation of the uses and gratifications paradigm states that uses and gratifications researchers are interested in, "... (1) the social and psychological origins of (2) needs, which generate (3) expectations of (4) the mass media or other sources, which lead to (5) differential patterns of media exposure (or engagement in other activities), resulting in (6) need gratifications and (7) other consequences, perhaps mostly unintended ones." (Katz, Blumler, & Gurevitch, 1974, p.20) Rosengren (1974) presents a complete model of the uses and gratifications paradigm (see Figure 2.2). Essentially, basic needs (1), individual differences (2), and societal contextual factors (3) combine to result in needs and motivations (4-6); to which gratifications are sought from the media (7) and elsewhere (8) leading to differential patterns of media effects (9) on both the individual (10) and societal (11) levels.

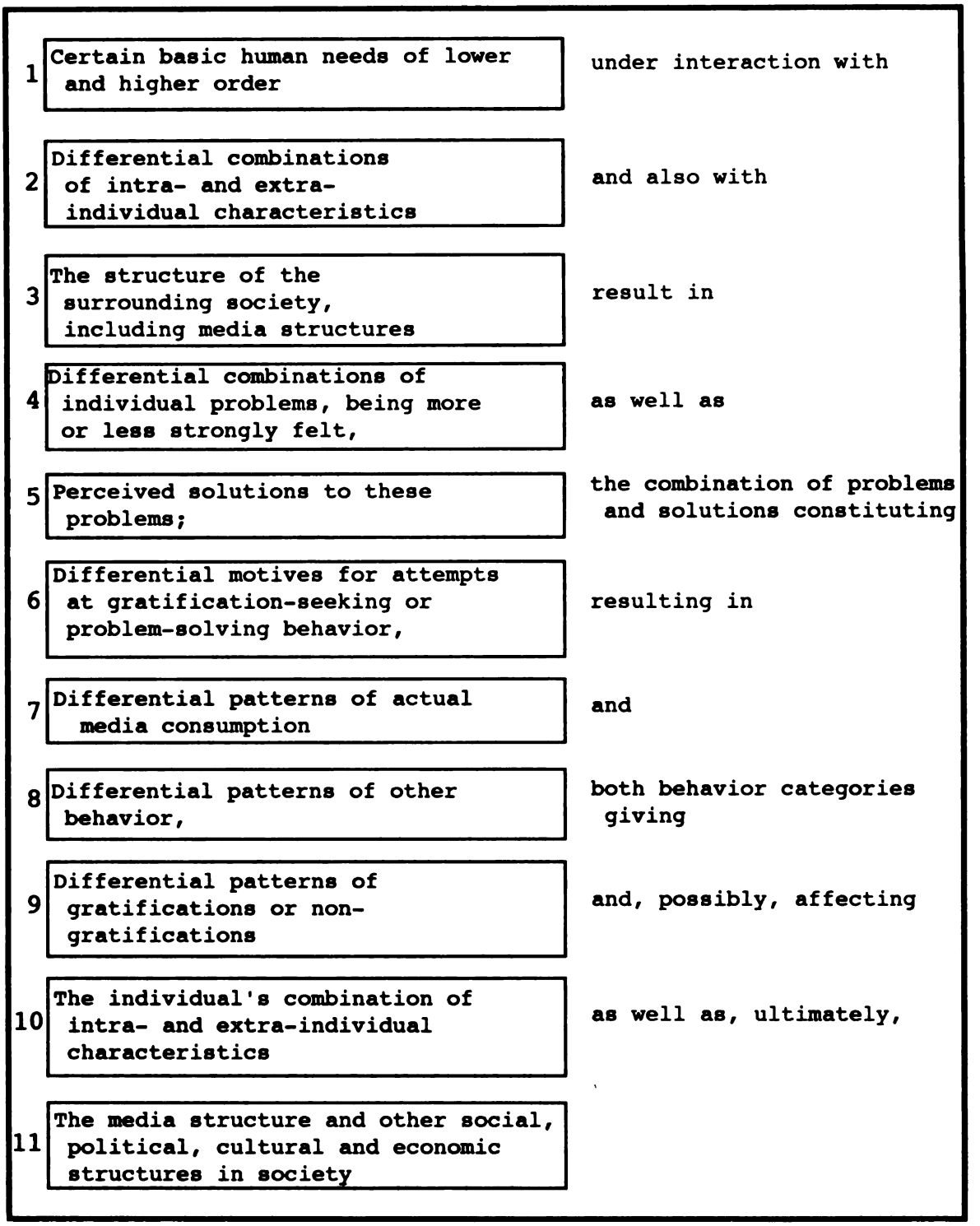

Figure 2.2. Uses and Gratifications Paradigm (adapted from Rosengren, 1974)

The uses and gratifications paradigm makes several assumptions about the audience. These assumptions are:

> "(1) the audience is active, thus (2) much media use can be conceived as goal-directed, and (3) competing with other sources of need gratifications, so that when (4) substantial audience initiative links needs to media choice, (5) media consumption can fulfill a wide range of gratifications although (6) media content alone cannot be used to predict patterns of gratifications accurately because (7) media characteristics structure the degree to which needs may be gratified at different times, and further because (8) gratifications obtained have their origins in media content, exposure in and of itself, and/or the social situation in which exposure takes place." (Palmgreen et al., 1985, p. 14)

To date, uses and gratifications research has been primarily taxonomic, focusing primarily on numbers 4 through 7 in the Rosengren model (Rubin, 1994). From this research, a wide array of taxonomies have emerged, sorting uses and gratifications according to entertainment genre (Abelman, 1987; Babrow, 1987; Gantz, 1996); motivation type (Atkin, 1985; Rubin, 1985); differences by media type (Greenberg & Hnilo, 1996; Selnow, 1984); differences by country (Greenberg, Li, Ku, & Tokinoya, 1991; Tokinoya, 1996; Youichi, 1996); etc. While typologies differ by media type and genre, a core of dominant uses and gratifications have emerged relative to general television use. Table 2.1 demonstrates some of the most widely cited taxonomies of general television use generated to date, following the original Schramm, et al. explication.

Table 2.1. Gratifications of General Television Viewing

Schramm (1961)	Greenberg (1974) also Rubin (1979)	Rubin (1981)	Greenberg & Hnilo (1996)
entertainment	arousal pass time relaxation	entertainment pass time relaxation escape/forget arousal	Diversion pass time relaxation escape
information	learning	information	Learning social learning surveillance
social utility	companionship	companionship social interaction	Social excitement company excitement
	forget habit	program content	

Factors in these typologies can be distinguished by type of motivation theorized. Atkin (1985) offers a distinction between media "uses" and "gratifications". According to Atkin, media gratifications are "... transitory mental or emotional responses providing momentary satisfaction at an intrinsic level." (p. 63) Therefore, gratifications are related to the entertainment and social utility variables from the various taxonomies (e.g. relaxation, pass time, companionship, etc.). Media uses are, "...characterized by anticipated postexposure application of the mediated experience to attaining pragmatic goals (this is sometimes termed 'delayed gratification')." (p. 63) Thus, gratification are more teleological in orientation, such as the learning variables in the taxonomy.

These distinctions provide useful description of people's media use motivations, but typologies alone do not constitute useful theory. In order to give explanatory and predictive power to the uses and gratifications paradigm outlined by Rosengren, these typologies must be linked to variables at the beginning (e.g. steps 1-3) and the end of the model (steps 7-11). Rubin (1994) and others have begun the process of making linkages to the end of the model. The following section will examine progress toward linking the typologies to the beginning of the model, which is the purpose of this dissertation.

Individual Differences and Uses and Gratifications

While uses and gratifications researchers have been active in creating taxonomies of media uses and in investigating linkages between motives and use (Greenberg, 1974; Rubin, 1979; Rubin, 1985; Rubin, 1983), little work has been done on the individual differences that lead to media use motivations (steps 2, 3 and 4 in Rosengren's model). One of the few individual variables that has been examined relative to motivation for media use is personality. Recently, Finn (1997) looked at the relationship between the "Big Five" personality factors (neuroticism, extroversion, openness, agreeableness, and conscientiousness) and use of four different media: television, radio, print and movies. Controlling for the effects of other personality factors, he found a positive relationship between openness and both

pleasure reading (ß= .34, p<.001) and movie viewing (ß=.17, p<.05); a negative relationship between openness and television viewing (ß= -.18, p<.05); and a negative relationship between extroversion and both pleasure reading (ß=-.31, p<.001) and movie viewing (ß=-.17, p<.05).

Finn and Gorr (1988) tested the relationship between six personality measures (shyness, loneliness, self-esteem, perceived availability of someone to talk to, perceived availability of material aid and perceived availability of people to do something with) and motivations for television viewing. They found a significant positive relationship between social compensation motives for television viewing (e.g. companionship, habit, pass time, and escape) and shyness (r=.30, p<.001) and a negative relationship between social compensation motives for television viewing and self-esteem (r=-.24, p<.001). These findings suggest that shy people with low self-esteem may seek media as a substitute for human interaction. Mood management motives for television viewing (relaxation, entertainment, arousal, information) were positively related to perceived availability of someone to talk to (r=.20, p<.001), perceived availability of people to do something with (r=.11, p<.05), and shyness (r=.11, p<.05); and were negatively related to loneliness (r=-.18, p<.001). Taken as a whole, these results suggest people may use television for mood management if they are shy, but not lonely.

Perse and Rubin (1990) also examined the relationship between media use and loneliness via a secondary analysis of data from earlier studies on soap opera use (Rubin & Perse, 1987) and television news use (Rubin, Perse, & Powell, 1985). They found that chronically lonely people were more likely to listen to the radio and to watch movies and television than the non-lonely. Further, lonely people reported greater Pass Time motivation for soap opera and news viewing. More recently, Canary (1993) reported that chronically lonely people differ from the non-lonely in that they rely less on the media for escape motivation and have less motivation for soap opera viewing.

Other studies have looked at the relationship between self-esteem and media use. Dominick (1984) found that self-esteem was negatively related to both television viewing ($r= -.21$, $p<.05$) and arcade videogame play ($r= .19$, $p<.05$) in a sample of high school students. However, two other studies were unable to find a significant correlation between self-esteem and videogame use (Fling, Smith, Rodriquez, Thornton, Atkins, & Nixon, 1992; Gibb, Bailey, Lambirth, & Wilson, 1983). Fling, et al. (1992) found no correlation between self-esteem and amount ($r=.07$, n.s.) or frequency ($r=.09$, n.s.) of video game play for sixth through twelfth graders. Gibb, et al. (1983) surveyed 280 video game users who were approached in arcades located throughout five states. They found no significant differences between high and low video game users on the personality dimensions of self-esteem/self-

degradation; social deviancy/social conformity; hostility/kindness; social withdrawal/gregariousness; obsessive/compulsive; and achievement orientation. It should be noted that the survey was conducted in arcades and therefore the subjects were self-selected into the study. An alternate explanation for the finding is that individual differences may lead some people to be attracted to arcades and others to avoid arcades.

Other personality factors have also been examined relative to media use. Donohew, Palmgreen and Rayburn (1987) looked at the relationship between need for arousal and cable viewing gratifications sought in an adult sample (mean age=39). Using Q factor analysis, they sorted subjects into four lifestyle groups and looked at cable viewing and gratifications sought within groups. Unfortunately, correlational statistics were not reported so it is impossible to discern the association between need for arousal and the gratifications sought. However, the group that reported the highest need for cognitive activation also sought the highest level of surveillance and local orientation gratifications, suggesting a cognitive link between need for arousal and certain types of media use. The group reporting the highest need for sensation activation was not the highest in any gratification dimension and was lowest on eight of eleven gratification dimensions. Instead, this group sought stimulation from attending parties, concerts and art galleries and engaging in sports. Conway and Rubin

(1991) looked at a similar individual difference trait, sensation seeking, among other personality factors. In a sample of adults age 18-86, they found that parasocial interaction, anxiety, creativity and sensation seeking were the best predictors of television use motivation. There was no such relationships for authoritarianism, attributional complexity, locus of control or assertiveness. Perse (1996) also looked at sensation seeking relative to television use motivation. While she found no significant difference in the amount of television use between high sensation seekers and low sensation seekers, she found that high sensation seekers were more likely to prefer arousing programs such as action-adventure or music programs. High sensation seekers are also more likely to watch television for ritualistic purposes, change channels more often and change channels out of boredom or to seek arousing content.

To date, media researchers have not demonstrated a strong link between personality traits and media use (Finn, 1997). Personality is a particularly complex construct because it is believed to be a result of the interaction between heritable traits (nature) and social interaction (nurture) (Buss, 1995; Buss & Plomin, 1984). A better approach may be to examine an individual difference variable that is operationalized as a heritable trait. While the contextualist paradigm would argue that the influence of the social environment cannot be removed, a heritable trait will provide a more direct measure of biologically-based

individual differences than personality. Such an individual difference variable would need to meet certain criteria to be considered for examination here. First, because we are concerned with media behavior, the focal variable would need to be linked to differences in behavior between individuals. Second, because media uses and media gratifications sought are often associated with emotional outcomes (e.g. arousal, social compensation, etc.), such a variable should have strong linkages to the emotional centers of the brain. Finally, the variable should be fairly stable across the life span to explain long term patterns of media use. One variable which meets these three criteria is temperament.

Temperament

Most parents can tell how their children differ from each other, even from a very early age. These differences are largely related to how children react to stimuli such as new food or strangers, or in the regularity of children's bodily functions (e.g. naps, feedings). A great deal of research has been done to determine the reasons that children differ and what effect the differences have on future development. These differences are commonly referred to as "temperament". Despite, or perhaps because of, the large amount of attention that temperament has received, researchers have not been able to reach a consensus definition (Bates, 1989). A review of the literature suggests that there are as many conceptualizations of

temperament as there are major researchers in the field. Bates (1989) attempts to create a common definition of temperament by distilling the various ideas, stating that temperament:

> "...consists of biologically rooted individual differences in behavior tendencies that are present early in life and are relatively stable across various kinds of situations and over the course of time" (p. 4).

Prominent temperament researchers Alexander Thomas and Stella Chess (1989) define temperament as, "... the *how* rather than the *what* (abilities and content) or the *why* (motivations) of behavior." (p.9) Behavioral geneticists Buss and Plomin (1975) assert that temperament, "... is concerned more with style than with content, more with expressive behavior than with instrumental (coping) behavior, and more with what a person brings to a role or situation than what either of these demand of him." (p. 7) In Eastern Europe, the Warsaw school of temperament came to define temperament in terms of central nervous system reactivity, based in the theoretical typologies of Pavlov (Strelau, 1989).

Two prominent schools of temperament research emerged contemporaneously in North America and Eastern Europe. North American research centers around the New York Longitudinal Study (NYLS) conducted by Thomas and Chess beginning in the late 1950's. Eastern European research is rooted in Pavlovian typological study of central nervous system reactivity and is most strongly represented by work done by Strelau and his colleagues at the University of Warsaw. Both schools demonstrate a strong tradition of research and show

some construct overlap. They need to be considered in depth to understand the meaning and implications of temperament as a construct.

The New York School Child psychiatrists Alexander Thomas and Stella Chess noticed a high degree of behavioral variation among the children they saw in their New York City practice, as well as in their own children (Thomas & Chess, 1977). As clinicians, they found it difficult, "... to make a direct correlation between environmental influences, such as parental attitudes and practices, and the child's psychological development." (p. 4) They watched children with good parents experience poor outcomes, even as other children had healthy development despite severe parental disturbance, family disorganization and social stress. To understand this phenomenon better, they launched one of the largest longitudinal studies in the history of developmental psychology, the New York Longitudinal Study (NYLS).

In the NYLS, Thomas and Chess (1977) followed 85 upper-middle class families, beginning in 1956 and continuing today. Along the way, they also ran studies of 95 working class Puerto Rican children, 68 children born pre-maturely, 52 mildly retarded children, and 243 children with congenital rubella resulting from the rubella epidemic of 1964. Data were collected primarily from parents, although additional data were obtained from teachers, direct observation of the subjects in school, and interviews with the children. From this intensive research effort, nine dimensions and three

constellations of temperament emerged. The dimensions, as defined by Thomas and Chess (1977), are as follows:

> "1) Activity level: the motor component present in a given child's functioning and the diurnal proportion of active and inactive periods. Protocol data on motility during bathing, eating, playing, dressing and handling, as well as information concerning the sleep-wake cycle, reaching, crawling and walking are used in scoring this category.
> 2) Rhythmicity (regularity): the predictability and/or unpredictability in time of any function. It can be analyzed in relation to the sleep-wake cycle, hunger, feeding pattern and elimination schedule.
> 3) Approach/Withdrawal: the nature of the initial response to a new stimulus, be it new food, new toy or new person. Approach responses are positive, whether displayed by mood expression (smiling, verbalizations, etc.) or motor activity (swallowing a new food, reaching for a new toy, active play, etc.). Withdrawal reactions are negative, whether displayed by mood expression (crying, fussing, grimacing, verbalizations, etc.) or motor activity (moving away, spitting new food out, pushing new toys away, etc.).
> 4) Adaptability: responses to new or altered situations. One is not concerned with the nature of the initial responses, but with the ease with which they are modified in desired directions.
> 5) Threshold of Responsiveness: the intensity level of stimulation that is necessary to evoke a discernible response, irrespective of the specific form that the response may take, or the sensory modality affected. The behaviors utilized are those concerning reactions to sensory stimuli, environmental objects, and social contacts.
> 6) Intensity of Reaction: the energy level of response, irrespective of its quality or direction.
> 7) Quality of Mood: the amount of pleasant, joyful and friendly behavior, as contrasted with unpleasant, crying and unfriendly behavior.
> 8) Distractibility: the effectiveness of extraneous environmental stimuli in interfering with or in altering the direction of the ongoing behavior.
> 9) Attention Span and Persistence: two categories which are related. Attention span concerns the length of time a particular activity is pursued by the child. Persistence refers to the continuation of an activity in the face of obstacles to the maintenance of the activity direction." (pgs. 21-22)

Three constellations of these traits emerged from further analysis of the data. These constellations represent

significant behavioral types: the Easy Child, the Difficult Child and the Slow-To-Warm-Up Child. The Easy Child is typified by regularity, positive approach to new stimuli, high adaptability and a mild, positive mood. These children adopt rules easily and are a joy for parents to raise. The Difficult Child represents the opposite end of the spectrum: irregular; negative withdrawal to stimuli; non-adaptability; and intense, negative mood expressions. These children are difficult to parent and often present behavioral problems in later life. The Slow-To-Warm-Up Child is typified by a mild intensity, negative response to new stimuli. Often, if given enough time, these children will adapt to the new stimuli.

Central to the New York School approach to temperament is the concept of "goodness-of-fit". According to this concept, behavioral deviance results from a poor fit between temperament and the environment. This is most clearly seen in the Difficult Child, whose lack of rhythmicity and loud outbursts can cause parents to spend less time with these children or even to dislike them, particularly in a white, upper-middle class context. The neglected, disliked child never learns to handle his behavioral style in a socially acceptable manner at home and this behavior is brought to school with additional negative consequences. Interestingly, the difficult temperament can be adaptive in other environments. DeVries (1984) found that children with a difficult temperament were more likely to survive in a famine region of Africa because the loud, demanding outbursts caused

parents to respond to them more frequently than to the less demanding easy temperament child. Within that society, the difficult temperament children were perceived as strong warriors.

Regulative Theory of Temperament Strelau's (1989) Regulative Theory of Temperament (RTT) defines temperament as, "... relatively stable features of the organism, primarily biologically determined, as revealed in the formal traits of reactions which form the energy level and temporal characteristic of behaviour." (p. 171) Despite his emphasis on neuro-biology and his background in Pavlovian typological research, Strelau is not a constitutionalist with regard to temperament. Whereas Pavlov's conception of temperament was a physiological one, centered on the activity of the central nervous system and highly resistant to change, Strelau embraces an interactionist paradigm of, "...reciprocal relationship between humans and their environment, where human activity plays the most important role in regulating these relations." (p. 170) In fact, the core belief of Strelau's theory of temperament is that human behavior is an effort to regulate the effect of environmental influence on the energetic and temporal predispositions of temperament.

Temperament is conceived as having two primary dimensions: energetic level and temporal characteristics. Energetic level plays a central role in Strelau's RTT, as well as in other conceptions of temperament (e.g., Buss & Plomin, 1975; Gray, 1991; Thomas & Chess, 1989). Strelau

states, "There are two basic dimensions responsible for individual differences in energetic level of behavior--reactivity and activity." (p. 176) Reactivity is viewed as a primary temperament trait that reveals itself in the individual's intensity of reaction. Intensity of reaction is composed of sensitivity to stimuli (threshold) and by endurance (ability to react adequately to strong or long-lasting stimuli) (see Figure 2.3). Individuals can be categorized as relatively high reactive (high sensitivity, low endurance) or relatively low reactive (low sensitivity, high endurance). In high reactive individuals, reactivity enhances stimulation; while in low reactive individuals reactivity suppresses stimulation resulting in a low level of arousability.

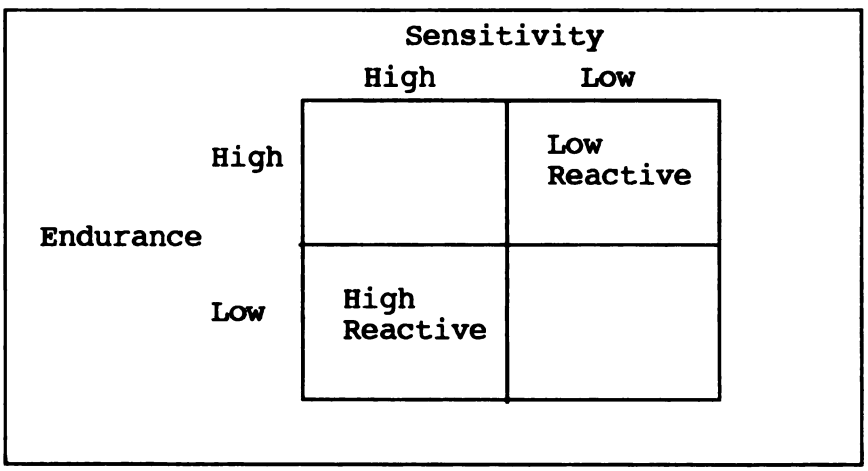

Figure 2.3-- RTT Model of Reactivity (intensity of reaction)

Activity is the behavioral consequent of reactivity in which the organism seeks equilibration through the stimulus

level of the activity. Strelau feels that "maintenance of an optimal level of arousal is one of the individual's basic needs." (p. 41) This maintenance is achieved either by seeking out activity for stimulation or avoiding activities which have too high a level of stimulation. Therefore, high reactive individuals seek out low stimulation activities, while low reactive individuals need high stimulation activities to maintain the optimal level of arousal (see Figure 2.4). Level of stimulation inherent in the activity is composed of the degree of difficulty and complexity in the performance of the activity.

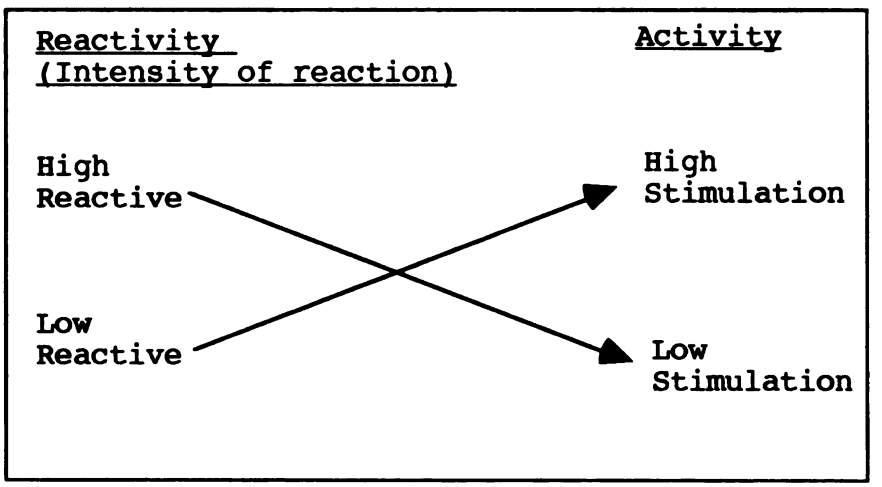

Figure 2.4-- Reactivity and Activity

According to Strelau, "temperament determines to a large extent whether the individual prefers activities of high or low stimulative value." (p. 41) Therefore, we should expect differences in both choice of activity and in behavioral performance based on the stimulation level of the activity.

In support of this idea, Danielak (1972, cited in Strelau, 1983) demonstrated that low reactive individuals were much more likely to choose high stimulation occupations such as lawyer than high reactive individuals who were predominantly found in the low stimulation profession of librarian. In a separate study, Popielarska (1972, cited in Strelau, 1983) found that low reactive individuals were significantly more likely to be involved in high stimulation activities such as mountain climbing and glider piloting than high reactive individuals who preferred not to participate in any sport. Eliasz (1981, cited in Strelau, 1983) found that steelworkers who worked under high stimulation conditions had a significantly lower level of reactivity than those working in low stimulation conditions.

An interesting correlate of these studies has been proposed in Western research. Scarr and her colleagues (Scarr, 1985; Scarr & McCartney, 1983) suggest that correlations between temperament and environmental factors may be due to "niche-picking". Niche-picking refers to the ability of individuals to choose environments that are most comfortable to them (e.g. college students who are good with numbers deciding to major in mathematics instead of English). While early studies supported the goodness-of-fit model (Lerner, Lerner, & Zabski, 1985; Lerner, Nitz, Talwar, & Lerner, 1989) a more recent study has demonstrated that the niche-picking model applies better to personality variables such as perceived confidence and depression (Windle, Hooker,

Lernz, East, Lerner, & Lerner, 1986). Importantly, the goodness-of-fit studies used preschool and elementary school subjects, while the niche-picking study used early and late adolescents. Younger children lack the ability to niche-pick because their environment is most often determined for them by parents and other adults. As children move into adolescence, their increased independence should allow them to niche-pick more.

Temperament and Media Use

Despite the prominence of temperament in the development literature and its potential for explaining and predicting media use and effects, there is only one study in which temperament was specifically measured as a predictor of media use (Plomin et al., 1990). This study was designed to delineate the causes of individual differences in television viewing among 3, 4, and 5 year-olds by looking at correlations between television viewing and parental media use, sibling media use, temperament and intelligence in parent-offspring and sibling adoption design samples. Plomin, et al. (1990) obtained low correlations (.08 to -.08) between their measure of temperament and television viewing (parent reported average number of hours of viewing per week). Temperament was measured using the Buss and Plomin EASI scale (Buss & Plomin, 1984) which measures the dimensions of emotionality, activity, sociability and impulsivity. The operationalization of emotionality consists

of arousal, reactivity and excitability. As Buss and Plomin (1984) state, "The emotional person is aroused easily and reacts intensely." (p.55, emphasis added) This definition is similar to the Strelau operationalization of intensity of reaction. Unfortunately, the Plomin, et al. study looks at media use among a subject pool that cannot niche-pick and has little control over their own television viewing behavior (3, 4 & 5 year olds). Because of the subject pool and the demand characteristics involved in questioning parents about young children's media use, the Plomin, et al. measure of media use probably more closely approximates parental judgment of the appropriate amount of child television viewing (which we would not expect to correlate with any measure of the child's temperament).

Other studies measured constructs that were similar to temperament dimensions. Lin and Lepper (1987) found a strong positive relationship between children's reported usage of arcade video games and teacher ratings of impulsivity ($r=.34$, $p<.0001$). However, there was no such relationship between home video game play and impulsivity ($r=.09$, n.s.). This suggests that impulsivity is not related to video game play per se, but to the type of youngster who is likely to go to an arcade. Irwin and Gross (Irwin & Gross, 1995) also looked at impulsivity, although in an experimental setting. Here, impulsivity is defined as "...a behavior pattern marked by distractibility, attention deficits and an inability to conform to structure." (Hollan & Beck, 1986, quoted in

Irwin, 1992) While they found some limited evidence for a modeling effect from violent video game play, impulsivity was not implicated in the effect. Finally, a survey of 336 high school students found that those who preferred video games also like playing competitive sports while people who did not like video games preferred noncompetitive activities and talking (McClure & Mears, 1984). In this case, video game users and non-users are divided along the activity temperament trait in a similar manner as has been found in the Polish temperament studies.

Chapter 3

RESEARCH MODEL AND HYPOTHESES

Research Model

The uses and gratifications paradigm is expressly contextualist, even though research to date has not been pursued in a contextualist manner. Synthesizing temperament within the uses and gratifications model outlined by Rosengren is fairly straightforward. Temperament can be inserted as an intra-individual variable which interacts with environmental factors to form gratifications sought from media use (see Figure 3.1). These gratifications sought can only be satisfied if the proper environmental factors exist, such as the availability of desired media. Assuming appropriate media are available, we would expect consumption consistent with the demands of temperament and environment, relative to the desired gratification. From this consumption, we would hypothesize effects consistent with demands of temperament and environment, including reinforcement of gratifications sought. Like contextualism, the uses and gratifications paradigm is an open systems model. Therefore, we would expect continual interaction across the individual's life span among the variables. The

paradigm theorizes that these interactions may be axiomatic, particularly between direct linkages (Rosengren, 1974).

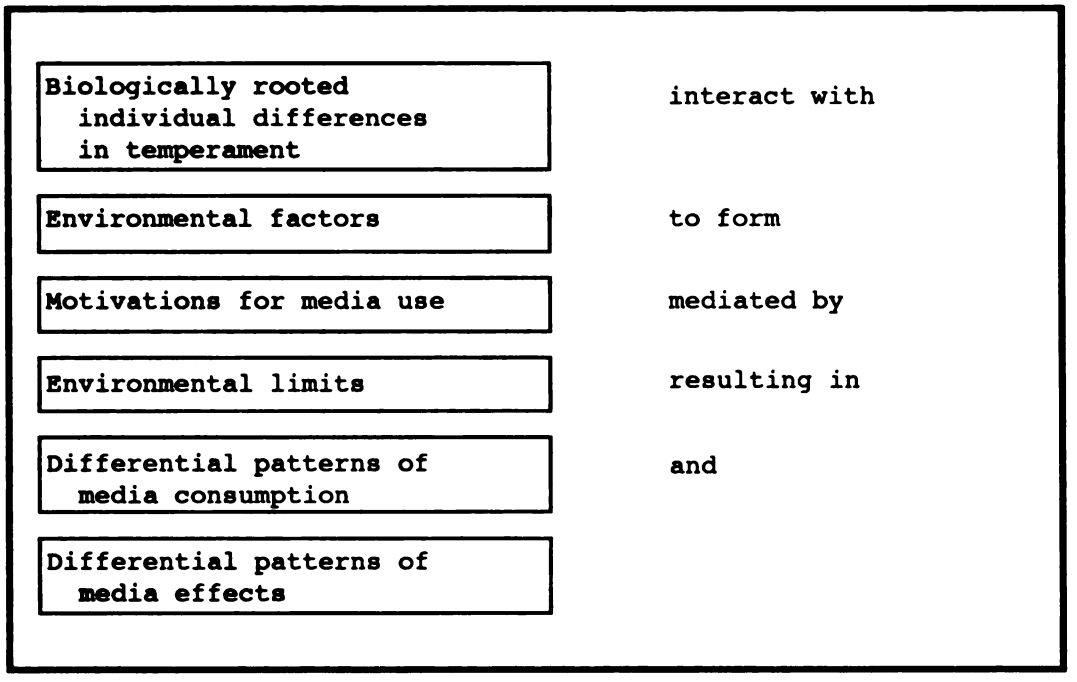

Figure 3.1. Uses and Gratifications Model with Temperament

In order for linkages within the system to be axiomatic, they must satisfy rules of causality. However, rules for causality were created for positivistic, closed systems such as those found in the physical sciences. Mill outlined three criteria for determining causality: 1) time order (the cause must proceed the effect in time); 2) covariation between variables; and 3) elimination of other possible explanations (Cook & Campbell, 1979). The linkage between temperament and subsequent media use variables satisfies the first criterion by definition. That is, temperament is present from birth

and believed to be relatively stable across the life span (Bates & Wachs, 1994). Davis (1985) provides rules for determining time order in correlational designs. The case of temperament satisfies Davis's Rule 1d:

> "If X is relatively stable, hard to change, or fertile, while Y is relatively volatile, easy to change, or has few consequences, run the arrow from X to Y." (p. 14)

In this case, temperament is the predictor variable, X, and media use is the criterion variable, Y. Mill's second criterion, covariation, will be observed in the research process.

Mill's third criterion, elimination of all other explanations, is the most difficult criterion for the present research. The reason for controlling other possible explanations is to avoid spurious relationships. Originally, this criterion was intended for use with closed system, physical science models in which complete control can be exerted over experimental environment, measurement, and manipulation of the independent variable (Cook & Campbell, 1979). However, the uses and gratifications paradigm is an open system model in the social sciences. Therefore, exerting complete control over all other factors is very difficult. The Methods chapter will outline attempts at controlling other factors through choice of sample and questionnaire design.

Focal Research Question and Hypotheses

Because this is a previously unexplored area of research, this study can best be described as theoretically driven exploratory research. That is, while the uses and gratifications paradigm predicts that an individual difference variable such as temperament should drive motivations for media use, patterns of media consumption and media effects, it does not predict how the temperament traits are related to the variety of consequent variables. Nor does the temperament research predict how these variables will be related.

The uses and effects model outlined above (Figure 3.1) is too complex to examine it its entirety. Therefore, the research question must be scaled down. Key variables of interest in the model include temperament, media use motivations, actual media consumption and media effects. An exploratory study such as this is best concerned with the most direct relationships predicted by the model. Therefore, the focal research question for this study is:

> "What is the relationship between temperament traits and media uses and gratifications?"

Hypotheses are generated based on the existing research on the relationship between personality variables and media use motivations. Temperament traits will be taken from research based in the NYLS tradition because the best explication and variety of traits is available from this research stream (Windle & Lerner, 1986). These dimensions are outlined in

detail in the preceding chapter. Television use motivations will be taken from the taxonomy of general television uses and gratifications created by Greenberg (1974) and adapted extensively throughout the uses and gratifications literature. These motivations include: pass time; diversion; learn about things; learn about oneself; arousal; relaxation; companionship; and habit.

Some tentative hypotheses can be suggested linking temperament traits to media use motivations. These hypotheses do not represent an exhaustive list, but rather an initial attempt to list possible relationships where theory and research do not provide a firm direction. Systematic analysis will examine all possible combinations of temperament traits and media use motivations.

Activity level Strelau states that activity level is driven by underlying reactivity to stimuli. That is, high reactive individuals are less active, while low reactive individuals are more active and seek out arousal. This suggests the following hypotheses:

H_1: High activity level individuals will report greater arousal motivation for television use than low activity level individuals.

H_2: Low activity level individuals will report greater relaxation motivation for television use than high activity level individuals.

Approach/Withdrawal Approach and withdrawal are believed to be temperament traits that drive the personality

trait of shyness. Research has shown that shy people report stronger social compensation motivations for media use (Canary, 1993; Finn & Gore, 1988). Therefore, we would expect:

H_3: High approach level individuals will report lower companionship motivation for television use than low approach individuals.

H_4: High approach level individuals will report lower diversion motivation for television use than low approach individuals.

H_5: High approach level individuals will report lower pass time motivation for television use than low approach individuals.

Rhythmicity Individuals who are high in rhythmicity show consistency of behavior and activities. Therefore, we would expect:

H_6: High rhythmicity level individuals will report higher habit motivation for television use than individuals who are low in rhythmicity.

Mood There has been some research linking mood to television viewing. Meadowcroft and Zillmann (1984, cited in Zillmann & Bryant, 1985) found that women in negative moods (premenstrual and during menses) were more likely to choose to watch television comedy than women in more positive moods (other times in their menstrual cycles). A similar finding has been obtained for pregnant women (Helregel & Weaver,

1989). This suggests that people may use television to moderate their moods. Therefore we would expect:

H_7: Individuals reporting negative mood temperament will report higher escape motivation for television use than individuals with more positive mood temperament.

Task Orientation Task oriented people may not use television ritualistically, such as to escape from duties or to pass time. Rather, these individuals may use television instrumentally, perhaps to acquire information. Therefore, we would expect:

H_8: High task oriented individuals will report less use of television to pass time than low task oriented individuals.

H_9: High task oriented individuals will report less use of television for diversion than low task oriented individuals.

H_{10}: High task oriented individuals will report less use of television for relaxation than low task oriented individuals.

H_{11}: High task oriented individuals will report greater use of television to learn about things than low task oriented individuals.

Flexibility/Rigidity Similar to the Task Orientation dimension, we would expect rigid individuals to make less ritualistic use of television, perhaps instead demonstrating habitual use patterns. Therefore, we would expect:

H_{12}: Low flexibility individuals will report less use of television for diversion than highly flexible individuals.

H_{13}: Low flexibility individuals will report less pass time use of television than highly flexible individuals.

H_{14}: Low flexibility individuals will report greater use of television for habit than highly flexible individuals.

Chapter 4

METHODS

The previous chapter established that this is an exploratory study, primarily focused on examining correlations between two multi-dimensional variables. This chapter outlines procedures, sample, measures and analysis appropriate to the nature of this study.

Procedure

Demonstration of cause/effect relationships requires covariation, control for time order and accounting for spurious relationships. Because temperament is established to be biologically rooted, present from birth and fairly stable over the life span (Bates & Wachs, 1994), time order is controlled. Further, it is impossible to manipulate temperament in an experimental situation. Therefore, to address the research question and hypotheses, demonstration of covariation is all that is needed to establish a causal relationship. Spurious relationships are controlled, as much as possible, by choosing a sample that eliminates many possible mediating variables and by using well-tested instruments.

Due to the need to have variance across a large number of individual difference dimensions, a large sample size was needed. The research method that allows us to detect patterns of covariation across a large number of variables and across a large population is the survey. Therefore, a survey was administered to approximately 300 respondents measuring temperament traits, uses and gratifications of television viewing and some demographic characteristics for statistical analysis.

Subject population

Choice of a subject population when studying temperament and media use requires compromise. Biologically based temperament is most clearly observed in very young children (Thomas & Chess, 1977). As children mature, environmental factors influence their temperament. With time, people learn to balance the demands of temperament with the expectations of their environment, further blunting full expression of temperament. Unfortunately, contextual factors can exert powerful control of media options in children and adolescents. Parents play a prominent role in what media come into the house, if in no other way than by controlling the purchase of televisions, video games, cable services, etc. (e.g., Carlson & Grossbart, 1988; Chaffee, McLeod, & Atkin, 1971; Reid, 1979; Rossiter & Robertson, 1975). A child cannot engage in true, temperament driven niche-picking behavior while still under the disciplinary and economic control of parents. Further, conflicts in the home can

confound true relationships between temperament and media use. For example, a child may persist in watching a certain show to assert independence from parents.

An individual first experiences environmental independence from parents after graduation from high school and upon moving out of the parent's home. While these young adults may still be economically dependent on parents, they exist outside the direct daily influence of parents. At residential universities, individuals are able to engage in greater media niche-picking than while they were at home. College undergraduates represent one of the youngest independent groups of individuals and were therefore chosen as respondents for this study. Volunteers were recruited from general education courses at Michigan State University (e.g. Integrative Studies). Use of general education courses, which include a wide variety of majors, should result in a more heterogeneous group than if the sample was chosen from within one college where students may have niche-picked themselves into majors related to certain temperament traits (thus lowering variance on that trait measure). This should result in a normal distribution within temperament traits.

Naturally, a student population presents problems of generalizability. College students tend to be among the lowest television viewing demographic. This problem is exacerbated because the survey took place in the summer when television viewing is even lower due to alternative

activities and a television schedule consisting primarily of reruns.

Measures

Two measures were needed to test the hypotheses: a temperament scale and a television use motivation scale. Additionally, demographic variables including age, sex and college affiliation were collected for statistical analysis. To increase validity and comparability of the findings to the body of research on temperament and uses and gratifications; lower attenuation and spuriousness associated with large measurement error; and to avoid problems with scale construction, established scales were used. Temperament traits were measured using the Dimensions of Temperament Survey-Revised (Windle & Lerner, 1986). Media motivations were measured using a standard uses and gratifications scale based on the work of Greenberg (1974; Greenberg & Hnilo, 1996).

Dimensions of Temperament Survey-Revised (DOTS-R) The DOTS-R is based on the original temperament dimensions explicated in the NYLS. Temperament dimensions derived in the NYLS were primarily based on extensive interviews of parents, as well as direct observation of children and discussion with teachers (Thomas & Chess, 1977). Behavioral data were collected from a wide range of activities and focused on concrete objective behaviors rather than judgments of motives. As categories appeared in the qualitative data, two quantitative measures were developed to aid in data

gathering and statistical analysis: the Parent Questionnaire and the Teacher Temperament Questionnaire. Both surveys were developed for use with children between the ages of 3 to 7 years old. The Parent Questionnaire is to be completed by parents and contains 72 items designed to measure nine temperament dimensions from the NYLS. The Teacher Temperament Questionnaire asks teachers to report on in-class behavior and contains 64 items designed to measure the same nine temperament dimensions. All dimensions are normally distributed, there is no significant differences across ages three to seven years, and there are no significant differences for boys verses girls.

The utility of the NYLS surveys was limited because they could only be used with young children. Temperament could not be studied effectively across the life span. Therefore, Lerner and his colleagues (Lerner, Palermo, Spiro, & Nesselroade, 1982) designed an instrument for assessing temperament across the life span from late infancy/early childhood through young adulthood. Working from the nine original NYLS dimensions, Lerner, et al. developed the Dimensions of Temperament Survey (DOTS). An initial pool of over 400 items from a variety of temperament scales was assembled and examined by nine expert raters (five with PhD.s in developmental psychology and four doctoral students). Items were eliminated which emphasized subjective appraisals of behavior (e.g. "My child <u>likes</u> new foods."); measured more than one temperament dimension; and were exclusive to one age

group. The process was iterated three times until the final revised pool consisted of 89 items. The revised pool was then administered to subjects from three age groups: nursery school children (mean age = 3.97 years); elementary school students (mean age = 10.77 years); and university undergraduates (mean age = 20.75 years). Factor analysis reduced the original nine dimensions of temperament to five factors, which fit across the three age groups. The final scale consisted of 34 items measuring the five factors of: Activity level; Attention Span/ Distractibility; Adaptability/Approach-Withdrawal; Rhythmicity; and Reactivity.

In an attempt to improve on the psychometric properties of the DOTS scale, Windle and Lerner (1986) developed the Dimensions of Temperament Survey- Revised (DOTS-R). As was the procedure for development of the DOTS scale, the DOTS-R was subjected to expert rating; administration to preschool, elementary school and university students; and factor analysis. The resulting scale consists of 54 items tapping nine dimensions for the preschool and elementary school samples and ten dimensions for the young adult sample (with Cronbach's alphas for the young adult sample in parentheses): Activity level- general (.84); Activity level- sleep (.89); Approach-Withdrawal (.85); Flexibility-Rigidity (.78); Mood (.89); Rhythmicity- sleep (.78); Rhythmicity- eating (.80); Rhythmicity- daily habits (.62); Distractibility (.81); and Persistence (.74).

The DOTS-R differs from the original DOTS in several significant ways. First, the internal structure is more consistent, yielding higher reliabilities. Next, the DOTS-R improves on the factor structure by altering factors. For example, the Rhythmicity factor is divided into three dimensions, representing rhythmicity for sleep, daily habits and eating. Similarly, the Activity factor is sub-divided into general activity and activity during sleep and the Adaptability/Approach-Withdrawal factor is sub-divided into Approach-Withdrawal and Flexibility-Rigidity. The Reactivity factor dropped out of the DOTS-R. Windle suggests that Reactivity may be better measured in a laboratory using physiological recording of the autonomic nervous system.

Windle (1992a) provides further analysis of the DOTS-R in a subsequent study examining gender differences among 975 adolescents. He confirmed the goodness-of-fit of the ten factor model of temperament for both boys and girls. Means comparisons on the ten factors found significant gender differences seven factors, although the difference in effect size was small (range of Cohen's d = .14 to .28). Boys were higher than girls on all three Rhythmicity dimensions, low distractibility, and persistence. Girls demonstrated higher means on Approach-Withdrawal and Mood. Windle also discovered three second-order factors which he labeled: Adaptability/Positive Affect (Approach/Withdrawal, Flexibility, Mood); General Rhythmicity (Eating, Sleep, Daily habits); and Attentional Focus (Distractibility,

Persistence). Girls were significantly higher on Adaptability/Positive Affect, while boys reported higher means on General Rhythmicity and Attentional Focus.

The DOTS-R was administered exactly as provided by Windle and Lerner (see Appendix A).

Greenberg's Uses and Gratifications Scale Television use motivation was measured using Greenberg's (1974) uses and gratification scale, which has been extensively used in the literature. The scale was first reported in a study of the reasons that British children watched television. Greenberg asked a sample of 180 London school children, aged 9, 12 and 15 years old, to write an essay on the subject, "Why I Like to Watch Television". These essays were content analyzed for reasons children watched television, as well as the language they used in talking about television. Eight clusters of reasons emerged from the analysis: to pass time; to forget/diversion; to learn about things; to learn about myself; for arousal; for relaxation; for companionship; and as a habit. These reasons were converted into a scale containing 31 items based on the common statements of the respondents. The scale was then administered to 726 London school children, 9, 12 and 15 years old. The data were factor analyzed and eight factors emerged: learning (combining learning things and learning about the self); habit; arousal; companionship; relaxation; to forget; and two independent pass time factors.

Using the Greenberg scale, Rubin (1979) found the same factor structure in a sample of children and adolescents. More recently, Greenberg and Hnilo (1996) measured demographic differences (age, gender and ethnicity) in media use motivations among adolescents in an urban high school. Factor analysis reduced the original eight factor solution to only three second order factors consisting of the original eight. The first factor, labeled Social Excitement, consisted of the original companionship and arousal factors. The second factor, Diversion, consisted of relaxation, forget and pass time from the original 1974 solution. The third factor, Learning, was the same as the original learning factor, again not differentiating between learning about things and learning about people. Significant differences were reported between means on most items by gender, while there were mixed differences by race and age. A high level of rank-order correlation existed between means on all comparisons (Rho = .90 (gender); .74 (age); .87 (race)).

Scale items were worded as in the most recent Greenberg study (Greenberg & Hnilo, 1996). Response categories were expanded from four to six to increase discrimination and variance. The older population of this study should be able to discriminate more precisely than the sixth and tenth graders in the Greenberg and Hnilo (1996) sample. In order to force choice, there was no neutral response category (see Appendix B).

Analysis Procedures

Analysis consists of three phases. First, all scales are factor analyzed, weak items are omitted and standard item alpha reliability coefficients are calculated. Second, t-tests are performed on quartile splits of the temperament traits, allowing direct comparison of high trait individuals to low trait individuals on each of the hypothesized media use motivations. Assuming normal distribution of the temperament traits, this is the most direct comparison between high and low trait individuals because those with non-extreme amounts of the trait are eliminated from analysis. Quartile splits were chosen because it is a compromise position which captures respondents nearest the tails without sacrificing too much statistical power. Median splits are not advised in the case of multiple independent variables because this technique can lead to false statistical significance (Maxwell & Delaney, 1993). In addition to the hypothesized relationships, t-test analyses of all possible relationships between temperament and media use motivation are reported.

Past research has shown correlations between some of the temperament traits in the DOTS-R (Windle, 1992a; Windle et al., 1986). For example, the three rhythmicity traits are highly correlated (range of r=.59 to .73). Further, there is evidence for gender based differences on most of the temperament traits of the DOTS-R (Windle, 1992a; Windle, 1992b). Therefore, an additional multiple regression

analysis was run demonstrating the relationship between each temperament trait and media use motivation controlling for all other temperament traits and for gender. This provides a back-up check on the *t*-tests described above as recommended by Maxwell & Delaney (1993).

Chapter 5

RESULTS

This chapter contains the results of the data collection outlined in the previous chapter. Included are sample descriptives; results of factor analysis of the DOTS-R temperament scale and the uses and gratifications scale; *t*-tests of hypothesized relationships; *t*-tests of additional relationships; and multiple regression analysis of the interaction of predictor variables on criterion variables.

Sample Descriptives

Data were collected from several large general education lecture courses with reputations for attracting a wide range of undergraduate majors during the Summer Session, 1997 at Michigan State University. These courses included three from Integrative Studies- Social Studies; two from Telecommunication; and one from Integrative Studies- Physical Sciences. Only fully completed surveys are included here, resulting in a total of 285 usable cases.

Gender distribution of respondents was skewed toward females (59%). This compares with the overall gender distribution across the university which also favors females (53%). The vast majority of respondents were domestic

students (81%), with 15% international students and 4% not responding.

The mean age of students in the sample was 22 years of age, with 3% of the respondents not reporting age (see Table 5.1). Modal age was 20 years old and 16.8% were older than 23 years of age.

Table 5.1. Age Distribution of Respondents

Age	Number	Percent	Cumulative %
18	7	3	3
19	26	9	12
20	66	22	34
21	56	20	54
22	51	18	72
23	22	8	80
Over 23	48	17	97
Missing	9	3	100

The vast majority of respondents were seniors (51%) while the fewest number of students reported being graduate students (.7%) and freshmen (2.5%) (see Table 5.2).

Table 5.2. Class Distribution of Respondents

Class	Number	Percent
Freshman	7	3
Sophomore	35	12
Junior	91	32
Senior	145	51
Grad student	2	1
Missing	5	2

Communication (16.8), Business (15.1), Social Science (14%), and Arts and Letters (12.6%) were the most popular college affiliations within the sample (see Table 5.3). Least popular were Nursing, Human Medicine and Other (e.g.

Honors Colleges), each representing 1.1% of the respondents in the sample.

Table 5.3. College Affiliation of Respondents

College	Number	Percent
Agriculture	15	5
Arts and Letters	36	13
Communication	48	17
Business	43	15
Education	24	8
Engineering	27	10
Human Ecology	10	4
Nursing	3	1
Human Medicine	3	1
Natural Science	30	11
Social Science	40	14
Other	3	1

Factor Analysis

Both the DOTS-R and the Greenberg Uses and Gratifications scales were subjected to principal axis factor analysis with VARIMAX rotation. Resulting factor structures were similar to previously reported factors.

Dimensions of Temperament Survey-Revised Principal-axis extraction resulted in a 14 factor solution accounting for 65.1% of variance. After VARIMAX rotation, an 8 factor solution emerged which is similar to the Windle & Lerner (1986) solution with a few notable exceptions. Table 5.4 presents the eight factor solution and standardized item alpha estimates.

Table 5.4. DOTS-R Factor Solution

Factor Name		Loading
Activity Level-General	Alpha = .86	
2.	can't stay still	.82
7.	move around a lot	.71
11.	get restless	.67
19.	often stay still (R)	.66
23.	I get fidgety	.62
29.	never stop moving	.65
54.	never in same place for long	.63
Activity Level- Sleep	Alpha = .86	
32.	move a great deal in my sleep	.84
38.	move a lot in bed	.92
42.	same place in morning (R)	.52
46.	don't move in sleep (R)	.79
Approach/Withdrawal	Alpha = .69	
8.	can make myself at home	.33
12.	move toward objects	.38
26.	move toward new person	.49
30.	get used to new people	.43
35.	move toward new situations	.67
51.	move head toward anything new	.57
Flexibility/Rigidity	Alpha = .73	
1.	long time to get used to new thing (R)	.72
13.	long time to adjust to new schedule (R)	.52
18.	changes make me restless (R)	.33
44.	long time to adjust to things out of place (R)	.68
49.	resist changes in routine (R)	.48

Table 5.4. (Cont'd)

Mood	Alpha = .90	
3.	laugh and smile a lot	.76
14.	do not laugh or smile (R)	.80
28.	smile often	.81
34.	do not laugh often (R)	.72
48.	mood is generally cheerful	.69
50.	laugh several times a day	.71
52.	generally, I am happy	.65
Rhythmicity- Sleep	Alpha = .80	
4.	wake at different times (R)	.58
25.	same amount of sleep each night	.49
33.	sleepy at the same time	.37
36.	wake the same away from home	.64
41.	wake at the same time	.67
45.	wake at the same time on weekends	.50
Rhythmicity- General	Alpha = .79	
16.	eat the same amount away from home	.46
27.	get hungry at the same time	.62
31.	eat same amount daily	.77
37.	eat same for breakfast	.37
39.	full of energy at same time each day	.41
43.	eat same for supper	.73
47.	appetite same day after day	.61
Task Orientation	Alpha = .83	
5.	nothing can distract me	.65
6.	persist at task until finished	.72
9.	can always be distracted (R)	.61
10.	stay with activity	.52
15.	something else won't get me to stop	.57
20.	things can not take me away	.60
22.	I stay with it	.58
24.	I am hard to distract	.57

Four items were dropped because they failed to load on any factor. These items were:

17. My first reaction is to reject something new or unfamiliar to me. (Approach/Withdrawal)

21. I take a nap, rest or break at the same time every day. (Rhythmicity- Daily Habits)

40. I have bowel movements about the same time each day. (Rhythmicity- Daily Habits)

53. The number of times I have a bowel movement on any day varies from day to day. (Rhythmicity- Daily Habits)

The solution varies from the Windle & Lerner solution in two significant ways. First, respondents did not differentiate the Task Orientation factor into Distractibility and Persistence factors as had been found with previous administrations to the same age population. Instead, Task Orientation constitutes a single factor. Second, there was no differentiation between Rhythmicity- Eating and Rhythmicity- Daily Habits. These two factors collapsed into a single factor with 6 of 7 items from Rhythmicity- Eating. Three of the Rhythmicity- Daily Habits items dropped out (items 21, 40, 53). The new combined factor is called Rhythmicity- General.

All summed factors are normally distributed except Activity- Sleep, which has a flat distribution (see Figure 5.1) and Mood, which has a strong positive skew indicating a ceiling effect of positive mood (see Figure 5.2). Activity- Sleep also has a lower N due to non-response to several items (N= 268).

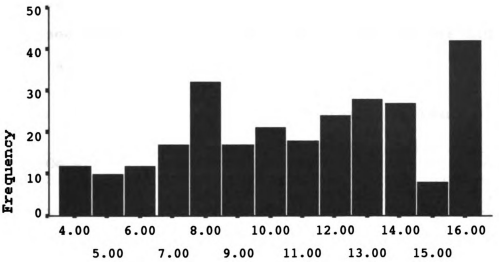

Figure 5.1. Distribution of Activity- Sleep

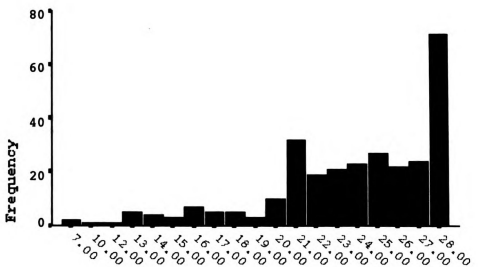

Figure 5.2. Distribution of Mood

For the most part, respondents did not differ by gender on the eight temperament factors. There was a statistically significant difference between females and males on Mood, with females reporting a more positive mood (t (197)= 3.97, p<.0001) (see Table 5.5) The remainder of the factors did not differ significantly by gender.

Table 5.5. Mean Difference of Temperament by Gender

Factor	Female (SD)	Male (SD)	t
Activity- General	18.41 (5.21)	18.77 (4.42)	-.63
Activity- Sleep	10.83 (3.65)	11.11 (3.53)	-.64
Approach	17.05 (3.33)	16.72 (2.89)	.85
Flexibility	14.98 (2.96)	15.07 (3.00)	-.26
Mood	24.57 (3.57)	22.49 (4.78)	3.97*
Rhythmicity- General	18.59 (4.82)	18.20 (4.86)	.66
Rhythmicity- Sleep	14.33 (4.42)	13.90 (4.35)	.80
Task Orientation	21.02 (3.91)	21.88 (4.47)	-1.71

* p<.0001

There is some minor inter-factor correlation. The strongest correlation is between the two Rhythmicity factors (r=.60, p<.01) (see Table 5.6).

Table 5.6. DOTS-S Factor Inter-Correlations

	1	2	3	4	5	6	7	8
1. Activity- General	1.00							
2. Activity- Sleep	.18**	1.00						
3. Approach	.31**	.04	1.00					
4. Flexibility	-.09	-.11	.31**	1.00				
5. Mood	.17**	.07	.35**	.28**	1.00			
6. Rhythmicity- General	-.04	-.08	.13*	.08	.14*	1.00		
7. Rhythmicity- Sleep	-.03	-.16*	-.02	.02	-.03	.60**	1.00	
8. Task Orientation	-.26**	-.02	.00	.00	-.04	.31**	.24**	1.00

* p<.05
** p<.01

Additionally, Rhythmicity- General is significantly correlated to Approach (r=.13, p<.05), Mood (r=.14, p<.05)

and Task Orientation (r=.31, p<.01). Rhythmicity during sleep is significantly correlated with Task Orientation (r=.24, p<.01), but is negatively correlated with Activity during sleep (r=-.16, p<.05). Task Orientation is negatively correlated with Activity- General (r=-.26, p<.01); and Activity- General is positively correlated with Activity-Sleep (r=.18, p<.01), Approach (r=.31, p<.01) and Mood (r=.17, p<.01). Mood is significantly correlated with Approach (r=.35, p<.01) and Flexibility (r=.28, p<.01). Flexibility is significantly correlated with Approach (r=.31, p<.01).

Greenberg Uses and Gratifications Scale Principal axis factor analysis extracted five factors which accounted for 59.8% of variance. The five factor solution which emerged after VARIMAX rotation differs somewhat from earlier solutions reported by Greenberg. This may be because Greenberg used younger subjects. The factor items, factor loadings and factor standardized item alpha estimates are presented in Table 5.7.

Four items were dropped because they were cross-loaded on two or more factors. These items were:

2. I watch TV when I want to get away from others.
6. Television is almost like a friend.
7. I watch TV because its a habit.
12. I learn from the mistakes of characters on television.

Table 5.7. Uses and Gratifications Factor Solution

Factor Name		Loading
Relaxation	Alpha=.82	
5. TV relaxes me		.60
13. TV cheers me up		.49
14. pleasant way to rest		.67
20. lot of fun		.58
21. TV calms me down		.63
Arousal	Alpha=.77	
8. TV excites me		.57
19. TV gives me thrills		.63
Learning	Alpha=.73	
3. teaches me things		.71
4. learn how to act		.52
11. learn how to do things		.65
17. know what is going on in the world		.47
18. learn what might happen to me		.45
Diversion	Alpha= .77	
10. forget my problems		.50
15. forget I'm alone		.65
16. forget about school and homework		.57
22. gives me company		.57
Pass Time	Alpha= .72	
1. something to do		.71
9. I watch TV to fill up time		.67

Missing from these factor clusters are factors that can be described as "Companionship" and "Habit". Otherwise, a fairly typical group of uses and gratifications clusters emerged from the factor analysis, although the items constituting these factors are different than previous factor solutions. These factors and their respective reliabilities include: Relaxation (α= .82); Arousal (α= .77); Learning (α= .73); Diversion (α= .77); and Pass Time (α= .72). There were no significant differences by gender among the factors, although mean differences neared significance level with the Arousal factor ($t(282) = -1.86$, $p<.064$). All factors are normally distributed, although the Pass Time factor displays a slight negative skew (skewness = -.66). Variable means are reported in Table 5.8.

Table 5.8 Uses and Gratification Factor Means

Variable	Mean	SD	Number of items
Relaxation	18.81	4.47	5
Arousal	6.06	2.33	2
Learning	16.85	4.44	5
Diversion	12.33	4.46	4
Pass Time	8.16	2.37	2

There was a high amount of inter-correlation among the factors (see Table 5.9). In fact, all factors were correlated at the $p<.01$ significance level (range r=.15 to r=.60; mean r = .41). The highest correlations were between Arousal and Relaxation (r=.60) and Diversion and Relaxation (r = .59).

Table 5.9. Intercorrelations of Uses and Gratifications Factors

	1	2	3	4	5
1. Relaxation	1.00				
2. Arousal	.60*	1.00			
3. Learning	.36*	.43*	1.00		
4. Diversion	.59*	.50*	.34*	1.00	
5. Pass Time	.41*	.29*	.15*	.44*	1.00

*= $p<.01$

t-tests of Hypothesized Relationships

In order to test if there are differences in motivations for television use between individuals who are high and individuals who are low on various temperament traits, the sample was grouped into the highest and lowest quartiles on each temperament trait (see Table 5.10).

Those in the highest quartile on each trait were compared with those in the lowest quartile on each trait, using a two tail *t*-test to determine statistically significant mean differences on each of the uses and gratifications factors. These results are presented in Table 5.11. It has been argued that dichotomizing continuous variables in the single predictor case almost always results in a conservative estimate of significance (Maxwell & Delaney, 1993). The authors suggest providing an estimate of the effect size, as well as using a correlational approach (multiple regression analysis in the case where multiple predictors are correlated as in the present case).

Table 5.10. Means of Temperament Quartiles

Variable	Low Quartile	High Quartile	Range	Number of Items	Total Sample
Activity-General	12.03 sd=2.05 n=67	24.90 sd=1.66 n=68	7-28	7	18.54 sd=4.90 n=285
Activity-Sleep	6.57 sd=1.47 n=83	15.20 sd=.93 n=77	4-16	4	10.93 sd=3.60 n=268
Approach	12.76 sd=1.46 n=71	20.58 sd=1.53 n=84	8-24	6	16.91 sd=3.16 n=285
Flexibility	11.27 sd=1.75 n=79	18.43 sd=1.11 n=84	6-20	5	15.01 sd=2.97 n=285
Mood	18.18 sd=3.46 n=78	28.00 sd=.00 n=71	7-28	7	23.70 sd=4.24 n=285
Rhythmicity-General	12.34 sd=2.61 n=79	24.37 sd=1.82 n=71	7-28	7	18.42 sd=4.83 n=285
Rhythmicity-Sleep	8.92 sd=1.72 n=82	19.96 sd=1.96 n=69	6-24	6	14.14 sd=4.39 n=285
Task Orientation	16.06 sd=2.33 n=70	26.54 sd=1.92 n=70	9-32	8	21.38 sd=4.16 n=285

Effect size is an estimate of the degree of departure from the null hypothesis (H_0: $\bar{X}_A=\bar{X}_B$) and was calculated using Cohen's d effect size estimate (Cohen, 1977). Cohen's d is the difference between means standardized by dividing by the mean standard deviation. Cohen (1977) provides a useful guide for interpreting effect size d. An effect of the magnitude d= .20 is considered small and the difference between means would be difficult to detect in the real world. Cohen gives the example of the difference in mean scores between adult women and men on the Wechsler Adult Intelligence Scale. By contrast, a medium effect size (d= .50) would be "visible to the naked eye". The example given

is the difference in mean IQ between clerical and semiskilled workers, or between professionals and managers. A large effect size is "grossly perceptible", such as the mean difference in IQ between holders of the Ph.D. degree and typical college freshmen. Large effect size corresponds to d= .80.

Hypothesis 1 The first hypothesis states that high activity level individuals will report greater arousal motivation for television use than low activity level individuals. A relationship nearing significance was found supporting the hypothesized direction ($t(133)= 1.83$; $p<.07$). The obtained effect size was d= .31.

Hypothesis 2 The second hypothesis stated that low activity level individuals will report greater relaxation motivation for television use than high activity level individuals. There was no significant difference between the high and low activity temperament groups on relaxation motivation ($t(133)= .63$; $p<.53$) and the standardized effect size was very small (d= .11).

Hypothesis 3 Hypothesis three predicted that high approach level individuals will report lower companionship motivation for television use than low approach individuals. Unfortunately, the factor analysis solution did not include a factor for companionship. Therefore, this hypothesis is untestable.

Table 5.11. Two-tail t-tests of Temperament Traits on Uses and Gratifications

	Relaxation	Arousal	Learning	Diversion	Pass Time
Activity-General	t(133)= .63 p< .53 d= .11	t(133)= 1.83 p< .07 d= .31	t(126)= -.40 p< .69 d= .07	t(133)= .91 p< .37 d= .18	**t(133)=1.99 p< .05 d= .34**
Activity-Sleep	**t(158)= 2.01 p< .05 d= .32**	t(158)= 1.70 p< .09 d= .27	t(158)=-1.02 p< .31 d= .16	t(158)= .54 p< .59 d= .09	t(158)= 1.68 p< .10 d= .27
Approach	t(153)=-1.34 p< .18 d= .22	t(153)= -.62 p< .54 d= .10	t(153)= .40 p< .69 d= .06	t(152)=-1.38 p< .17 d= .22	**t(153)=-2.65 p< .01 d= .43**
Flexibility	**t(161)=-2.85 p< .01 d= .45**	**t(161)=-2.38 p< .02 d= .37**	**t(161)=-2.83 p< .01 d= .45**	**t(153)=-5.57 p< .001 d= .88**	**t(156)=-3.10 p< .002 d= .49**
Mood	t(118)= -.32 p< .75 d=.05	t(130)=-1.79 p< .08 d= .30	t(147)=-1.82 p< .07 d= .30	t(123)=-1.49 p< .14 d= .25	t(131)=-1.69 p< .09 d= .28
Rhythmicity-General	**t(148)=-2.21 p< .03 d= .36**	**t(148)=-2.11 p< .04 d= .35**	t(148)=-1.06 p< .29 d= .18	t(148)= -.52 p< .61 d= .08	t(148)=-1.23 p< .22 d=.20
Rhythmicity-Sleep	**t(149)=-3.26 p< .001 d= .53**	**t(149)=-3.33 p< .001 d= .55**	t(149)=-1.30 p< .20 d= .22	t(149)= -.32 p< .75 d= .05	t(149)=-1.69 p< .09 d= .27
Task Orientation	**t(138)=-2.01 p< .05 d= .34**	**t(138)=-3.72 p< .001 d= .63**	**t(138)=-3.01 p< .003 d= .51**	**t(138)=-3.17 p< .002 d= .54**	**t(128)=-2.45 p< .02 d= .41**

Significant findings in Boldface

Read positive t results as: Individuals who are high in Activity-Sleep score significantly higher on Relaxation motivation.
Read negative t results as: Individuals who are low in Flexibility score significantly higher on Relaxation motivation.
d= Cohen's d estimate of effect size. Interpreted as: .20= small effect; .50= medium effect; .80= large effect (Cohen, 1977).

Hypothesis 4 The fourth hypothesis predicted that high approach level individuals will report lower diversion motivation for television use than low approach individuals. This relationship was not significant, although it was in the predicted direction ($t(152)= -1.38$; $p<.17$). The effect size was of the small magnitude at $d= .22$.

Hypothesis 5 Hypothesis five stated that high approach level individuals will report lower pass time motivation for television use than low approach individuals. This hypothesis was supported ($t(153)= -2.65$; $p< .01$). Effect size neared the medium level at $d= .43$.

Hypothesis 6 The sixth hypothesis predicted that high rhythmicity level individuals will report higher habit motivation for television use than individuals who are low in rhythmicity. Unfortunately, the factor solution did not provide a habit factor, so this hypothesis is untestable.

Hypothesis 7 The seventh hypothesis predicted that individuals reporting negative mood temperament will report higher diversion motivation for television use than individuals with more positive mood temperament. This relationship was not significant, although it was in the predicted direction ($t(123)= -1.49$; $p<.14$). The magnitude of the effect size was small ($d= .25$).

Hypothesis 8 Hypothesis eight stated that high task oriented individuals will report less use of television to pass time than low task oriented individuals. This

hypothesis was supported ($t(128)= -2.45$; $p<.02$). Effect size was near the medium level ($d= .41$).

Hypothesis 9 The ninth hypothesis predicted that high task oriented individuals will report less use of television for diversion than low task oriented individuals. This prediction also was supported ($t(138)= -3.17$; $p<.002$) and there was a medium level of effect size ($d= .54$).

Hypothesis 10 The tenth hypothesis predicted that high task oriented individuals will report less use of television for relaxation than low task oriented individuals. This hypothesis was supported ($t(138)= -2.01$; $p<.05$). The effect size was mid-way between Cohen's recommendation for small and medium levels ($d= .34$).

Hypothesis 11 Hypothesis 11 predicted that high task oriented individuals will report greater use of television to learn about things than low task oriented individuals. Instead, a significant relationship was found in the opposite direction, with low task orientation individuals reporting greater learning motivation for television use ($t(138)= -3.01$; $p<.003$). There was a medium level of effect ($d= .51$).

Hypothesis 12 Hypothesis 12 predicted that low flexibility individuals will report less use of television for diversion than highly flexible individuals. This prediction was reversed at a significant level, with low flexibility individuals reporting greater use of television for diversion than high flexibility individuals ($t(153)=$

-5.57; p<.001). This was a strong effect, with a effect size of d= .88.

Hypothesis 13 Hypothesis 13 was also reversed (t(156)= -3.10; p<.002). It predicted that low flexibility individuals will report less pass time use of television than highly flexible individuals. The magnitude of the effect was at the medium level (d= .49).

Hypothesis 14 The last hypothesis predicted that low flexibility individuals will report greater use of television for habit than highly flexible individuals. Unfortunately, the factor solution did not provide a habit factor, so this hypothesis is untestable.

Overall, five of the 14 hypotheses were either supported (4) or neared significant level (1). Three hypotheses were unsupported, three were reversed and three were untestable (see Table 5.12). One hypothesis showed a large effect size (though in the opposite direction as predicted); three reached a medium level of effect size; four were between small and medium levels; and the remainder were small effects.

Table 5.12. Hypothesis Results Summary

	Supported	Unsupported	Near Significance	Reversed	Untestable
H_1			√		
H_2		√			
H_3					√
H_4		√			
H_5	√				
H_6					√
H_7		√			
H_8	√				
H_9	√				
H_{10}	√				
H_{11}				√	
H_{12}				√	
H_{13}				√	
H_{14}					√

t-tests of Additional Relationship

Several other significant relationships which emerged from the *t*-tests will be reported here, although they were not part of the stated hypotheses. Further, relationships among the media motivations and the two sleep related temperament traits (Activity- Sleep, Rhythmicity- Sleep) will be reported here also.

Activity-General Hypothesis one showed a near significant mean difference indicating that high activity-general trait individuals seek out television for arousal. In addition, high activity-general individuals are also significantly more likely than low activity-general trait individuals to use television to pass time ($t(133)= 1.99$; $p<.05$; $d= .34$).

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Activity-Sleep There were no predicted relationships for relationships between Activity- Sleep temperament trait and television use motivations. However, there was one significant relationship and two relationships which neared significance level. Individuals who are active in their sleep are significantly more likely to use television for relaxation than those who are low in activity during sleep ($t(158)= 2.01$; $p<.05$; $d= .32$). There were also near significant mean differences suggesting that individuals who are high in activity during sleep are more likely to use television for arousal ($t(158)= 1.70$; $p<.09$; $d= .27$) and to pass time ($t(158)= 1.68$; $p<.10$; $d= .27$) than those who are low in activity during sleep, although the effect sizes are small.

Approach Hypothesis five reported that individuals who are low in approach are significantly more likely to use television to pass time. There were near significant findings suggesting that low approach individuals are more likely to use television for diversion ($t(152)= -1.38$; $p<.17$; $d= .22$) and for relaxation ($t(153)= -1.34$; $p<.18$; $d= .22$).

Flexibility Individuals who are low in flexibility are significantly higher than individuals who are highly flexible on all television use motivations. In addition to diversion and pass time motivations, low flexibility individuals are higher than high flexibility individuals in relaxation motivation ($t(161)= -2.85$; $p<.01$; $d= .45$); arousal motivation

($t(161) = -2.38$; $p < .02$; $d = .37$); and learning motivation ($t(161) = -2.83$; $p < .01$; $d = .45$).

Mood In addition to the finding from hypothesis seven, in which low mood individuals were more likely to use television for diversion at a near significant level, there were three additional mean differences that approached significant levels. Individuals who report a negative general mood were also more likely to report using television for arousal ($t(130) = -1.79$; $p < .08$; $d = .30$); learning ($t(147) = -1.82$; $p < .07$; $d = .30$); and to pass time ($t(131) = -1.69$; $p < .09$; $d = .28$).

Rhythmicity-General Individuals who are low in general rhythmicity are significantly more likely to report using television for relaxation ($t(148) = -2.21$; $p < .03$; $d = .36$) and arousal ($t(148) = -2.11$; $p < .04$; $d = .35$). The other relationships were not significant.

Rhythmicity-Sleep Individuals who are low in rhythmicity in their sleep patterns are significantly more likely to report using television for relaxation ($t(149) = -3.26$; $p < .001$; $d = .53$) and arousal ($t(149) = -3.33$; $p < .001$; $d = .55$). Additionally, there was a near significant mean difference suggesting that individuals who are low in sleep rhythmicity are more likely to use television to pass time ($t(149) = -1.69$; $p < .09$; $d = .27$).

Task Orientation Individuals who are low in task orientation report using television for all five motivations more than those who are high in task orientation. In

addition to the four relationships reported in the hypothesis section, those who are low in task orientation are also more likely to use television for arousal ($t(138)= -3.72$; $p<.001$; $d= .63$).

Multiple Regression Analysis

Earlier in the chapter, it was noted that there was some inter-correlation among the temperament dimensions. Therefore, it is possible that these dimensions interact with one another. To test this possibility, multiple regression models were run in which all the temperament dimensions are entered as predictor variables and each television use motivation factor was a criterion variable. Subsequently, non-significant predictors were eliminated until the most parsimonious model predicting the criterion variable emerged. Reported here are the multiple correlation and betas for the total models and the parsimonious models.

Relaxation The multiple correlation coefficient for the model with all temperament traits entered as predictors and relaxation as the criterion variable is $R= .30$ ($F(8,259)= 3.19$; $p<.002$) (see Table 5.13). Significant predictors included Rhythmicity- Sleep ($\beta= -.21$; $p<.01$); Activity- Sleep ($\beta= .13$; $p<.04$); and Flexibility ($\beta= -.14$; $p<.04$).

Table 5.13. Multiple Regression Results of Temperament on Motivations

	Relaxation	Arousal	Learning	Diversion	Pass Time
Multiple R	R= .30	R= .37	R= .28	R= .37	R= .34
Activity-General	ß= -.04 p< .55	ß= .03 p< .70	ß= -.08 p< .24	ß= -.06 p< .36	ß= .06 p< .38
Activity-Sleep	ß= .13 p< .04	ß= .12 p<.06	ß= -.01 p< .81	ß= .07 p< .22	ß= .12 p< .05
Approach	ß= -.01 p< .90	ß= .04 p< .52	ß= .15 p< .04	ß= .05 p< .45	ß= -.16 p< .02
Flexibility	ß= -.14 p< .04	ß= -.07 p< .31	ß= -.21 p< .001	ß= -.30 p< .001	ß= -.06 p< .37
Mood	ß= .05 p<.44	ß= -.12 p< .06	ß= -.07 p< .30	ß= -.08 p< .22	ß= -.05 p< .45
Rhythmicity General	ß= .04 p< .65	ß= .11 p< .14	ß= .01 p< .91	ß= .08 p< .28	ß= .06 p< .41
Rhythmicity Sleep	ß= -.21 p< .01	ß= -.22 p<.001	ß= -.04 p< .65	ß= -.04 p< .56	ß= -.11 p< .15
Task Orientation	ß= -.07 p< .27	ß= -.24 p< .001	ß= -.17 p< .01	ß= -.20 p< .001	ß= -.19 p< .001

The five uses and gratifications factors are criterion variables.

Multiple Rs represent the multiple correlation with all temperament predictors entered. Betas represent the unique contribution of each temperament trait on the criterion variables, controlling for all other temperament traits.

Eliminating the non-significant predictors to create a more parsimonious model lowers the multiple correlation to R= .29 (F(3, 264)= 7.89; p<.0001). Relaxation motivation for television viewing is predicted by high levels of activity during sleep (ß= .13; p<.04), low levels of flexibility (ß= -.12; p< .05); and low levels of rhythmicity during sleep (ß= -.20; p< .001) (see Figure 5.3).

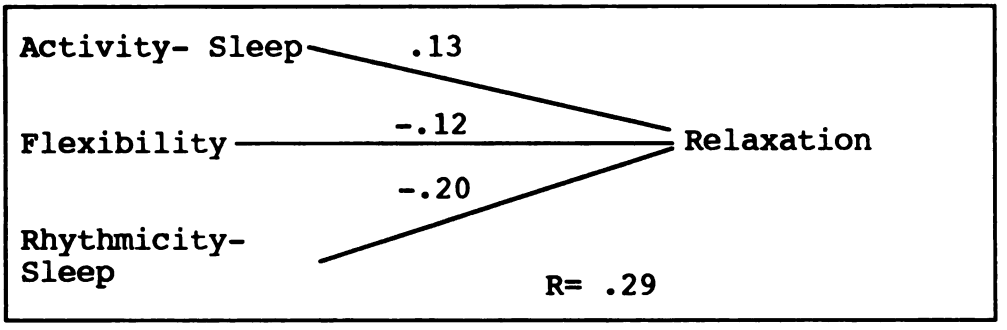

Figure 5.3. Parsimonious Model of Temperament on Relaxation

Arousal The multiple correlation for the model with Arousal motivation as the criterion variable and all temperament traits entered is R= .37 (F(8,259)= 5.19; p<.0001) (see Table 5.13). There are two strong negative predictors (Rhythmicity-Sleep- ß= -.22; p< .001; Task Orientation- ß= -.24; p< .001) and two additional predictors which are very close to the significance criterion (Activity-Sleep- ß= .12; p< .06; Mood- ß= -.12; p< .06).

The parsimonious model has a multiple correlation of R= .35 (F(4, 263)= 9.36; p< .03). Activity during sleep (ß= .13; p< .03) was the only positive predictor of motivation to

watch television for arousal. High motivation to watch television for arousal was related to low levels of Mood (ß= -.11; p< .07); Rhythmicity-Sleep (ß= -.15; p< .01); and Task Orientation (ß= -.23; p< .001) (see Figure 5.4).

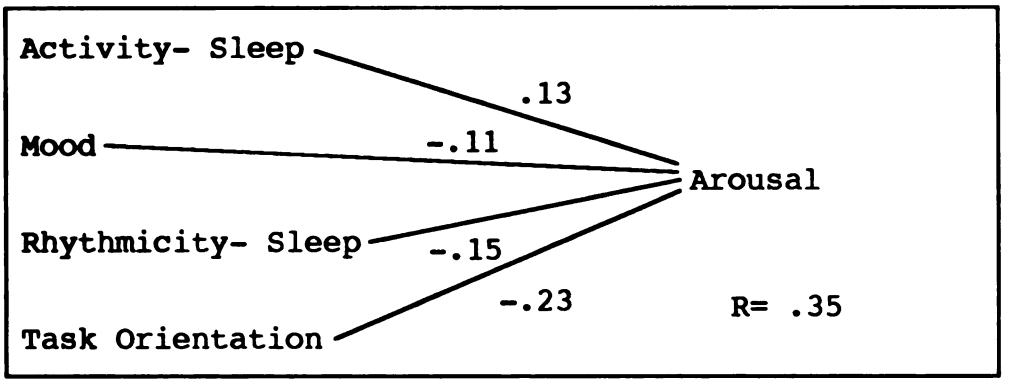

Figure 5.4. Parsimonious Model of Temperament on Arousal

Learning The multiple correlation for the model using all temperament traits as predictors and Learning motivation for television use as the criterion variable is R= .28 (F(8, 259)= 2.67; p< .01). Three temperament dimensions were significant predictors in this model: Approach (ß= .15; p< .04); Flexibility (ß= -.21; p< .001); and Task Orientation (ß= -.17; p< .01).

A more parsimonious model can be created by taking away non-significant predictors. This model increases the multiple correlation coefficient slightly to R= .29 (F(4, 280)= 6.21; p< .0001). Those that are motivated to watch television for learning report lower levels of Flexibility (ß= -.24; p< .001); and Task Orientation (ß= -.20; p< .001)

(see Figure 5.5). Learning motivation was related to higher levels of Approach (ß= .15; p< .02);

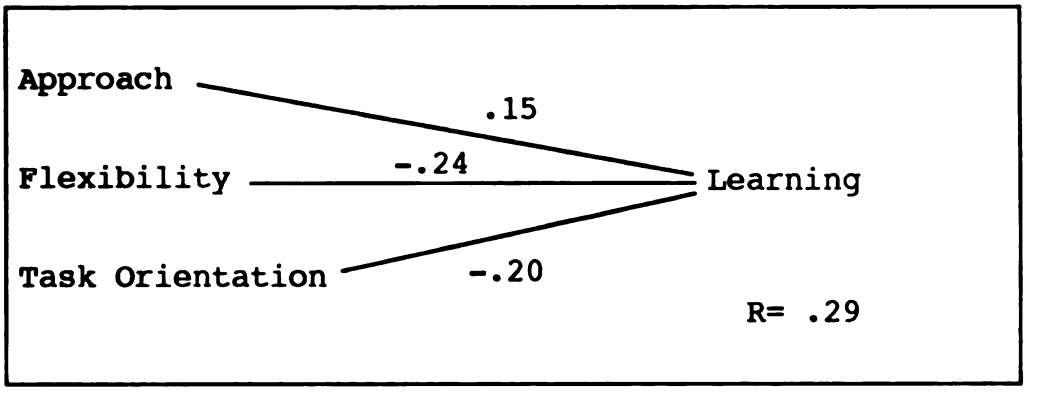

Figure 5.5. Parsimonious Model of Temperament on Learning

Diversion The multiple correlation for the model with all temperament traits entered is R= .37 (F(8,259)= 5.15; p<.0001). There were only two significant predictors of Diversion motivation in this model: Flexibility (ß= -.30; p< .001); and Task Orientation (ß= -.20; p< .001). The parsimonious model uses the same predictors; with low Flexibility (ß= -.30; p< .001) and low Task Orientation (ß= -.18; p< .001), predicting high amounts of diversion motivation for television viewing. The multiple correlation of the parsimonious model was R= .35 (see Figure 5.6).

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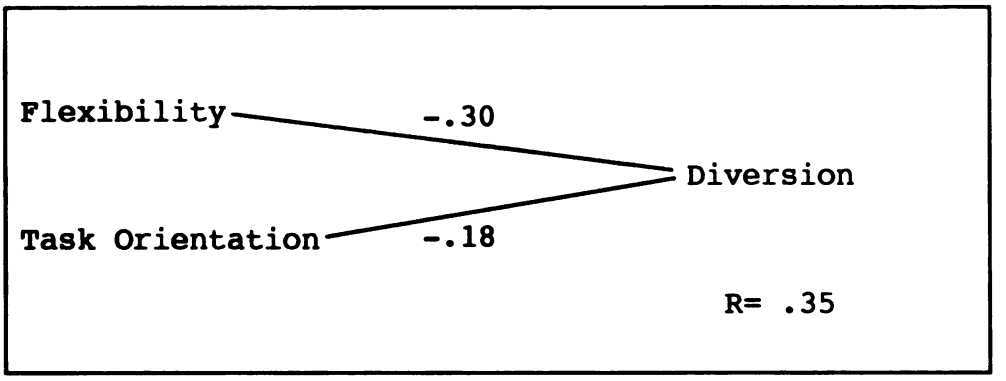

Figure 5.6. Parsimonious Model of Temperament on Diversion

Pass Time The multiple correlation for the model with Pass Time motivation for television viewing as the criterion variable and all the temperament variables as predictors is R= .34 (F(8, 259)= 4.16; p< .0001). Three temperament traits are significant predictors: Activity- Sleep (ß= .12; p< .05); Approach (ß= -.16; p< .02); and Task Orientation (ß= -.19; p< .001). The parsimonious model has a slightly lower multiple correlation of R= .31 (F(3, 264)= 9.61; p< .0001). High levels of activity during sleep (ß= .15; p< .01) were related to greater use of television to pass time. Low levels of approach (ß= -.17; p< .001) and Task Orientation (ß= -.22; p< .001) were related to high levels of television use to pass time. The model is presented in Figure 5.7.

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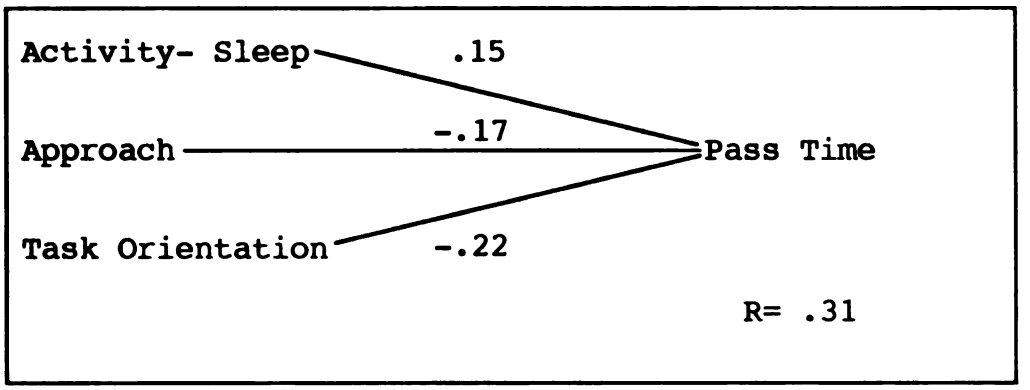

Figure 5.7. Parsimonious Model of Temperament on Pass Time

Regression summary Overall, temperament is a significant predictor of all five uses and gratifications factors. Of the temperament traits, task orientation is the most consistent predictor of television use motivations, negatively predicting 4 of 5 uses and gratifications factors in both the general model and the parsimonious models. General activity level and general rhythmicity did not predict any motivations in the general or parsimonious models. Mood was also a weak predictor, only significantly related to one motivation (arousal). Most of the significant predictors in both the general (11 of 15) and the parsimonious models (12 of 16) were negative. The parsimonious models explained the same amount of variation as the general models, adding only one new predictor that was marginally significant at the $p<.06$ level.

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Chapter 6

DISCUSSION

This chapter provides a discussion of the results of this study, relative to the original research question and the implications of the findings for theory. The limitations of the study and suggestions for future research expanding the area of study are also discussed here.

Interpretation of Findings

This dissertation answers the call from leading mass media scholars to consider the contribution of individual differences to media effects by providing exploratory research examining the relationships among the individual difference traits of temperament and media use motivations. Can biologically rooted individual differences affect our reasons for using media? In what ways? The results of this study provide interesting findings which suggest that individual differences may play a subtle, but important role in media choices.

Sample and Measures

The respondents were older than might be expected from an undergraduate population. This is probably because data were collected during summer session. There was a good

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distribution across majors which may have contributed to the normal distribution on most temperament dimensions. Lack of significant differences between genders makes interpretation of results cleaner because it eliminates gender role socialization as an alternate explanation for relationships found.

Cautious interpretation is required of findings relating to Mood and Activity-Sleep temperament traits because of the non-normal distribution. In particular, the ceiling effect evidenced in the Mood dimension requires careful consideration because those in the lowest quartile were not far apart from those in the highest quartile in their scores. The ceiling effect of Mood may have occurred because the sample consists of more positive, motivated students who take classes during the summer. With the high number of seniors, it is possible that these students may be completing their last requirements for graduation.

Despite the relatively high amount of intercorrelation among uses and gratifications factors and the moderate amount of intercorrelation among DOTS-R factors, tests for second order unidimensional factor structures were not run. There are two reasons to support this decision. First, the items ask substantively different enough questions to merit separate treatment. Even very high correlation does not mean substantive equivalence. For example, the Diversion factor and the Arousal factor are correlated at $r= .50$; $p<.01$. Combining these factors treats the items within them as if

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they were equivalent-- predicting the same underlying construct. By this logic, it must be said that "TV excites me" (an Arousal item) is equivalent to "Television gives me company" (a Diversion item). Here, the substantive logic must prevail over the mathematical solution.

Second, by combining factors and treating them as second order unidimensional, sensitivity is lost. This sensitivity can provide a better understanding of the relationships involved. For example, it may make sense to combine the two activity factors, Activity-General and Activity-Sleep. However, the regression analysis showed that these two factors were related to television use motivations in different ways. That is, Activity-General was not a significant predictor of any of the television use motivation factors, but Activity-Sleep was a positive predictor of Relaxation, Arousal and Pass Time motivations. Combining the activity factors would have obscured this underlying difference.

Before beginning the interpretation of results, it is instructive to review the operationalization of each of the factors under consideration, beginning with the eight DOTS-R factors:

Activity-General - Individuals who are high on this factor report general restlessness and an inability to stay in the same place for a long time. These individuals are consistently on the move.

Activity-Sleep - Individuals who score high on this factor tend to move around a lot in bed and rarely wake in the same place in the morning. They are restless sleepers.

Approach - Individuals who are high on approach are eager to try new situations and can make themselves at home in new places easily. This factor is considered to be the basis of what is commonly called an extroverted personality.

Flexibility - Flexible people are able to adapt quickly to change in routine or schedule. Their opposite, the rigid temperament individuals, resist changes in routine and take a long time to adjust to things which are new or different.

Mood - Mood refers to a general positive or negative disposition. Positive mood individuals are marked by general cheerfulness, often smiling or laughing throughout the day.

Rhythmicity- General - This factor is related to regularity in bodily functions. In the case of this study, most of the questions are related to regularity in eating schedule and appetite. A high general rhythmicity individual eats about the same amount each day, at the same times and experiences regularity in daily energy levels.

Rhythmicity- Sleep - Individuals who are high on sleep rhythmicity become sleepy about the same time each day and sleep the same amount from day to day.

Task Orientation - Task oriented individuals display high persistence and low distractibility. They tend to stay with an activity until it is completed and are not easily drawn from activities.

The five uses and gratifications factors are operationalized as follows:

Relaxation - Those scoring high on the relaxation factor report using television as "a pleasant way to rest". They tend to agree with the statements, "TV relaxes me" and "TV calms me down".

Arousal - Individuals scoring high on this factor answered positively to the items: "TV excites me" and "TV gives me thrills". High arousal motivation individuals seek out television for its stimulation value.

Learning - This factor relates to the use of television to learn facts and to learn how to behave in social situations. Individuals scoring high on this factor report using television "to learn what might happen to me".

Diversion - This factor measures use of television as an escape from problems. Here, individuals report using television to forget that they are alone and to give them company.

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Pass Time - Individuals who use television to pass time answer positively to items stating that they watch television for "something to do" and "to fill up time".

Interpretation of Relationships

Interesting patterns of relationships among temperament traits and television use motivations emerge from the data. In order to assist in visualization of these patterns, Tables 6.1 and 6.2 provide a summary of the significant and near significant relationships from the *t*-tests and from the regression analysis.

Pattern of *t*-test Results Two temperament factors emerge as important predictors of television use motivation: Flexibility and Task Orientation (see Table 6.1). Individuals who report low levels of Flexibility and Task Orientation are significantly more likely to report using television for all five use motivations than those who are high on these traits.

These findings are not difficult to explain (although the Flexibility findings differ from the hypotheses). Those scoring low on Flexibility indicated that they dislike change in routine and find it difficult to adjust to new things. Such people may be attracted to television because of the regularity of television schedules and content. You always know what to expect when you turn on a familiar television

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Table 6.1. Pattern of Significant T-Test Results

	Relaxation	Arousal	Learning	Diversion	Pass Time
Activity General		+			+
Activity Sleep	+	+			+
Approach					−
Flexibility	−	−	−	−	−
Mood		—	—		—
Rhythmicity General	−	−			
Rhythmicity Sleep	−	−			—
Task Orientation	−	−	−	−	−

Large + = positive relationship significant at least p<.05
Large - = negative relationship significant at least p<.05
Small + = positive relationship significant at p<.10
Small - = negative relationship significant at p<.10

program. Those scoring low on Task Orientation indicated that they are easily distracted from activities. They may frequently move from one thing to another. It is natural that such individuals may turn to television as one of their options. Those who are high on Task Orientation demonstrate more persistence and less distractibility. Therefore, they are less likely to be distracted from activities in order to watch television for diversion or to pass time. In fact, high task oriented individuals watch significantly fewer hours of television per day than those who are low on task orientation ($t(128)= -2.01$; $p<.05$; $d= .34$).

Contrasting the dimensions which predict all motivations, the temperament traits of Approach and Mood predict the fewest television use motivations. It was hypothesized that individuals who are low on Approach might turn to television as a substitute for social interaction (Companionship). Unfortunately, the factor analysis did not reveal a Companionship factor. However, low Approach individuals were significantly more likely to use television to pass time. This is consistent with findings from earlier research that showed that more out-going individuals choose to spend their time actively socializing rather than watching television (Donohew, et al., 1987). There were no significant differences between high and low approach individuals on four of the motivations: Relaxation, Arousal, Learning and Diversion.

There were near significant mean differences between individuals with positive and negative general moods on three of the television use motivation factors. These differences may have been more pronounced if there was not a ceiling effect on the distribution of this dimension. Consistent with earlier work (e.g., Helregel & Weaver, 1989; Zillmann & Bryant, 1985), there is some evidence that individuals with a negative mood may seek out television for arousal. However, the results also suggest that negative mood individuals may use television for learning and to pass time. The reasons for these differences are unclear.

A different way to interpret the results is to ask which television use motivations are related to the most or the fewest temperament traits. Relaxation, Arousal and Pass Time motivations are predicted by the most traits while Learning and Diversion are predicted by the fewest. Relaxation and Arousal may be tied to temperament traits due to their relationship to central nervous system processing. Strelau (1983) feels that human behavior is regulated by the drive to equilibrate temperament, which is driven by the central nervous system. Those individuals who have a sensitive central nervous system seek out soothing stimuli, while those with duller central nervous system processing may seek out arousing stimuli to bring them to a comfortable state of arousal. Therefore, it is consistent that both arousal and relaxation motivations would be tied to temperament traits. Pass Time motivations, which consist of watching television

for something to do or to fill up time, have a less clear relationship to temperament.

It is not surprising that Learning motivation is not strongly tied to temperament. Learning motivations may be more social in origin; that is, the motivation to gather facts and the choice of how to do it may originate from outside the individual rather than from within. Less flexible and task oriented individuals were more likely to use television for learning, but these individuals demonstrate a stronger dependence on television in general. Again, it may be that low flexibility people feel more comfortable with the uniformity of television as an information source and are less likely to use new sources of information (e.g. the internet). Low Task Orientation individuals may enjoy getting information in the quick and easy format provided by television.

There were also few temperament dimensions related to the diversion motivation for viewing television. Again, it may be possible that the need for diversion is driven more by factors outside of the individual than by factors within. Diversion motivations were characterized by a desire to escape from social situations and problems. If the individual's milieu does not include difficult or stressful situations, there may be little motivation to seek diversion from television.

Pattern of Regression Results The overall pattern of regression results is similar to the *t*-test results, with

Table 6.

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Table 6.2. Pattern of Significant Regression Results

	Relaxation	Arousal	Learning	Diversion	Pass Time
Activity General					
Activity Sleep	+	+			+
Approach			+		−
Flexibility	−		−	−	
Mood		−			
Rhythmicity General					
Rhythmicity Sleep	−	−			
Task Orientation		−	−	−	−

Large + = positive relationship significant at least $p<.05$
Large - = negative relationship significant at least $p<.05$
Small + = positive relationship significant at $p<.10$
Small - = negative relationship significant at $p<.10$

some important differences (see Table 6.2). After controlling for other temperament factors, Activity-General and Rhythmicity-General are no longer related to any media use motivation. Flexibility and Task Orientation each lose one significant relationship, while Mood and Rhythmicity-Sleep lose near significant relationships. Approach and Activity-Sleep each gain significant relationships.

Arousal is related to four temperament traits, while Pass Time, Relaxation and Learning are related to three temperament traits each and Diversion is related to two. Further interpretation will look at the models for each motivation and attempt to explain the pattern of positive and negative relationships disclosed.

Relaxation The regression model of temperament traits on Relaxation shows a strong negative relationship between rhythmicity of sleep patterns and the use of television for relaxation. This, coupled with a positive relationship with activity during sleep, suggests that use of television for relaxation purposes may be driven by the quality of sleep that the individual experiences. Highly active sleepers spend restless nights moving around in bed. This, combined with low sleep rhythmicity, in which the individual doesn't get a regular amount of sleep each night, should result in a more generally tired or run-down individual. Such an individual may need to use television to relax. Further, these restless sleep patterns may be symptoms of general

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nervous system sensitivity which these individuals may attempt to manage through use of television.

Arousal Strangely, the same pattern of relationships exists between the temperament traits of sleep activity and rhythmicity and the motivation to use television for arousal as did for relaxation motivation. Activity during sleep is positively related to using television for arousal and sleep rhythmicity is negatively related to arousal motivation. This makes sense in light of the strong positive relationship between Arousal and Relaxation motivations ($r=.60$; $p<.01$). It may be that restless, irregular sleepers have a greater need for general stimulation management (both arousal and relaxation) than regular sleepers. That is not to say that arousal and relaxation are the same variable, only that those experiencing a poor night's sleep may be more likely to manipulate their internal level of stimulation either by increasing (arousal) or decreasing (relaxation) the level of external stimulation through television use. This is consistent with Strelau's (1989) operationalization of temperament.

Other negative predictors of arousal motivation include Mood and Task Orientation. Consistent with earlier research, those with a negative general mood are more likely to use television for arousal. What is different about these findings is that previous research was concerned with transitory mood states, sometimes manipulated in laboratories (Zillmann & Bryant, 1985) and other times naturally

manipulated (Helregel & Weaver, 1989). These results suggest that long term television use patterns may be explained by enduring mood states. Why do some people constantly watch action-adventure films? Perhaps they have a chronic need to control a negative mood trait or to manipulate stimulation (arousal or relaxation) levels.

Learning When non-significant predictors are removed, learning motivation for television viewing can best be predicted by the interaction among two negative predictors (Flexibility and Task Orientation) and one positive predictor (Approach). Whereas Flexibility and Task Orientation consistently show up as negative predictors of television use motivations, Approach has not previously emerged as a predictor. Individuals with high approach use of television for learning about things and people on television. Perhaps these people have a high need for interaction with others and partially meet their social needs through use of television.

Diversion Use of television to escape from problems is driven by two negative predictors: Flexibility and Task Orientation. There is a clear relationship between diversion motivation and low task orientation. Individuals who are low on task orientation are easily distracted from activities. It is not surprising that these individuals would turn to television often to as a diversion for their low task persistence. The relationship between diversion and low flexibility is less clear. Earlier, it was suggested that low flexibility appears to be a consistent negative predictor

of television use motivation because the regularity of television provides a predictable outlet for individuals who do not like to be confronted by new things. It may just be that television provides a predictable outlet when the low flexibility individual seeks diversion.

Pass Time Pass Time motivation was predicted by the interaction between the positive predictor of Activity-Sleep and the negative predictors of Approach and Task Orientation. The negative relationship between Approach and Pass Time supports the prediction in hypothesis five which suggests that individuals who are low on approach may not have many outside activities and may turn to television to pass time. Additionally, the relationship between Task Orientation and Pass Time motivation was predicted in hypothesis eight. Unexpected was the positive relationship between active sleep patterns and pass time motivations. Taken together, these relationships paint a picture of the stereotypic couch potato-- a shy, easily distracted individual with restless sleep who watches television to pass away time.

Summary of Interpretation The numerous findings of this study obscure a clear picture of the relationship between temperament and television use motivation. A summary of major patterns will help clear up the picture.

1. Temperament and television use motivations are related in a variety of ways.

2. Task Orientation and Flexibility are consistent negative predictors of television use motivations in both mean difference analysis and regression analysis and may be considered general negative predictors.
3. Each television use motivation shows a different pattern of temperament predictors.
4. Motivations that can be tied to central nervous system processing (Arousal and Relaxation) have more temperament predictors than motivations that appear to be more social in orientation (Learning and Diversion).

Implications for Theory

The findings of this study lend support to the uses and gratifications paradigm outlined by Rosengren. Individual differences in temperament do appear to drive motivations for using media, supporting a link between step 2 and step 6 of the Rosengren model (1974, p. 270). If we infer a socially driven motivation of media use due to the absence of an effect of temperament on Learning and Diversion motivation, this supports a link between step 3 and step 6 of the model. This inference would lend support for the general assertion that there is some interaction between intra-individual characteristics (step 2) and social factors (step 3) which determine patterns of media use motivations. This assertion was not directly tested in this research and needs to be more

directly measured in future research by taking into consideration social factors.

Atkin (1985) drew a distinction between media "uses" and media "gratifications". Uses are more teleological in orientation-- specific, delayed outcomes anticipated from the media exposure with the intention of attaining pragmatic goals. On the other hand, media gratifications are "... transitory mental or emotional responses providing momentary satisfaction at an intrinsic level." (p. 63) This distinction is consistent with the findings of this study. The results suggest that the gratifications or "transitory mental or emotional responses" that Atkin describes may be driven, in part, by temperament. These motivations include Relaxation and Arousal. If temperament is the prime driver, the individual's need for these gratifications may be more chronic and less transitory than Atkin suggests, thus explaining long term patterns of media usage.

The uses about which Atkin writes may include motivations such as Learning and Diversion. In addition to being more teleological and pragmatic desired end states, these motivations may have a stronger social component than the gratification type motivations. Perhaps the bifurcation of motivations that Atkin suggests are driven by either nature or nurture. "Gratification" motivations may be primarily rooted in central nervous system processing and driven by temperament, whereas "uses" may be driven by social demands and are thus more pragmatic and teleological. This

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would account for the results of this study and support the uses and gratifications paradigm outlined by Rosengren. Further research is needed that addresses the issues of social verses biologically rooted drives more carefully and specifically.

Some researchers (Rubin, 1984) have addressed the assumption of audience activity by positing a difference between instrumental and ritualistic media use motivations. Similar to the Atkin distinction between "uses" and "gratifications", these researchers have suggested that media use motivations can be separated into those in which the viewer makes an active choice to seek out media (instrumental) and those in which the audience views out of passive orientation to media (ritualistic). This distinction is consistent with the argument offered here. Ritualistic uses may be rooted in temperament-based drive reduction activities. I may not consciously (actively) choose to watch television to equilibrate my arousal level. The choice is made at a subconscious level and may be either trait (temperament) or state dependent. Instrumental uses may be more social in origin and less dependent on temperament. My social based need to acquire information will cause me to actively seek out media which will provide me with answers.

The overall picture is consistent with the contextualist view that is currently popular in psychology and may be gaining a foothold in communication science (e.g. Cappella, 1997; Ellis, 1997). The contextualist view privileges

neither nature nor nurture in theoretical explanation; instead looking to the interaction between the two. As explained in Chapter 2, media effects research has historically been expressly environmentally deterministic. By embracing a contextualist paradigm, we stand to increase explanatory power in media effects theories. For example, arousal theory (Tannenbaum & Zillmann, 1975) predicts that people are more likely to react aggressively after they have been aroused by viewing media. The present research suggests that temperament may lead only certain individuals to seek out media for arousal. Strelau (1989) would suggest that these individuals are low in reactivity and need stimulating media to maintain a comfortable level of equilibrium. On the other hand, high reactives would avoid exciting media because their central nervous systems cannot deal with the excessive stimulation. Therefore, this study suggest that those who are most easily and strongly aroused (high reactives) may not expose themselves to exciting media, instead seeking out less arousing forms of media. If so, aggression due to media arousal in the real world may be moderated by the non-use of violent media by those most likely affected.

Directions for Future Research

This research represents a first attempt at linking biologically rooted individual difference variables to media usage. The success realized here demands that further research be undertaken, addressing the limitations of this

study and expanding its scope. In particular, future research needs to: address social factors; look at other age groups; test for differences by media; and expand the preliminary findings into the area of media effects.

Social Factors Rosengren's model states that media use motivations are driven by both individual differences and social factors. Results obtained here suggest a bifurcation between biologically driven motivations (Arousal and Relaxation) and socially driven motivations (Learning and Diversion). This assertion is tenuous and predicated on the lack of relationship between temperament and the social motivations. This is a reasonable assertion only if there are no other biological roots for Learning or Diversion motivations, such as an individual difference in curiosity or avoidance. Such individual differences need to be examined, in addition to social forces that may drive Learning and Diversion motivations (e.g. uncomfortable home or school environment).

Age Groups Results of this study are limited in generalizability by the emphasis on one age group. Uses and gratifications research has shown that there are age differences in media use motivations (Greenberg & Hnilo, 1996). Expanding the study to include younger and older subjects will give us a clearer picture of the relationship between temperament and media use across the life span. Ideally, such a study would be longitudinal, tracking both temperament and social factors through the individual's

development. Is temperament a stronger predictor in early development (e.g. early childhood, adolescence) than was found here?

College undergraduates were purposefully chosen as a subject population for this study to control the contextual factors present while a child is still under parental control. Now that a relationship between temperament and media use is established, future research needs to examine younger subjects, measuring parental influence on media use. Is the effect of temperament on media choice weakened by parental mediation? How do individuals cope with opposing pressures between parental mediation and temperamental drives? Do these conflicts inform later media choices or choices to use media outside the home? What about conflicts between temperament and peer pressure?

Media Genre This study asks about general television use motivations. However, uses and gratifications research has carved out separate traditions for various television genres such as entertainment (Gantz, 1996); news and information (McDonald & Glynn, 1984); soap operas (Babrow, 1987); religious television (Abelman, 1987); etc. Typologies for the genres differ from one another, suggesting that separate motivations exist within viewers' minds for the various genres. Research needs to be undertaken to examine the various genre typologies relative to the patterns obtained in this study. Will the bifurcation between

biological and social motivations hold up for different television genres? Will different patterns emerge?

The present study is also limited by its examination of only one medium-- television. Research exists which suggests that people have different motivations for using different media, including newspapers, magazines, radio and film (Finn, 1997). It would be instructive to expand this research to those media and to new media such as video games and the internet. How do individual differences break down by media? Are some media better at satisfying stimulation needs than others (e.g. video games vs. newspapers)? If so, do people separate into heavy video game users or newspaper readers according to temperament? Is temperament a more potent predictor for certain media and not for others?

Media Effects The present study does not address the issue of media effects. However, there are compelling implications for media effects research contained within the findings. First, evidence suggesting a biological basis for selective exposure to media has implications for improving explanatory power of current media effects theories. How are the traits of individuals who use certain media genres related to predicted effects? Does temperament decrease the likelihood of real world effects as in the Arousal example presented earlier? Does temperament increase the likelihood of other effects? Secondly, research needs to examine the influence of temperament traits on realized effects. Perhaps a significant portion of error variance from experimental

research can be explained by individual differences, as was suggested by Tannenbaum (1996).

Conclusion

The uses and gratifications paradigm offers an intuitively appealing, contextualist explanation of media effects. It attempts to account for an active, individual viewer who is influenced by both biological and social differences in media usage and effects. However, the explanatory potential of this paradigm has been under-utilized due to a historical narrow focus on creating motivation typologies. Rubin (1994) has begun to address this shortcoming by trying to link media use motivations to effects in ways that are predicted at the end of the model. The present research adds to Rubin's work by demonstrating the importance of individual difference variables from the beginning of the model. Results suggest that further research needs to examine more closely the role of temperament in media use and effects.

APPENDICES

APPENDIX A

APPENDIX A

Dimensions of Temperament Survey- Revised

Distribution of the Dimensions of Temperament Survey-Revised is controlled by the copyright owners, Michael Windle and Richard Lerner. The survey is available from:

Dr. Michael Windle
Research Institute on Addictions
1021 Main Street
Buffalo, New York 14203

APPENDIX B

APPENDIX B

Greenberg Uses and Gratifications Scale

Why do you like to watch tv?

Here are some of the reasons people have given in the past for watching television. Even if you don't watch television much, indicate which you agree or disagree with using the following scale.

1	2	3	4	5	6
Strongly Disagree	Mostly Disagree	Disagree Somewhat	Agree Somewhat	Mostly Agree	Strongly Agree

_____ 1. TV gives me something to do when I don't have anything to do.

_____ 2. I watch TV when I want to get away from others.

_____ 3. TV teaches me things I don't learn elsewhere.

_____ 4. I sometimes watch TV to learn how to act in different situations and places.

_____ 5. TV relaxes me.

_____ 6. Television is almost like a friend.

_____ 7. I watch TV because its a habit.

_____ 8. TV excites me.

_____ 9. I watch TV to fill up time.

_____ 10. Watching television helps me forget my problems.

_____ 11. I can learn how to do things I've never done before from television.

_____ 12. I learn from the mistakes of characters on television.

_____ 13. TV cheers me up.

_____ 14. Watching TV is a pleasant way to rest.

_____ 15. Watching television helps me forget I'm alone.

_____ 16. I watch TV when I want to forget about school and homework.

_____ 17. I watch television to know what is going on in the world.

APPENDIX B

Greenberg Uses and Gratifications Scale (cont.)

_____ 18. I can learn what might happen to me by watching television.

_____ 19. TV gives me thrills.

_____ 20. Watching television is a lot of fun.

_____ 21. TV calms me down.

_____ 22. Television gives me company.

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