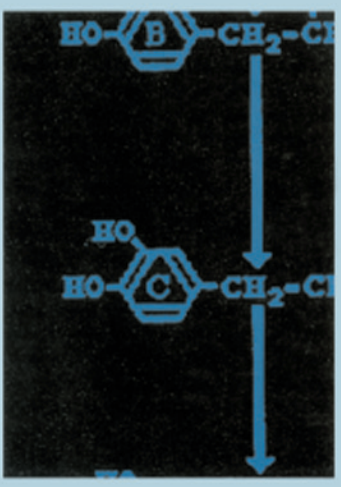
Communication and Emotion

Essays in Honor of Dolf Zillmann



Edited by
Jennings Bryant • David Roskos-Ewoldsen • Joanne Cantor

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Introduction

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A Brief Biography and Intellectual History of Dolf Zillmann

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An abbreviated professional biography of Dolf Zillmann—a *Who's Who* entry, for example—might look something like this:

> **Dolf Zillmann.** *Nee* March 12, 1935, in Meseritz, Mark Brandenburg, Poland (then Germany). *Education:* Diploma, Architecture, Staatliche Werkakademie, Kassel, Germany, 1955; Diploma, Communication and Cybernetics, Hochschule für Gestaltung, Ulm, Germany, 1959; Ph.D., Communication and Social Psychology, University of Pennsylvania, 1969. *Family:* Wife: Valtra Zillmann, nee Riedle, born May 29, 1938; Children: Martin Zillmann, born May 10, 1959; Tomas Zillmann, born February 28, 1964. *Academic Employment:* Assistant Professor, University of Pennsylvania, 1969–1971; Associate Professor, Indiana University, 1971–1975; Professor of Communication and Psychology, Indiana University, 1975–1988; Director, Institute for Communication Research, Indiana University, 1974–1988; Professor of Communication and Psychology and Senior Associate Dean for Graduate Studies and Research, University of Alabama, 1989–2001. *Books: Hostility and Aggression* (1979), *Connections Between Sex and Aggression* (1984), *Selective Exposure to Communication* (1985), *Perspectives on Media Effects* (1986), *Pornography: Research Advances and Policy Considerations* (1989), *Responding to the Screen: Reception and Reaction Processes* (1991), *Media Effects: Advances in Theory and Research* (1994), *Media, Children, and the Family: Social Scientific, Psychodynamic, and Clinical Perspectives* (1994), *Connections Between Sexuality and Aggression, 2nd ed.* (1998), *Media Entertainment: The Psychology of Its Appeal* (2000), *Exemplification in Communication: The Influence of Case Reports on the Perception of Issues* (2000), and *Media Effects: Advances in Theory and Research, 2nd ed.* (2002).

Although accurate, such a synopsis provides no indication of the confluence of forces that helped create one of the most productive and influential scholars in the annals of communication inquiry, nor does it even begin to explain the unique qualities of the individual who undoubtedly generated more "name-brand" theories than anyone in the history of communication research. In this chapter we attempt to identify some of the intellectual streams that contributed to the scholarship of Dolf Zillmann, and we strive to "put a face" on the brilliant scholarship presented and discussed in the remainder of this volume on Communication and Emotion, which is devoted to our mentor and friend.

EARLY FORCES

Dolf Zillmann was born into a banking family in Meseritz, Mark Brandenburg, in what was then Germany but which became part of Poland after World War II. His father was a pacifist and refused to fight in the Hitler regime. Therefore, the senior Zillmann was made a civilian logistical officer and was separated from his family during the war. Toward the end of the war, the father, who never fit in because of his pacifism, was killed.

The remainder of the Zillmann family spent much of the war fleeing the Russians, ending up in the Hessen region of Germany, near Marburg: "It was just my mother, my sister Annemarie, and me. We left home, leaving everything behind, and fled without even a suitcase." Conditions were stark, food was scarce, and life was at peril.

Education during the war years was often an afterthought, because many of the eligible teachers were in combat, and others who allegedly were "teachers" really were Nazi propaganda specialists. In many instances, retirees who were too old for military duty were called on to teach in the primary and secondary schools. You had to want an education badly to receive one; some home schooling was essential, and much learning was self-acquired. Obviously Dolf Zillmann thrived in this challenging educational environment. In fact, by age 12 he had been "drafted" to assist in teaching in a secondary school by a retired teacher who had been brought back from Breslau to serve as school Director.

It is likely that these early educational experiences were critical in helping to create a Renaissance scholar who has consistently refused to accept disciplinary boundaries. To this day, the intellectual life of Dolf Zillmann is typified by independent, continuous learning without walls. So what if one has to delve deeply into psychophysiology or biochemistry to conduct

theoretical research on emotion? That's not so different from teaching oneself math or history in order to teach those subjects to one's peers.

INITIAL HIGHER EDUCATION

Dolf Zillmann's initial higher education involved professional study in architecture at the Hochschule für Gestaltung in Ulm, Germany. Perhaps presciently, in light of Zillmann's later extensive research program in media effects, a television program played an important role in getting him to Ulm. In those days, people rarely had television sets in their homes. One day, while with friends in a café in Kassel, Zillmann saw on the café's television set Theodor Heuss, the President of Germany, and Walter Gropius, master of the Bauhaus tradition, dedicating some beautiful new buildings that were designed to house the New Bauhaus architecture school in Ulm. Prior to World War II, right-wing German authorities had closed the original Bauhaus school of design, craft, and architecture founded by Walter Gropius in 1919. After the war, Bauhaus traditions were continued with the founding under Max Bill of the Hochschule für Gestaltung (College for Design) in Ulm. When Zillmann watched the televised opening of this new school, designed to cultivate and spread the New Bauhaus ethos, his interest was captured. He immediately traveled to Ulm, where he had the good fortune of running into Max Bill himself. Professor Bill was excited about the school and told Zillmann, "Oh, this is an elite school, and we need people just like you!" Zillmann was sold, and he received a full fellowship with no obligations, which gave him ample time for diverse intellectual explorations during his architecture study.

Dolf Zillmann, in 1958, as a student of architecture at the Hochschule für Gestaltung in Ulm, Germany. Little did he know where his career would take him.

Zillmann considers this time at the Hochschule für Gestaltung at Ulm to have been a remarkable educational experience. The student body was incredibly cosmopolitan—"full of strange characters"—and the faculty and students were the elite of the New Bauhaus movement, including peers like Ulm design student Ferdinand Porsche. The breadth of scope and the complexity of the New Bauhaus education allowed Zillmann to combine his interests in aesthetics, mathematics, civil engineering, and the like and permitted him to explore many dimensions of his creativity in applied pursuits. For example, he was able to work with Max Bill and enter competitions for the design of major buildings in cities like Zurich. This study and its resultant diploma in architecture led Zillmann to many practical applications, like city planning for Esfahan, then the capital of Persia, and designing public buildings in various European cities. Zillmann specialized in public architecture (especially public libraries), because, as he put it, "with Europe in ruins, architects were in great demand." He also dabbled in residential architecture, but the sorts of compromises required in working with the future homeowners left him somewhat disenchanted with such endeavors.

Putting his architectural training to good use in Lausanne, Switzerland. Apparently for lack of satisfying challenges, he would soon be back at college, studying communication and related fields.

Dolf Zillmann's architectural education also contributed greatly to his future research in communication. Not only did this education enhance his interests and expertise in aesthetics, which ultimately contributed considerably to his research in entertainment theory, it also honed his skills in drafting and photography. As his legions of graduate students know, Zillmann often created and manipulated his own stimulus materials, including cartoons and photographs, and he did this with incredible precision as well as remarkable flair. This ability undoubtedly was facilitated by his early education and experiences in architecture.

As Dolf Zillmann's interest in architecture waned, he utilized his Geschwister-Scholl-Stiftung fellowship at the Hochschule für Gestaltung in Ulm to take additional coursework in industrial design, a specialized form of civil engineering. His graduate students in communication will all recognize the practical value of this degree: In addition to developing his own stimulus materials, Zillmann has also designed and created much of the technical apparatus for his experiments. This specialized instrumentation has lent an exceptional degree of precision and creativity to his research—in ways most of us cannot even begin to approximate.

From this education in design, Dolf Zillmann continued to migrate into cognate areas, beginning his foray into communication. In fact, the focus of the next iteration of his program at Ulm was on Communication and Cybernetics. Although Zillmann's host institution continued to be Ulm, his principal advisor and source of influence during this period was a professor at the University of Stuttgart, Max Bense, founder of what became known as the "Stuttgart School" of aesthetics and semiotics. A highly visible, and on occasion, politically controversial scholar and teacher, Bense had been a visiting professor at Ulm, where Zillmann first met him. Like Zillmann, Bense had delved deeply into a variety of disciplines during his formative years; in his case, physics, mathematics, chemistry, and geology had been major foci. All of these disciplines contributed to Bense's abstract theories of aesthetics, which were extremely mathematical in orientation. Zillmann recognized the value of additional study with Max Bense, and fortunately his fellowship allowed him to travel. Therefore, Zillmann became a special student in Bense's Institut für Wissenschaftstheorie (Institute for Theory of Science) at the University of Stuttgart, where he studied and began a lifelong friendship with Max Bense (who died in 1990). With Bense, Zillmann explored mathematical theories of aesthetics, semiotics, and information theory, among many other areas of inquiry.

During his formative explorations into communication theory, scholars at other universities also interested Zillmann, and he frequently traveled to

study with them. For example, he became a special student at the University of Munich, where he took medical courses with Herbert Schober on the physiology of vision. During this period, he also benefited from encounters with Norbert Wiener, the founder of cybernetics, with Andreas Speiser, the founder of structure theory, and with many other leading scholars throughout Germany. Courses in theater, dance, anthropology, biology, sociology, and the like were worked into the smorgasbord that was Zillmann's curriculum in Communication and Cybernetics, which was integrated under the tutelage of Max Bense.

THE COHEN HOLDING GROUP

While Dolf Zillmann was at Ulm working on his diploma thesis in Communication and Cybernetics, one of his professors approached the renowned Swiss industrialist and media mogul Victor N. Cohen, while the Cohens were window-shopping in Zurich's famous Bahnhofstrasse. The professor interrupted Cohen, who owned the largest communications company in Switzerland, with a cold pitch that, as legend has it, went something like this: "Sorry, I am not exactly sober, but I know who you are, and I know what you do. You have to get Zillmann." Soon afterward, Dolf Zillmann got a call from Victor Cohen, inviting him to Zurich, although Zillmann really was not even in the job market. Cohen created a special position for Zillmann, something like an internal consultant, which gave Zillmann access to the entire Cohen Holding Group. His role was to study company initiatives and operations and give weekly lectures on topics that seemed important for Cohen's various undertakings.

Soon Zillmann was serving as scientific advisor to the advertising and marketing groups, to a film company, and to other divisions of the company. However, he was also made leader of a design group, with responsibilities for developing and testing new products and marketing campaigns for companies like General Electric, DuPont, Kodak, Ciba (now Novartis), Hoffmann-LaRoche, and General Motors. The new products were to be ergonomic in design, in adherence to the Bauhaus philosophy. The credo of the group was, "Give us a product, and we'll improve on it. We'll make it serve its function better." The design group conducted operations that ranged from basic product design through marketing and advertising and including evaluation, and Zillmann's group developed and employed a variety of innovative communication research techniques to facilitate the work of

Cohen Holding. During 1959–1965, when Zillmann was with the Cohen Holding Group, he directed teams developing products as diverse as prefabricated houses, vacuum cleaners, watches, kitchen appliances, electric razors, and containers. He also received several international patents for mechanical engineering aspects of these products and garnered international awards for excellence in both product and packaging design.

Zillmann (with bow tie) in the communication business, leading a planning session in the Cohen Holding Group in Zürich, Switzerland, sometime in the early 1960s.

In many ways, through his work with the Cohen Holding Group, Zillmann was pioneering practices in what now is commonly referred to as Integrated Communication. However, in this instance, the comprehensive communication plans included product or idea design, as well as marketing, advertising, and public relations.

A FOOT IN ACADEME

While working with Cohen, Dolf Zillmann continued to pursue academic interests. He taught at Ulm, assuming the paradoxical title of "permanent

visiting professor." He also taught advertising and marketing seminars in some of the preeminent business schools in Switzerland. Zillmann often utilized specialized academic research seminars to help bridge gaps between industry and academe. For example, he planned an international campaign against smoking for the Swiss and German Ministries of Public Health in such a seminar, the results of which were presented at an International Conference on Preventive Medicine in Luzern, Switzerland, in 1964. And he developed an international sign system for pharmaceutical products for the Ciba Corporation between 1965 and 1968, also utilizing a research seminar in Experimental Semantics as a critical vehicle for idea development, implementation, and evaluation.

Wanting to have a foot in academe, during his years in the industry Zillmann taught persuasion and public-health campaigns as a visiting professor at his German alma mater. The photograph shows him in 1962 at the very beginning of his college teaching career.

Zillmann regularly received encouragement from scholars like Max Bense to begin a formal doctoral program. However, he found it very difficult to give up the rewarding life he had in Zurich, in which he had a hand in so

many different and exciting aspects of the fusion of industry and academe. One aspect of this fusion was the creation of an Institute for Communication Research within the Cohen Holding Group, to which prominent scholars would be invited in for lectures and discussion with the employees.

Reaping the benefits of success in the communication industry, Zillmann in 1964 is setting sail on the Lake of Zürich. Who else sails dressed in a bow tie?! His former colleagues still wonder why he abandoned "the good life" for the austerity of a professorial career.

The first guest of the Institute for Communication Research was Percy Tannenbaum, one of the early facilitators of international communication research initiatives. Osgood, Suci, and Tannenbaum's *The Measurement of Meaning* (1957) had recently been published and was creating a stir in academe and industry alike. Moreover, Zillmann had pioneered a methodology called Aspect Analysis that was quite similar to the semantic differential utilized by Osgood et al. When someone at Cohen learned that Tannenbaum was in Greece, he was invited to Zurich to speak at the Institute for Communication Research.

As might be expected by those who know both Zillmann and Tannenbaum, they had many interests in common, and they found that they loved to argue over all aspects of their commonalities and differences. The offshoot of this intellectual kindredship was that Tannenbaum successfully recruited Zillmann for doctoral study in the United States. According to Zillmann, Tannenbaum was successful, in part, because "he was a very imposing guy, and he could handle me at the time, because my English was not very good then."

DOCTORAL STUDY IN THE STATES

Dolf Zillmann began doctoral study at the University of Wisconsin, where Percy Tannenbaum was on the communication and psychology faculties. Tannenbaum and Zillmann essentially formed what Zillmann called a "mutual catalytic society." As previously mentioned, both were interested in the dimensionality of semantics and had independently developed systems for assessing meaning through the use of scales, relying on factor analysis and related statistical procedures to probe for underlying structures. Another shared interest was in iconic communication. Both Zillmann and Tannenbaum had conducted systematic research on photography, using various aspects of the formal features of "visual language" to examine the impact of iconography, an interest Zillmann would continue throughout his career. Both were fascinated by various aspects of emotionality, a topic that would lead to a seminal jointly authored publication entitled "Emotional Arousal in the Facilitation of Aggression through Communication," published in *Advances in Experimental Social Psychology* in 1975. Moreover, both investigators obviously shared interests in the social and psychological impacts of media. However, Tannenbaum was never truly Zillmann's mentor in the way Bense had been. Instead, this was a collaboration between two mature investigators, although one was a professor and the other a doctoral student.

After the two had spent a year together in Madison, Tannenbaum accepted a faculty position at the University of Pennsylvania, and Zillmann received a Research Fellowship to continue his doctoral education in communication and social psychology at the University of Pennsylvania. It is a common misconception that Zillmann received his training at the Annenberg School; in reality, he did not take courses in that program. Most of his training was in psychology, especially with Albert Pepitone in aggression and Richard Solomon in motivation and emotion, and he studied with Aaron Katcher in the medical school. Katcher had an important influence on Zillmann, because it was from Katcher that Zillmann learned the principles and mechanics of physiological research, which left a prominent stamp on his work in communication and emotion. They also published early research on excitation-transfer theory together, so Katcher's role was pivotal in facilitating the physiological aspects of Zillmann's research program.

While at the University of Pennsylvania, Zillmann also taught courses in animal communication, quantitative semantics, statistics, and research

methods. Moreover, much of Zillmann's research at Pennsylvania was on cybernetics and computer applications. One of his early English-language journal publications was entitled "The Sequential Expansion of a Decision Model in a Spatial Context," published in *Environment and Planning* in 1969, which presented the implications of a computer model of emotional "panic" behavior. During this period Zillmann also received a National Science Foundation (NSF) grant to develop advanced statistical computer programs, including various sophisticated analysis of variance routines, as well as to develop unique programs in Chi-Square analysis and other nonparametric statistical techniques. Zillmann's doctoral students from the 1970s are convinced that the elegance and utility of those programs has yet to be matched by statistical packages such as SPSS and SAS.

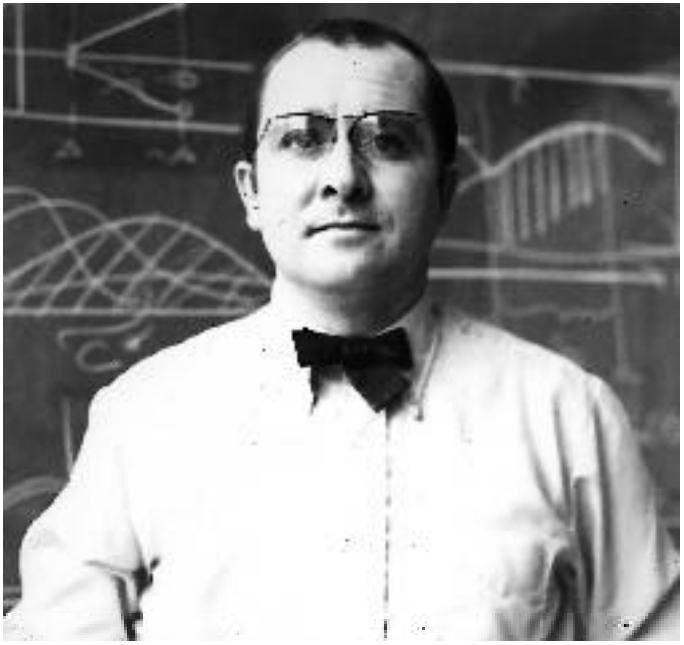
The dissertation committee that Zillmann pulled together at the University of Pennsylvania was representative of the breadth of his interests. Percy Tannenbaum served as chair, and other members were Albert Pepitone, Aaron Katcher, Larry Gross, and Sol Worth. His 1969 dissertation was entitled

Zillmann started his academic career in communication at his American alma mater, the University of Pennsylvania, in 1969. The photograph shows him in a faculty meeting at the Annenberg School of Communication. From left to right are professors Larry Gross, Klaus Krippendorf, Dolf Zillmann, Percy Tannenbaum, and George Gerbner.

"Emotional Arousal as a Factor in Communication-Mediated Aggressive Behavior," and it led to the first published article on excitation-transfer theory: "Excitation Transfer in Communication-Mediated Aggressive Behavior," published in the *Journal of Experimental Social Psychology* in 1971. With this publication, his American communication career was fully launched.

AN INITIAL PROFESSORIAL APPOINTMENT

Between 1969 and 1971, Zillmann was an Assistant Professor in the Annenberg School for Communication at the University of Pennsylvania. He continued teaching many of the same courses he taught as a graduate student, and he obtained grants from the NSF to support the computer generation of mathematical structures for the advanced analysis of variance, and from the National Institute of Mental Health for the support of research into the effects of exposure to portrayals of aggressive and sexual behaviors.



Dolf Zillmann during his early years at Penn. The blackboard shows that excitation-transfer theory was in the making.

THE BLOOMINGTON YEARS

In 1971, Dolf Zillmann accepted an Associate Professor appointment at Indiana University, and the Zillmann family relocated from the urban East to the heart of the American Midwest—Bloomington, IN. This was to prove to be a long and productive sojourn, as Zillmann remained on the IU faculty as Associate Professor (1971–1975) or Professor (1975–1988) of Communication, Professor of Psychology (1979–1988), and Professor of Semiotics (1981–1988) for a total of 17 years. During that period, Zillmann also served as Founding Director of the Institute for Communication Research (1974–1988), Director of the Interdisciplinary Doctoral Program in Mass Communication (1974–1976), Director of the Graduate Program in Communication (1979–1980), and Department Chair in Telecommunication (1979–1980).

The Indiana years were crammed with prodigious programmatic empirical efforts in various aspects of communication and emotion, including NSF-supported research on diverse aspects of excitation-transfer theory, aggression, pornography, humor, suspense, sports, and so forth. Essentially Zillmann served as research team leader as well as mentor for a revolving cast of eager doctoral students who benefited greatly from his tutelage and from the flexible research facility that was the Institute for Communication Research (ICR). Very few unassuming Tudor houses ever

Zillmann's initial support group at Indiana University, Jennings Bryant and Joanne Cantor, during a most productive research period. Yes, we looked like this in 1973.

hosted and facilitated as much research activity as did this jerry-rigged laboratory facility, whose internal structure was frequently altered to accommodate new research protocols. So productive was his research group during these Indiana years that many of the mass communication doctoral students who worked as ICR Research Assistants with Zillmann graduated with several articles already published in prestigious journals, as well as with numerous other manuscripts "in press." Naturally, other preeminent communication programs often hired these fledgling scholars when they graduated with their C.V.'s engorged by collaboration with their incredibly productive mentor. A number of these students have become leading lights in communication scholarship, and their students—Zillmann's intellectual grandchildren—are now reaching prominence throughout the academy.

Zillmann caricatured by doctoral students as the wizard of excitation transfer. The text on the book he holds is "Violence, Erotica, and You"; that on the plate by the fire is "Arousal for Fun."

In addition to generating a plethora of journal articles, during the Bloomington years, Zillmann crafted a number of distinguished chapters and books that essentially defined several domains of research in communication and emotion: entertainment theory, mood management theory, selective exposure, excitation-transfer theory, disposition theory, anatomy of

suspense, misattribution theory of humor, massive-exposure media effects, coition as emotion, sportsfanship, rhetorical questions and persuasion, three-factor theory of emotion, empathy theory, connections between sex and aggression, and others. Remarkably, all of these theories and their attendant research traditions are indelibly associated with the name Dolf Zillmann, and all had their nexus in the hills of Monroe County, Indiana, during the less-than-two-decade period of Zillmann's service to Indiana University.

BAMA BOUND

During 1987–1988, Zillmann was a Visiting Fellow at Wolfson College of Oxford University in England. This was a time of writing and reflection; it also proved to be the prelude to a move to Alabama. In 1989, Zillmann joined the University of Alabama as Professor of Communication and Psychology and Senior Associate Dean for Graduate Studies and Research in what was to become the College of Communication and Information Sciences. His primary administrative assignment was to launch a new

In 1983, with his German mentor, Max Bense (at right), and Bense's wife, Elisabeth Walther (best known for her biography of Charles Sanders Peirce), in Suzette near Avignon in France. In veneration of Peirce, Bense's home was christened Maison Milford (Milford, MA, being Peirce's birth place).

doctoral program in mass communication. Between 1989 and 2001, Zillmann led that program to national prominence, and in 2001 he received the University of Alabama's highest award, the Burnum Distinguished Faculty Award, in recognition of his distinguished and outstanding service.

The Alabama sojourn was also a period of increasing internationalization of the Zillmann research program, as he developed a collaborative venture between Alabama and the University of Klagenfurt in Austria, while serving as a Fulbright Professor in Klagenfurt in 1991–1992. He also served as Visiting Professor at the University of Hannover and at the University of Amsterdam. These international appointments led to productive collaborations with a number of European scholars. Moreover, several European students migrated to Alabama to undertake graduate education under Zillmann's tutelage, and distinguished European professors came to Alabama for postdoctoral study with Zillmann. This was also a period in which Zillmann galvanized his international stature by giving numerous keynote addresses at prestigious international research symposia or conferences.

The Benses on a return visit to the Zillmann's summer home in the mountains of North Carolina, in 1989. At right is Valtra Zillmann.

While at Alabama, Zillmann taught a number of specialized research seminars in topics of interest to him, such as Sports in the Media, Humor and Comedy, Effects of Erotica, Effects of Popular Music, News and the

Perception of Social Reality, and Psychology of Dramatic Exposition. These seminars served as vehicles to extend his programmatic research in these several areas, and the students in these seminars prepared many "Top Rated" convention papers and published articles on these topics. In many instances, during his time at Alabama, Zillmann extended and refined his programmatic research and theory in areas in which he had previously carved out niches. Three major areas of primary research that came of age during the Alabama years were news research, research into music enjoyment and effects, and inquiry into the relationships between communication and pain management. The Zillmann theory that is undoubtedly most closely identified with the Alabama years is exemplification theory. Although his news research began at Indiana, this program reached maturity theoretically and flourished empirically at the University of Alabama.

Zillmann with his American mentor, Percy Tannenbaum, in a friendly exchange of ideas, sometime in 1997. Notwithstanding rumors to the contrary, the discussants actually enjoy the occasional disagreement.

REFLECTIONS ON ADDITIONAL INFLUENCES

We have discussed some of the individuals who have had an impact on Dolf Zillmann, largely through his personal contact with them, either through

their teaching or via research collaboration. Other scholars whom Zillmann has never met have had considerable impact on him through their intellectual legacy. One of these individuals was Sigmund Freud. It was during the Ulm years that Zillmann was first exposed to the works of Freud, and throughout his career Freudian ideas have been examined. Zillmann ultimately supported and extended some of Freud's ideas (e.g., misattribution theory of tendentious humor). Other Freudian ideas (e.g., identification) have been modified or refuted in Zillmann's theories and research. Whatever the outcome, Zillmann has almost always found Freud's ideas to be provocative.

Many "classic" Western philosophers have also influenced Zillmann. In particular, the works of Plato, Aristotle, Kant, Locke, Hobbes, Hume, Schopenhauer, and Adam Smith were frequently cited and systematically examined by Zillmann. Early psychologists, such as William James, William McDougall, B. F. Skinner, Walter Cannon, and Daniel Berlyne, were also catalytic forces in Zillmann's work.

The work of Stanley Schachter played a prominent role in Zillmann's theoretical hierarchy. The two-factor theory of emotions was a linchpin of excitation-transfer theory, and Schachter's protocols also impressed Zillmann during his formative years. Likewise, Leon Festinger's social comparison theory has been an important component of Zillmann's theorizing.

On one occasion, Zillmann noted that a childhood experience with a children's puppet show—a street performance of Rumpelstiltskin—was a catalytic event in stimulating his interest in entertainment, especially regarding the role of moral judgment in the enjoyment of various aspects of drama. After seeing a particularly rousing demonstration of this drama, long before television, his young mind was set to wondering about the mechanics of entertainment, generating questions that were addressed many years later in his laboratories.

Zillmann also credits several essentially anonymous students with prompting key ideas via classroom questions that led to theory development or refinement. Issues like dispositional override of empathy and the role of rooting in the enjoyment of sports contest were often refined in classroom discussions, as well as in meetings of the various research teams Zillmann fostered.

THE PLACE OF PERSONAL INTANGIBLES

Tracing some of the intellectual forces that have helped precipitate the corpus of Dolf Zillmann's work, it became obvious that numerous personal

characteristics have been as critical to his successes as have been these external forces. Many of these are essentially endogenous variables. For example, you cannot account for the magnitude or quality of Zillmann's theoretical work without taking into account his sheer brilliance. Generations of students have come away from their initial encounter with Zillmann shaking their heads and murmuring, "that's got to be the 'brightest' person I ever met." Without his superior intellect, it is clear that far less would have been possible than what he has accomplished.

Similarly, how can you account for the numerous "fresh" perspectives on old ideas reflected in Zillmann's scholarship without relying on constructs like "originality"? Clearly, Dolf Zillmann is that rare original thinker who turns ideas "on their heads" on a regular basis. This generative factor helps account for the myriad theories of communication and emotion that he has developed.

Zillmann with mentor Tannenbaum during the 2000 annual get-together at the shores of the Pacific in California.

Less obvious factors that have constantly contributed to his incredible productivity are other, even subtler, personal attributes that Zillmann possesses. One such set of attributes is his rare combination of self-discipline and tenacity. External motivation has always seemed less important to Zillmann than self-motivation. This internal drive to better understand and clarify phenomena has resulted in extraordinary discipline, which has

exhibited itself in his application to arduous scholarship day in and day out throughout his long and productive career. The tenacity to carry on year after year without significant periods of rest and recuperation in a manner that is almost ascetic in character (although no one would argue that Zillmann has ever denied himself essential creature comforts, like gourmet food or fine wine!) has also been a hallmark of Zillmann's distinguished career. One thing is obvious: Zillmann could never be accused of a tenure surge. Every year of his professional life has been characterized by the maximal level of productivity possible.

THE X-FACTOR

And then, there is the X-factor! One could never account for the inordinate productivity or impact of Dolf Zillmann without taking into account (and thanking!) his lifelong helpmate, research assistant, intellectual partner, co-conspirator, personal trainer, personal chef, and best friend, Valtra Zillmann. The untold number of hours that Valtra Zillmann has spent in the library or at the computer or typewriter, working hand in hand with Dolf Zillmann, has made her the world's second foremost expert in communication and emotion. She's the wizard of his Oz. No one could be a better X-factor!

Zillmann receiving the University of Alabama's Burnum Distinguished Faculty Award. From left to right, Provost Nancy Barrett, Dolf Zillmann, and Mrs. & Dr. John F. Burnum.

A FINAL WORD

When we began this chapter, we thought that we would be inadequate to the task of explaining that which is Dolf Zillmann, and we were right. To our credit, however, we don't think that even Dolf Zillmann is capable of explicating and adequately explaining Dolf Zillmann.

Nevertheless, on behalf of his several generations of inspired and well-educated mentees and collaborators, at least we can sincerely, humbly, and earnestly express to the master our unwavering and heartfelt gratitude. Thank you, Dolf, our dear and faithful mentor and friend.

SECTION II:
Essential Theories and Concepts in Communication and Emotion

2

Excitation-Transfer Theory and Three-Factor Theory of Emotion

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Excitation-transfer theory and the more inclusive three-factor theory of emotion might well be regarded as the crown jewels of Dolf Zillmann's abundant contributions to theory construction. Without question, Zillmann developed an invaluable model from this complex fusion of elements from psychophysiology, biochemistry, communication, and cognate disciplines. Today, some 30 years after Zillmann's initial articulation of excitation-transfer theory, we have a cogent, elegant, and extremely comprehensive theory of communication and emotion that explains and predicts a vast array of human communication behaviors. Artfully developed and scrupulously researched by Zillmann and several generations of graduate student mentees, these complex theories provide roadmaps in several uncharted territories of emotionality.

The goal of this chapter is not to rephrase excitation-transfer theory and three-factor theory. Their creator has dutifully updated and refined these theories whenever fresh empirical evidence or emerging conceptual developments warranted. References to these updates are provided throughout this chapter, and it should be noted that Zillmann has continued this tradition in the final chapter of this volume. Space does not allow us to attempt a history of the programmatic development of this theory or the innovative designs and methodologies used to develop them. Rather, what we have attempted to do is showcase the fine threading and lacing of theory construction that produced excitation-transfer theory and then molded it into the three-factor theory of emotion.

A MAJOR RECONCEPTUALIZATION OF EMOTION

Growing concern about the increasingly violent media content in the late 1960s and early 1970s spurred debate over possible effects of such content on the real-life behavior of media consumers. The major initial players in the theoretical arena were the ancient doctrine of catharsis versus the instigational-effect hypothesis derived from stimulus–response models of behaviorism. Feshbach (1955, 1956) borrowed and built on the Aristotelian concept of catharsis and anticipated that vicarious participation in the aggressive behaviors depicted by the media would diminish aggressive inclinations in audience members. The rather tenuous backing for catharsis (Feshbach 1961, 1964) left the academic community in doubt and prompted researchers to examine the alternative possibility of enhancement effects of media violence on human aggression. Berkowitz's (1962, 1965a, 1969, 1970, 1973) cue elicitation model proposed that frustration-motivated aggressive responses were triggered by cues available in the individual's environment, including media content. The experiments conducted by Berkowitz and his associates (e.g., Berkowitz, 1965b; Berkowitz, Corwin, & Hieronimus, 1963; Berkowitz & Geen, 1967; Geen & Berkowitz, 1966, 1967) found that depicted violence, as compared to neutral communication, facilitated subsequent aggressiveness in previously frustrated individuals. Holmes' (1966) research indicated that the performance of retaliatory acts does not necessarily purge the individual of noxious arousal, but that such arousal could linger for some time and was possibly perpetuated by these acts. Walters and his coworkers (e.g., Walters & Thomas, 1963; Walters, Thomas, & Acker 1962), among others, found that exposure to communication-mediated violence could increase aggressiveness even in individuals who were not provoked prior to exposure.

When the negative effects of media violence began to be acknowledged as normative findings with significant social implications, theorists focused increasingly on explanatory mechanisms of how media facilitated hostility and aggression. For example, Bandura and his associates (e.g., Bandura 1962, 1965, 1973; Bandura, Ross, & Ross, 1963) proposed that aggressive responses are imitated and that media violence is an important source of social learning. They set out to determine the conditions under which imitation could take place. Gerbner (e.g., 1968, 1970, 1971) and his associates adopted a broader (societal) and less psychological and more radical perspective, frequently called the *cultivation hypothesis*. Cultivation

posited that media, especially television, create a ubiquitous and inescapable symbolic environment that distorts people's view of reality. Because of television's crime-laden content, heavy viewers were thought to perceive the world as more hostile and violent, resulting in an endemic mean-world syndrome.

Toward the end of the 1960s, when research evidence about the facilitating effect of media violence had reached a critical mass, researchers began to gravitate toward detailed psychological phenomena that appeared to have more explanatory potential or be technically more compelling. The major areas of interest were the changes that occur in media consumers during exposure (both cognition and emotion) and the nature of postexposure responses (e.g., aggressive, hostile, and prosocial behaviors). Psychological research and theory were scrutinized for possible applications to communication phenomena. Established theories of emotion that had hypothesized specific visceral changes linked with the induction of particular emotions (e.g., James, 1884) were assiduously challenged. Schachter (1970, 1971; Schachter & Singer, 1962) deemed extant conceptualizations of emotion to be lacking and provided evidence against them. He proposed a two-factor theory of emotion (Schachter, 1964). The first factor he considered was the interoception of nontrivial sympathetic excitation (i.e., that exceeding the baseline level) that served to gauge the intensity of excitation, possibly in combination with exteroception via conditioning (i.e., learning of associations between internal and external body changes, such as redness of cheeks and a burning sensation). As the physiological response (i.e., arousal) was found to be largely nonspecific (i.e., not well differentiated across emotions), a second factor was needed to account for the distinct experience of various emotions. Schachter considered that factor to be the exteroception of the immediate environment, which enabled the individual to attribute a cause to the emotional response being experienced. Such understanding/judgment was presumed to guide response behaviors. Schachter's two-factor theory thus posited a critical interplay between excitation and cognition in emotional processes.

Schachter's argument was congruent with a variety of prior research findings as well as previous conceptualizations. For instance, Cannon (1929) examined the emergency function of emotions and posited that their role was to ready the body for immediate energetic responses dictated by perceptions of imminent danger, independent of action particulars. Hull's (1943, 1952) drive theory predicted that arousal energizes any behavior that

requires above-normal deployment of energy. On the cognitive side, Hebb (1955) endorsed Hull's concept of drive as an energizer (i.e., considered arousal to be a general drive state) and stressed the cue function in the guidance of behavior (imported by Berkowitz into the field of communication in the late 1960s). In the late 1950s, attribution theory (e.g., Heider, 1958; Jones & Davis, 1965) proposed that humans seek to comprehend the causal relationships that govern our interactions with the environment, and that such endeavors provide epistemic motivation for our actions. Berlyne (1960) held that such epistemic motivation is most pronounced under conditions of uncertainty. Festinger (1954), Schachter (1959), and Bem (1972) pointed to the role of inferential processes in determining the appropriate response under conditions of ambiguity.

So, bits and pieces of extant theory were beginning to help clarify aspects of emotional behavior, but an articulated and comprehensive model to describe causes, manifestations, and effects was not yet available and was sorely needed. Looking at the landscape of emotion theory in psychology from the field of communication, the most promising candidate for importation appeared to be Shachter's two-factor theory, which was among the most sophisticated models available at the time. The question was how media messages induce or alter emotional states in audience members.

Applying a general model developed in psychology to account for emotional processes affected by mediated communication involved developments that progressed in two stages. In the early stage, the predictions about the roles of the two Schachterian factors were tested in the media environment while trying to account for the then most salient mass communication issue of aggression facilitation and escalation. Zillmann addressed this problem with excitation-transfer theory. Then a hoard of questions that had surfaced during the first stage of exploration forced expansion of the essential conceptualization and modeling if new issues were to be accommodated. Zillmann continued to lead this theoretical quest through a programmatic effort that spanned more than three decades, advancing Schachter's two-factor theory into a new three-factor theory of emotion.

A summary of the dynamics of Zillmann's approach to emotion should probably start with Hullian drive theory. Hull (1943, 1952) posited that the environment successively changes the operating habitat in such a way that the excitational residues, presumably unique to some prior distinctive drive stimulus, may become an element of irrelevant drive for subsequent, unrelated habits. By analogy, residual physiological excitation caused by

exposure to media violence could be expected to integrate additively as an irrelevant drive with subsequent excitation generated by other stimuli, elevate the prior level of excitation, and facilitate behavioral responses to those stimuli. Hullian theory contributed the ideas of excitation residuals and their integration in succession. Zillmann collapsed and connected Hull's drive theory and Schachter's two-factor theory, which posited an excitatory and a cognitive component of emotional states. In contrast to Hull's hypothesis that excitatory reactions "lose" their specificity under new stimulation, Schachter claimed that emotional arousal is nonspecific, and the individual cognitively assesses the emotion he is experiencing for the purpose of behavioral guidance and adjustment. Zillmann adopted and modified Schachter's view on this issue.

Zillmann's (1968) crucial addition to this formulation was the observation that the latency and decay of cognitive adjustment and excitational adjustment differ—the latter being sluggish due to the mediation of slow humoral processes. He examined the issues created by this lag and determined that in a rapid succession of stimuli the nonspecific excitation (as posited by Schachter) produced by subsequent stimuli "piggybacks" prior residual excitation that has not had the time to completely decay (as posited by Hull). This is the nexus of excitation-transfer theory. On the other hand, cognitive assessment of the current emotional state (as posited by Schachter) links the current circumstances (i.e., the apparent causes of emotion) and the additive level of intensity of excitation. The linchpin mechanism posited and empirically tested by Zillmann is misattribution on the part of the individual experiencing the emotional state (Tannenbaum & Zillmann, 1975): The individual believes that all the excitation he or she currently feels is entirely due to the current stimulus environment. In other words, the individual fails to recognize the contribution of residual levels of prior excitation. Zillmann further deduced and tested the hypothesis that misattribution results in inappropriate (disproportionate) responses to the current circumstances.

Zillmann placed the notion of enhancement of arousal through excitation transfer within the purview of the general law of initial values (Sernbach 1966; Wilder, 1857). Accordingly, he proposed that excitatory reactions are inversely proportional to prestimulus levels of excitation. Zillmann reasoned that

> such a qualification, which is necessary mainly to prevent the prediction of excitatory intensity above maximally possible levels, gives extreme residues

> little power to influence extreme emotional reactions. In contrast, it projects comparatively strong transfer effects for moderate residues that enter into moderate emotional reactions. (Zillmann, 1983c, p. 228)

The relevance of excitation-transfer theory to the escalation of hostility and aggression in real life as an effect of sequential emotion-eliciting events (either occurring in real life or delivered by mass media) cannot be overstressed. The final section of this chapter addresses some of the most important applications of this imminently generalizable theory.

Over time, Zillmann put together a solid account of physiological phenomena (neural activation and endocrine processes) involved in the excitation-transfer process that was posited by his theory. He pioneered and sensitively perfected appropriate experimental methodologies, identified phases of excitation and conditions of transfer, and developed a rigorous system of propositions—all of which have enhanced the validity and elegance of this theory, as well as trim it toward parsimony and simplicity (Tannenbaum & Zillmann, 1975). In addition to conducting programmatic empirical research, Zillmann has regularly reviewed relevant emerging research in the fields of communication and psychology and has periodically updated his model (e.g., 1983c, 1996b, 1998b). It would take an entire volume to examine the laborious development of the two theories under discussion; therefore, we chose to emphasize a few productive developments that resulted in theoretical advancements.

ESSENTIAL THEORETICAL COMPONENTS AND FORMULATIONS

Excitation

Schachter's (1964) two-factor model helped popularize the idea that arousal is nonspecific. That view fit well within the existing framework of neural activation theory (Lindsley, 1951, 1957), which posited diffuse projections from the reticular formation (Tannenbaum & Zillmann, 1975). Consequently, in excitation-transfer research the assessment of stimuli-producing excitation was conducted in terms of the amount of arousal affected by different types of stimuli. The typology was qualitative, but excitation was measured quantitatively. Given the quantitative focus, experimental manipulation was generally narrowed down to negative stimuli (already known to have

stronger excitatory effects than positive stimuli). Moreover, because excitation-transfer research took place in a context of high concern about the role of media in aggression, media violence was the negative stimulus of primary concern. Real-life aggression was added for comparison and seriation purposes. Sexual media content was included in the mix on grounds of Freudian theory—based on propositions advanced by Hartmann, Kris, and Loewenstein (1949)—which hypothesized the fusion between sexual and aggressive drives, together with the possibility of displacement. A stronger reason was the empirical finding that "erotic communications … are generally associated with greater excitatory potential than are aggressive materials" (Zillmann, Hoyt, & Day, 1974, p. 303). The excitatory potential and effects of violence-plus-sex combinations were examined for consecutive and simultaneous/fused patterns.

In spite of the relatively simple stimulus constellation, these studies of excitation transfer led to a disconcerting conclusion:

> The relationship between arousal and aggression is apparently more complex than many investigators had imagined. Arousal is evidently not a universal energizer of aggression, it does not have appetitive properties. And if it does energize aggression, energization is not necessarily in proportion to prevailing levels of arousal. Rather, arousal is a potential energizer whose operation depends on a set of favorable circumstances. (Zillmann, 1983a, p. 96)

This conclusion practically wiped out the illusion of expeditious predictability of aggression-facilitation effects based on violent content of media material (corresponding to the hypodermic needle or magic bullet view of media effects in general) and shifted research focus toward circumstances and conditions for transfer and the psychological variables of the individual experiencing the excitation.

Time

One of the most critical variables in the phenomenon of excitation transfer is time, which affects both the excitatory levels and the cognitive processes involved in emotions. Time in connection with excitatory processes has been discussed in terms of response latency and excitation decay, the latter being particularly relevant to emotional processes associated with exposure to mediated communication. As noted by Zillmann (1971), "The cognitive adjustment precedes the excitational adjustment" (p. 442) but, in the context

of communication effects on postexposure behavior, "the latency of an excitatory response may be considered negligible" (p. 442). However, the decay of excitation is comparatively slow and may be due to homeostatic mechanisms, fatigue or exhaustion, or intervening distractions (Tannenbaum & Zillmann, 1975).

The decay process links time with the quantitative aspect of excitation (its intensity), but it is also affected by seriation, which is crucial for excitation transfer. Seriation has two time-related aspects: item order or position in the series (e.g., contiguous, preceding, subsequent, intervening between two other items, initial, final) and time spacing (distance in time between items). Seriation is also contingent on item distinctiveness, which is a qualitative component. The qualitative distinctions depend on which criteria are relevant to the person who assesses the sequence. Some major distinctions used by investigators of the effects of media violence on audience emotions and behaviors have been the source of stimulation (media vs. personal real-life experience), stimulation intensity, hedonic quality, item role in the causal chain (stimulus, response, mediator), moral values, and absence versus presence and amount of violence in the content. In terms of effects (response components), distinctions have been made between physiological arousal, cognitions, and behaviors.

The time-related effects within the framework of Zillmann's excitation-transfer theory are quite complex. In order to examine possible facilitative effects on aggression and/or hostility, researchers had to consider a wide range of experimental situations, varying the sequencing of stimuli (media and real-life sources), along with other variables, such as stimulus intensity, hedonic quality, aggressive/violent content (vs. neutral content), duration, relative distribution in time (spacing, concomitance). Essentially, the questions were how much excitation can build up through exposure to various sequences, and how much of that excitation can affect audience behavior in terms of level of interpersonal aggression—the major manipulation being timing.

Cognition

Zillmann began this research program by building on Schachter's (1964) assumption that arousal and cognition "operate side by side" (Tannenbaum & Zillmann, 1975, p. 177). According to Schachter's two-factor theory, the role of cognition was hinged on interoception of excitation, exteroception of external/visible body changes, and exteroception of the excitatory

environment. Judgments were expected to link symptoms to causes (perform attribution), construct the specific differences between emotions (posited to have nonspecific excitation), assess the appropriateness of excitation level (energy build up for response action), and, generally speaking, mediate response behavior. According to Tannenbaum and Zillmann (1975), the Schachterian model failed to raise important questions such as "how the two ingredients arise, how each plays its respective role, and if and how they interact in determining the final response" (p. 178). Consequently, Zillmann deemed the two-factor model "rudimentary and incomplete rather than faulty. The model fails to address, let alone answer, what is involved in the guiding or channeling of behavior through cues" (p. 75). Very soon after excitation-transfer theory was articulated, Zillmann signaled that the two-factor model was due for expansion in order to accommodate such issues.

Attribution and Misattribution

"Both the two-factor theory of emotional state and the excitation-transfer theory are based on the notion of a misattribution of arousal" (Cantor, Bryant, & Zillmann, 1974, p. 820). Assessing research findings, Cantor, Zillmann, and Bryant (1975) observed that "residual arousal which is properly recognized as such not only does not intensify ongoing responses, but may actually impair them" (p. 74). They interpreted the phenomenon as a demonstration of "the crucial role of misattribution of arousal in the enhancement of emotional responses by residual excitation" (p. 74). Beside that reassurance, they must have read a warning that other cognitions in addition to exteroception were at play in excitation transfer. Because they were talking of "recognition," the scope of their research had to be expanded to include cognitive processes prior to the current excitatory reaction. The Schachterian two-factor bubble was about to burst.

On the other hand, recognition of the centrality of attribution in the model directed research back to the time factor. Cantor et al. (1975) addressed the conditions needed for misattribution. They refined the model adding time phases of excitation decay: the initial phase, when residuals are still accompanied by the perception of apparent cues that affect correct "recognition" of causes and thus prohibit transfer; the second phase, when those cues are no longer perceived (being replaced in the individual's consciousness by cues related to a different, subsequent source of excitation); and the last phase, when the residual excitation has completely

decayed and there is no prior excitation left to transfer. Zillmann's revamped theory limited excitation transfer to the second phase (Tannenbaum & Zillmann, 1975).

Attentional Shift

A special situation of arousal decay became apparent from the work on cognitive processes in excitation transfer: the attentional shift. Bandura (1965) had envisaged the possibility that severely provoked (and thereby aroused) persons witnessing communication-mediated aggressive performances might experience pseudo-cathartic phenomena, more precisely a dissipation/reduction of noxious arousal caused by "noninstrumental cognitions that supersede the preoccupying instrumental ones" (Zillmann & Johnson, 1973, p. 264). Zillmann and Johnson (1973) suggested, "Bandura's basic proposition concerning attentional shifts may be modified to accommodate a postulated interaction between motivational state and communication-induced cognitions" (p. 265). Zillmann and Johnson considered the possibility that exposure to communication, in general, might impede or prevent rumination (Bandura, 1973) and thus disrupt the arousal-maintaining perpetuation of disturbance-related cognitions.

Zillmann refined Bandura's attentional shift hypothesis, positing differential effects dependent on the degree of correspondence between the content of the motivational state and the content of the intervening mediated communication (e.g., Bryant & Zillmann, 1977). According to Zillmann and Johnson (1973), "Communications involving contents which relate to the individual's acute emotional state potentially reiterate arousal-maintaining cognitions … and prevent pronounced decay of arousal" (pp. 265–266), whereas exposure to neutral materials effect a "significant decrease of aggressiveness" (p. 274). Zillmann, Hoyt, and Day (1974) generalized that "the duration of communication effects responsible for initial motivation and energizing of a response is dependent upon the excitation-modifying capacity of any particular post-exposure treatment" (p. 304).

Systematic research on misattribution gave Zillmann grounds to talk about the considerable potential of arousing media messages to affect real-life behaviors, either when consumed in sequences or experienced in conjunction with arousing real-life events. In 1975, Tannebaum and Zillmann offered these reflections:

> Most people probably do not consider arousal from media exposure to be pronounced enough to warrant any attention, and hence they do not expect

> it to affect their behavior. Dismissing such arousal as trivial, the individual will tend to attribute any accumulating residues not to the preceding communication events but to the new stimulus situation in which he finds himself. [The new situation could be either a real-life one or another mediated message.] Moreover, by virtue of their very "unreal" and symbolic (possibly fantasy-encouraging) content, communication messages are generally not related to the person's real and immediate problems and concerns. This should further encourage the misattribution of accruing arousal and hence make the person all the more vulnerable to transfer effects in his postcommunication behavior. (p. 187)

This realization was the decisive puncture that exploded the Schachterian two-factor bubble: It pointed to the possibly overpowering effects of previously developed cognitions.

Hedonic Assimilation

Zillmann, Mody, and Cantor (1974) noted that "both the hedonic tone and the excitatory potential of prior stimuli can modify the individual's response to witnessed displays of emotions" (p. 346), with negligible interaction between the two factors. The authors suggested that the factors were independent and additive. Zillmann et al. found evidence supportive of a hedonic-set mechanism[1] and concluded that "cognitive adjustment to subsequent stimuli is an important prerequisite for excitation transfer" (p. 346). They reasoned that "under conditions in which cognitive adjustment is not achieved," it is likely that "persistent preoccupation with the arousing experience will reduce attention to subsequently presented stimuli" (p. 347). In other words, attention is not uniformly deployed to process incoming stimuli, but it is mediated by personal relevance (i.e., connectivity to the memory store that beats the time barrier and shares semantic meaning with the incoming stimuli). Zillmann et al. (1974) stressed "the importance of taking cognitive adjustment to subsequent stimuli into consideration when predicting effects of residual arousal" (p. 347) and pointed to the theoretical possibility of combining message chunks in distinct ways to "control the intensity of affective states experienced by the audience and, in the final

[1]The hedonic-set theory anticipates greater ease in maintaining the hedonic value of one's immediately prior affective state than in adapting to a hedonic state of contrasting value. The lags of neural and especially hormonal activity associated with affects (even small ones) underlie the cognitive parsimony implied by the theory.

analysis, the overall impact of a dramatic sequence" (p. 348). Thus, Zillmann and his associates heralded an era of emotion management and laid a cornerstone for a science of emotion engineering.

From Legitimation to Dispositions

Also in the area of response inertia (consistency), an additional complication surfaced in relation to legitimation processes associated with moral judgment and the individual's general value system. Zillmann and associates conducted experiments with various sequences of real-life and media-induced emotions in order to clarify the mechanism through which media content facilitates aggressive behavior. They resorted to experimental manipulation of variables such as energizing sources (media vs. physical exercise) responsible for the escalation of excitation, levels of aggression in media content, presence or absence of instigation, position of instigation relative to media content (before vs. after), timing of retaliation opportunity that affects excitation decay, as well as intervening messages that affect excitation decay. Overall, Zillmann and his associates found support for excitation transfer independent of excitation source and for the facilitating effect of excitation induced by the media (possibly in combination with real-life sources) on real-life aggression. But in experiments based on the instigation–retaliation paradigm, the researchers faced a dilemma: What exactly prompted retaliation, the motivation effected by the instigational intervention, or the aggression cues possibly picked from intervening aggressive content, as suggested by Berkowitz (1965b, 1970)? Through persistent, meticulous, and ingenious experimentation, Zillmann and associates established that transfer-enhanced aggressive response was contingent on instigation; that is, transfer and escalation of excitation did not automatically enhance behavior aggression, it required a motivation (Tannenbaum & Zillmann, 1975; Zillmann & Johnson, 1973). Such motivation for retaliation surprisingly was found to be resistant in time and to manifest itself whenever the conditions for retaliation exist, even after complete excitation decay (Bryant & Zillmann, 1979). That discovery suggested the possibility of cognitive revival of the original emotion caused by the instigation, including even some excitation. The phenomenon was labeled "predisposition to aggress" (Tannebaum & Zillmann, 1975, p. 185). This element no longer fitted into the Schachterian two-factor theory of emotion.

REFINING THE MODEL

When Zillmann and Bryant (1974) set out to investigate the role of dispositions in excitation transfer, they made the following assumption:

> During the emotional experience of anger, the individual forms an aggressive disposition that (a) may be of considerable duration and (b) can be reinstated and reactivated at later times. The more intensely anger is felt and presumably rehearsed, the more pronounced the aggressive disposition becomes. And, if, for whatever reason, the immediate execution of this disposition is not possible or does not appear opportune, it remains latent until reinstated by spontaneous or stimulus-induced cognitions associated with the provoking circumstances. (p. 783)

Although the three-factor theory of emotion was "officially" launched by Zillmann in 1978, the previous quote demonstrates that the disposition factor, which was the main innovation relative to Schachter's two-factor theory, had come under investigation in the context of emotionality somewhat earlier, and was conceptualized as a separate unit before being integrated into the earlier general model of emotion imported from psychology.

In fact, the idea of predisposition had been employed in earlier research on aggression. Zillmann and Bryant (1974) referred to Berkowitz's (1965a) assumptions that people tend to complete a predisposed aggressive response, and an aggressive predisposition can be reinstated until the consummatory goal response has been made or its objective has been accomplished. Zillmann and Bryant (1974) pointed out that Berkowitz's hypothesis was "not quite in line with the popular view that aggression can be held in check by giving the would-be aggressor a chance to cool off (p. 790). The longevity of aggressive dispositions was tentatively attributed to endocrine changes.

In 1978, Zillmann articulated the advances made by recent experimental research with Schachter's two-factor model, on which he superimposed a behaviorial perspective:

> As in behavior theory, the motor aspects of behavior are considered either unconditional (such as in startle reactions) or acquired through learning (such as in atypical phobias). It is obviously assumed that the ES–ER connection preexists or is established without the involvement of "cognitive operations at higher levels." The motor behavior associated with emotions is thus seen as an unmediated, direct response made without appreciable latency to the presentation of the emotion-inducing stimulus. (Zillmann, 1978, p. 355)

The emotional stimulus–response connections were presented as the third factor, which was labeled *the dispositional component*. Zillmann's reformulation accounted for the occurrence of spontaneous motor responses in emotional states. Schachter's excitatory component was maintained as the energizing mechanism for the motor responses. The experiential component, including conscious experience of both motor and excitatory responses through intero- and exteroception, was defined as *the appraisal function* (Zillmann, 1978, p. 359), that is, a "modifier or a corrective that, within limits, controls the more archaic, basic emotional responsiveness governed by unlearned and learned S–R connections" (p. 357). Zillmann's new three-factor theory viewed the experiential factor as a mediator of both dispositional and excitatory reactions.

As previously mentioned, the three-factor theory has been periodically revisited, polished, and updated with the latest pertinent research findings (Zillmann, 1983c, 1996b). The 1996 version of the theory (Zillmann, 1996b) emphasized the interdependencies between the three components/factors. The function of the experiential component was the "appraisal of emotional reactions and action in the context of circumstances" or the "scrutiny of the utility of the action" (p. 247). "As individuals become aware of their aimless, excited behavior, they are likely to perform an epistemic search directed at the comprehension of the inducement of their state of elevated excitation" (p. 248). According to the new formulation, "All motor elements of emotional behavior are under volitional control" (p. 248), which means that overt action that is considered inappropriate can be immediately inhibited or redirected as soon as noticed.

> In contrast, the theory posits that excitatory responding is not readily controlled by volition. The incipient excitatory reaction may be modified to some degree by incoming information that proves anger, fear, or any other emotional upheaval groundless. However, the counterregulatory response tends to run its course, being primarily controlled by homeostatic regulation.… The three-factor theory allows emotion-controlling response dispositions to be formed on the basis of the contemplation of frequently occurring circumstances that have been associated with emotional experiences in the past. (p. 249)

The 1996 version of the three-factor theory thus provides a compelling argument for the functional unity to the tripartite structure.

NOTHING MORE PRACTICAL THAN GOOD THEORY

Escalating Anger, Impulsive Aggression, and Judgmental Biases

Because excitation-transfer research and theorizing developed in part to address concerns about the impact of media violence on users' hostility and aggression, it is not surprising that the discussion of research findings and theory predictions has focused primarily on such issues.

The enhancement of excitation through transfer gave prominence to the issue of supra-excitation, the resulting deterioration of cognitive processes, and the bias of behavioral responses toward hostile and aggressive actions.

The inverted-U model predicted the relationship between arousal and behavioral efficiency (Freeman, 1940; Hebb, 1955, 1966; Malmo 1959, 1975; Yerkes & Dodson, 1908). Emotion research showed that

> at extreme levels of arousal, the cognitive mediation of behavior is expected to be greatly impaired, and behavior is expected to be controlled by the more basic mechanics of learning…. Hostile and aggressive behaviors are expected to become impulsive—that is, to become behaviors composed of learned reactions associated with great habit strength, conceivably even of unlearned defensive reactions. (Zillmann, 1993, p. 94)

Supra-excitation pairs with cognitive deficit. The twofold phenomenon occurs under conditions of limited cognitive capacity (Zillmann, 1994a) and manifests as "inability of extremely agitated and aroused persons to conceive and execute rational, effective courses of action … 'blindness' or overinvestment of attention in the emergency at hand" (pp. 58–59; i.e., the here and now), "exaggerated self-concern" (p. 98), "little if any attention … given to suffering by others, especially by parties who issued threats and continue to pose dangers" (p. 104), and deteriorating empathic sensitivities. Moreover, prolonged experiences of challenge and stress eventually produce the catecholamine rush that is typical of fight-or-flight reactions; this fosters an exaggerated perception of danger, overreaction and belligerent response, illusion of power and invulnerability, and trivialization of risks and costs. As pointed out by Zillmann (1994a),

> the tendency to respond with vigorous action to endangerment undoubtedly has served humans well during the course of evolution…. Temper tantrums, for instance … intimidate opponents and prompt them to yield, potentially

> making the display of a fit of bad temper an effective coercive strategy…. [But] the utility of archaic vigorous action as a means of coping with endangerment and of conflict resolution has been lost for the most part…. Responding "emotionally" to threats of self-esteem, social status, social power, or economic standing not only tends to lack adaptive utility but also can be counterproductive and maladaptive…. Staying calm and collected in devising strategies for effective action would better serve their welfare and self-interest. (p. 48)

Under excitation-transfer theory, something counterintuitive happens. In arousal-escalating sequences of perceived provocations,

> the excitatory contribution of provocations diminishes as their ordinal position in the escalation sequence increases. Or expressed in terms of time, their contribution is smaller, the later they occur in this sequence. This gives great excitatory starting power to minor disagreements but assigns trivial effect to their placement late in the excitatory sequence. [Also,] disagreements that materialize when excitation is at extremely high levels are extremely intensely experienced. The magnitude of the excitatory contribution from such disagreements may be of little consequence here. It could, nonetheless, eventually be "the straw that breaks the camel's back." (Zillmann, 1994a, p. 52)

The "prolonging of acute agitation, a condition viewed as readiness for violent action (see Heiligenberg, 1974, for a discussion of the ecological significance of aggression readiness)" (Zillmann, 1994a, p. 52), creates a judgment bias. The agitated person develops the impression that nonviolent options fail to resolve the conflict, of which the person becomes less and less tolerant, and the option of envisaged resolution is narrowed down to instantaneous and vigorous relief-providing actions. This process pattern accounts for the aggressive-termination bias inherent in high-arousal situations.

The three-factor theory of emotional state puts this bias in a temporal perspective. "Appraisals and repeated reappraisals of the circumstances in which individuals find themselves are capable of modifying excitatory activity" (Zillmann, 1994a, p. 55), resulting in hostile and aggressive dispositions. As shown by Zillmann, "Humans have the capacity to delay the execution of aggressive activities" (Zillmann & Bryant, 1974, p. 783); they often engage in "unproductive rumination in anger" (Zillmann, 1998a, p. 109) and "save" aggression-patterned memories as dispositions that can later on reinstate readiness for aggressive action, including excitation. Consequently, manifestations of aggression and violence become rather

unpredictable in time, and the self-control and social control of violent acts become problematic.

Further aggravating the situation is the fact that cognitive deficit occurs regardless of the hedonic valence of the emotion being experienced and is merely a function of excitation intensity. If we consider entertainment effects, highly exciting activities that people enjoy (e.g., games, dancing) have the potential to jeopardize the appropriateness of their responses to postentertainment situations while the residual arousal is still high, making them prone to violence.

What can be done? The "solution" would be to prevent excitation transfer, so that arousal doesn't reach dangerous levels. Research on conditions for transfer identified the critical points at which intervention can either facilitate or block transfer.

The first factor to consider is time. One solution would be to space out arousing media stimuli to allow for complete decay of excitation induced by each one of them. Another preventive or curative solution would be interspersing arousing with unarousing or calming activities, using distractors to speed up the decay of excitation. But we do not always have control of the stimulus sources. When we do, we can only control our stimulation to some extent, and other people's stimulation even less.

A serious problem that undercuts control strategies is hedonic greed, the natural need and drive for more and more excitation, which makes people spontaneously seek rather than avoid arousal. And when they have reached a level that is too high and dangerous, they lose control and cannot disengage, but tend to consume the pent-up emotions through vigorous (violent) action, without much thought. Education for self-control may help, theoretically at least, train for the ability and habit of accounting for and monitoring one's emotions. This might reduce the incidence of misattribution and consequently of excitation transfer and aggressive action. But probably the most important of all is to deal with inhibited/censored aggressive responses, train the ability to block one's natural anger rumination and hate recycling. That can theoretically be done in various ways: "cooling down," analyzing, reasoning, focusing on logical cause–effect links, working out risk-free and cost-effective solutions, relativizing, changing perspectives, and devising alternative nonaggressive approaches. All these shift processing away from the formation of hostile, aggressive, or violent dispositions toward creativity, which holds more promise in terms of problem-solving effectiveness, emotional balance, and hedonic welfare.

Sex and Aggression

The theories under discussion here also have a modest lesson to teach about sexual arousal. Traditionally, sexual excitedness was not thought of as an emotion, "certainly not as one comparable to the likes of anger and fear" (Zillmann, 1986, p. 174). But, in reality, all three do share high arousal. Fear and anger are hedonically negative emotions geared toward self-preservation, whereas "coition" (Zillmann, 1986) is hedonically positive and geared toward species preservation. At the physiological level, the three overlap in the sense that they share sympathetic activation, but they differ because coition has additional parasympathetic arousal. Zillmann (1986) discussed in detail the central, autonomic, endocrine, and behavioral connections among the three emotions and theorized them as the "fight-flight-coition trichotomy" (p. 174). Zillmann argued that their co-elicitation was philogenetically adaptive, linking self-preservation to species preservation, but he reasoned that in the modern society, the linkage ceased to be necessary.

Relevant to our discussion here is the "behavioral facilitation due to sympathetic commonality" (p. 180) and the heightened risk of co-occurrence, misattribution, transfer, and escalation of excitation, potentially leading to violent dénouement. Hedonic theory (as shown in the Enjoyment of Violence chapter in this volume), accounts for the historical development of sexual practices involving simultaneous violence, or alternating sex and violence, for the purpose of maximizing arousal and ultimately enjoyment. But, as shown in that chapter, such practices are not infallible and not without serious costs.

AROUSAL AND ART

Excitation-transfer theory and the three-factor theory of emotions are also illuminating for the realm of entertainment, which is not exactly a trivial component of contemporary life. The major areas of application discussed and theorized by Zillmann are suspense (Zillmann, 1980, 1991b, 1996a; Zillmann, Hay, & Bryant, 1975), empathy (Zillmann, 1991a, 1994b), drama (Zillmann, 1994b, 1996a, 1996b), and humor (Cantor, Bryant, & Zillmann, 1974; Zillmann, 1983b; Zillmann & Bryant, 1991; Zillmann & Cantor, 1972, 1976). The research findings and the theorizing provide guidance for both the creative and the enjoyment aspects of entertainment.

Drama: Suspense and Empathy

The mechanism of suspenseful drama (e.g., Zillmann, 1980, 1996a), in a nutshell, is the following: (1) creating positive and negative dispositions toward characters by engaging them in a conflict; (2) credibly and repeatedly endangering the liked characters for a long time, placing them under high probability of suffering harms or losses (creating fears but not destroying hope through the spectator's certainty of harm or loss); (3) putting the disliked characters in a position of undeserved advantage, gain, and unlikely punishment (creating retaliatory dispositions with the audience); and (4) finishing with a surprising but strongly desired happy ending (the liked characters win and/or the disliked lose). The higher the arousal build-up through skillful excitation transfer, the higher the enjoyment of the final resolution. A "treasure-hunt" form of suspense, involving dangerous pursuits of rewards, is theoretically possible but less popular, probably because of its lower potential and fewer opportunities for arousal escalation. Zillmann (1996a) explained drama series in terms of macrostructure at the show level, with an anticipated happy ending and therefore little suspense, and microstructure at the episode level, with credible dangers and great suspense.

Various authors have tried to account for the enjoyment of suspense. Fenickel (1939, 1945) hypothesized that the mastery of difficulties produces functional pleasure. Berlyne (1960) proposed the arousal-jag model, claiming that the mere reduction or termination of an aversive state is a sufficient condition for the experience of positive affect. Bandura's (1969) behavior modification theory posited that anxious people's heavy consumption of suspenseful drama could be viewed as a self-administrated behavior-modification program. Zuckerman (1974, 1976) defined a biological need for and enjoyment of high stimulation. According to Zillmann (1996a), the enjoyment of suspense (and drama, in general) by the audience is a matter of excitation build-up achieved through the witnessing of successive and combinatory arousing events and culminating with a hedonically positive experience. The processing and enjoyment of suspense are contingent on viewers' (rather than the author's) framework of moral values.

Zillmann's excitation-transfer theory can be applied to optimize the sequencing of scenes for arousal maximization. The method is interspersing arousing and interfering scenes to facilitate misattribution of excitation, but keeping the arousing scenes close enough so that the arousal of a scene can be enhanced by the residual excitation of the previous arousing scene. The

hedonic quality of scenes is largely irrelevant to excitation build-up, with one exception: The end must be hedonically positive in order to convert the arousal escalated by prior negative stimuli into enjoyment for the viewer to be satisfied with the solution. The mechanism of disposition formation in Zillmann's (1978) three-factor theory of emotion is relevant to the formation of audience dispositions toward characters, which can be changed in the course of action in order to increase the level of uncertainty, which in turn elicits higher arousal.

A contentious issue related to drama is that of empathy. The concept originated in German aesthetics (Brentano, 1924/1874; Lipps, 1903, 1906, 1907; Prandtl, 1910; Worringer, 1959/1908). Initially, it meant "feeling into" another entity or situation (Zillmann, 1994b). The earlier concept of sympathy defined in England by Smith (1971/1759) had identified important components of that emotional phenomenon such as automatic response, cognitive instigation, and anticipatory nature. Freud (1964a/1923) 1964b/1921) postulated identification as the mechanism of empathy. Zillmann (1994b) challenged the interpretation of identification as ego-confusion and advanced a respondent-as-witness hypothesis, arguing that observers of drama act as third parties "who did succumb to the theatrical, cinematic illusion that social reality unfolded before them" (p. 36) and who "respond most strongly to those portrayals that most closely replicate the stimulus fields that strongly arouse them outside the cinema" (p. 38). This modern approach implies temporary blurring of the distinction between the real and the fictional environment and assumes the co-participation of the audience in the fictional events as observers that are distinct from the fictional characters.

Zillmann (1994b) explained emotional involvement with drama using the notion of dispositionally controlled empathy. His three-factor theory of empathy (Zillmann, 1991) posits three types of empathy: innate/reflexive, acquired/learned, and deliberate cognitive maneuvers (e.g., perspective taking, role taking). This typology points to the significance for empathy of a person's conditioning history concerning the expression of emotions. It predicts that respondents to drama bring to the theatre or cinema "a set of empathic response dispositions, part of which are reflexive, part of which are acquired through a large number of learning trials or a few critical experiences, and part of which derive from deliberate perspective taking. Zillmann's model of empathy anticipates emotional reactions (including excitation) to witnessing situations and/or actions that cause emotions and/or other people/characters expressing emotions. Zillmann (1994b) applied the condition of concordance (hedonic compatibility) pioneered by

Berger (1962), and posited that "affective dispositions toward models allow empathic reactions, whereas negative affective dispositions impair, prevent, or hedonically reverse them" (p. 44). As empathizing is an emotional experience, it involves the responder's moral framework within which he or she makes judgments, takes sides, and chooses to empathize or counterempathize.

The media provide a huge number of dramatic situations that elicit empathic responses. As posited by Gerbner in his cultivation theory (e.g., 1969, 1970, 1972), the situations are similar over time and consistent in space; therefore, they tend to produce consistent emotional dispositions in the audience as well as personal patterns of emotional response to drama and analogous dramatic situations in life. This may become dangerous, because in real-life states of high arousal the individual is likely to disregard reality–fiction differences (because of cognitive deficit under stress) and to resort to dispositions rather than reflections, and those dispositions may have been acquired from fiction and may be inappropriate for resolving real-life situations. The higher the excitation build-up in the drama people watch and learn from, the higher the likelihood of drama-like emotional responses (including empathizing and antiempathizing) in critical, highly arousing, real-life situations.

Comedy: Humor

From an arousal perspective, the problem with humor is whether the hedonic value of the arousing context that theoretically may enhance the enjoyment of humor through transfer really matters or not. We have seen that it is irrelevant to hostility and aggression effects, but it is relevant to empathic responses. Findings that the appreciation of humor is enhanced by prior sexual arousal (e.g., Lamb, 1968; Strickland, 1959) could not clarify the issue because sex and humor are both hedonically positive, so there was no risk of interference. Cantor, Bryant, and Zillmann (1974) examined findings of experimental studies that manipulated sources of negative emotions and found they were mixed. Studies conducted by Schwartz (1972) and Zillmann and his associates (Cantor, Mody, & Zillmann, 1974; Cantor & Zillmann, 1973) found a trend of decreasing humor appreciation with increasing arousal. Limited cognitive capacity was assumed to have caused it. But for the middle level of arousal, the excitation from prior negative emotions appears to enhance the enjoyment of humor. The main theories considered by Zillmann as a possible explanation of that phenomenon were

discomfort relief, conversion of empathic grief to amusement (McDougall, 1908, 1922), and excitation transfer. The latter appeared to have more empirical support, but only for midlevel excitation. So, the explanation cannot be simple. Berlyne (1967) postulated that moderate increases in arousal are rewarding, whereas high levels tend to be aversive. This means that arousal itself has hedonic effects. Godkewitsch (1972) and Schwartz (1972) extended the effects of arousal to encompass the enjoyment of subsequent humor, which they postulated to vary as an inverted-U function of arousal. This explanation is compatible with empirical findings at both middle and high levels of arousal (enhancement of enjoyment in the middle range and decrease in the high range). From the perspective of excitation transfer, this means that humor cannot resolve intense negative emotions; it is simply ignored under such conditions. So, there is no hope of catharsis. At the middle level of arousal, the enjoyment of humor is enhanced; therefore management for excitation transfer makes sense (standard interspersing for misattribution and fast-paced sequencing for incomplete decay of residuals).

THE FUTURE

The two Zillmannian theories discussed in this chapter, excitation-transfer and the three-factor theory of emotion, are vigorously anchored in physiology through both theory and experimental research, and they have a perennial object of interest—emotions. As pressure for rationality increases in Western cultures, so does the spontaneous (and market-induced) demand for emotionality through entertainment. This possibly is a balancing effect, a response to the increased need for pleasure. The new media technologies have a huge capacity to facilitate the creation and distribution of entertainment fare, and their interactivity has potential for stepping up arousal, both in isolation and synergistically. At the same time, the mass character of these media suggests the possibility of social-scale emotion-related phenomena that may be affected by arousal escalation. The next big question may be, do Zillmann's theories help account for addictive videogame playing or compulsive web surfing? What are the mechanisms of emotion enhancement that drive the adoption and use of new media?

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