

Jeffrey Goldstein* and Willibald Ruch

Paul McGhee and humor research

<https://doi.org/10.1515/humor-2018-0031>

Abstract: Humor research has developed along a trajectory, and branched out in many directions, that were foreseen and stimulated by Paul McGhee. From his initial interest in children's humor and cognitive development as a graduate student at Ohio State University to his work applying humor in myriad settings, McGhee has broadened our understanding of humor and expanded its horizons. As early as the 1970s, Paul expressed interest in the neuropsychology of humor and laughter and in the evolution of humor in nonhuman primates. The development and validation of the Sense of Humor Scale is an integral part of the 7 Humor Habits Program used effectively to train humor skills. McGhee played an early role in advocating humor and laughter as a learnable tool in the promotion of health and well-being, and in the training of health-care personnel. His work has been recognized through various Lifetime Achievements awards and other honors.

Keywords: humor research, Paul McGhee, cognitive development, humor measurement, humor training

1 Introduction

The contributions of Paul McGhee to humor research are many and undeniable. A glance at the references in a typical issue of *Humor* will reveal how often his publications are cited and how widespread his influence. Paul was one of the key figures in establishing humor as a legitimate topic for academic research in the 1970s, and later he was an early consultant on humor, health and well-being. In a brief visit Jeff had with Paul in his home state of Delaware in 2015, he observed that a driving force behind his breadth of interest in humor research was his realization of just how important this topic was and how little we knew about it when he chose it as a PhD dissertation topic in 1968. In addition to

*Corresponding author: Jeffrey Goldstein, Institute for Cultural Inquiry, Utrecht University. 3512 EV Utrecht, The Netherlands, E-mail: J.Goldstein@planet.nl

Willibald Ruch, Department of Psychology, University of Zurich, CH 8050 Zurich, Switzerland, E-mail: w.ruch@psychologie.uzh.ch

pursuing his own specific research, initially in children's humor, he wanted to stimulate research in a broad range of other areas. This led to the books that we edited together (Goldstein and McGhee 1972; McGhee and Goldstein 1983), as well as his edited volumes on humor and aging (Nahemow et al. 1986) and children's humor (McGhee and Chapman 1980; McGhee 1989). It was also the reason for his early interest in humor among other species (McGhee 1982, 1988, 2018 this issue) and, later in his career an interest in the health benefits of humor and its practical applications. Paul seemed to enjoy helping to establish new paths of humor research worthy of systematic investigation. For example, he contributed to our understanding of humor among the elderly, a theme that is addressed by Bergen (this issue).

2 Modern humor research

The history of modern humor research can be traced to the first International Conference on Humor and Laughter, in Cardiff, Wales, in 1976, and to a number of publications surrounding it (for example, Fry 1963; Levine 1969; Mindess 1970; Goldstein and McGhee 1972; Chapman and Foot 1976). Instrumental in these efforts were Tony Chapman, Hugh Foot, and Paul McGhee. The number of humor research publications nearly tripled in the 1970's compared to the previous decade (Roeckelein 2002: 3). By the 1980s there was a sufficient stream of research on humor to warrant a scientific journal, a need which was met by *Humor: International Journal of Humor Research*, which began publication in 1987. Meanwhile, further journals have been established, including the *European Journal of Humor Research* (<https://www.europeanjournalofhumour.org/index.php/ejhr>), the *Israeli Journal of Humor Research* (<http://www.israeli-humor-studies.org/122789/The-International-Journal-ISJHR>) and *Rivista Italiana di Studi sull'Umore* (RISU).

Paul McGhee was born in Detroit, Michigan, 12 January 1942. At the age of eight his family moved to a farm in New Baltimore, Michigan, where Paul attended a one-room school until the 8th grade. He graduated from Oakland University (Mich.) and obtained a masters degree in experimental psychology from Bucknell University.

Paul subsequently pursued a PhD in developmental Psychology at Ohio State University (1968), where his doctoral supervisor, Prof. George Thompson, urged him to read widely in search of a dissertation topic that would capture his interest. He found it.

3 Children's cognitive development and comprehension of humor

Paul's initial contributions were in developmental psychology, specifically in children's understanding of humor as it relates to their cognitive development (see Bergen, this issue). Impressed by the recent research of Edward Zigler of Yale University on cognitive development and the understanding and appreciation of jokes (Zigler et al. 1966), Paul decided to devote his dissertation research to the study of children's humor and cognitive development (McGhee 1971a). He added a touch of Piagetian developmental theory to study the impact of congruency between children's cognitive development and the cognitive challenge inherent in jokes upon the appreciation of those jokes. For instance, if a child did not yet understand the Piagetian notion of conservation, then the following joke would not make any sense and would not be perceived as funny. "Fat Ethel goes into a restaurant and orders a whole pie. The waitress asks her whether she should cut the pie into 4 slices or 8. 'Four,' says Ethel, 'I'm on a diet'." This joke should be funniest in the year or so after the concept of conservation is acquired, because this is the point where the optimal moderate challenge to comprehension would be present. Doris Bergen (this issue) reviews the origins and development of McGhee's own thinking about cognitive development and children's humor.

While at Ohio State, Paul obtained a predoctoral fellowship from the National Institutes of Health (NIH) to support his dissertation research. During his Ohio State years, Paul commuted 60 miles in order to work with Virginia Crandall at the Fels Research Institute in Yellow Springs, Ohio, on the topic of achievement motivation – an area he had already begun to study while a student at Bucknell University. He returned to the Fels Research Institute with another NIH grant from 1975–1976 as a Visiting Research Scientist and used the Fels Longitudinal Sample (begun in 1929) to obtain longitudinal data on children's humor (McGhee 1980).

Following his PhD, Paul received a NIH postdoctoral fellowship to study with Daniel E. Berlyne at the University of Toronto. It was here that he wrote the much-cited *Psychological Bulletin* paper reviewing research and theory on the development of humor in children (McGhee 1971b). This became the foundation for his well-regarded book *Humor: Its origin and development* (McGhee 1979).

McGhee puts humor initiated by the child in the context of 'pretend play.' He views the earliest humor initiated by the child as a manifestation of the emergence of the capacity for symbolic thought occurring in the second year of life – about the same time that pretend play begins. In this model, the development of

humor parallels the child's growing cognitive capabilities. He proposed that children resolve incongruities in jokes through 'fantasy assimilation,' distinct from the 'reality assimilation' of serious cognitive processing that characterizes learning and further cognitive development.

McGhee believes that a general predisposition to play is every child's biological heritage. This built-in drive to play simply gets extended to new cognitive abilities as they emerge; and this is what generates developmental changes in children's humor that holds for children in all cultures.

In keeping with the cognitive revolution that was then going on in psychology and in humor research, McGhee was involved in an early physiological study of humor that compared joking riddles with non-humorous problem-solving (Goldstein et al. 1975). Later, while at the University of Paris, he would compare French children's understanding of humor to their understanding of metaphor (McGhee and Panoutsopoulou 1990). It was then when the exchange with Willibald (then at the University of Dusseldorf) started, first with translation of the jokes and cartoons of the 3 WD humor test (thereby discovering how funny jokes are when translated into another language), then in developing and testing a personality-based model of humor development during adulthood (McGhee et al. 1990; Ruch et al. 1990). During this time Paul lectured at different Universities in Europe and attended conferences.

By the early 1970s, Paul concluded that humor was the inevitable outcome of the progressive evolution of a general biological disposition to play. This led him to ask whether other animals are capable of humor, a major interest throughout Paul's academic career (McGhee 1979, 1988, 2018). He interviewed many of the leading primate researchers of the twentieth century, and even met Koko, the signing gorilla. While Paul was unable to stimulate interest in the 1970s on the issue of animals' capacity for humor, an interest in 'humor' in primates did eventually find expression in contemporary research (e.g., van Hoof and Preuschoft 2003). McGhee's views on this topic are presented in his own contribution to this Festschrift. See Figure 1, Derks.

4 Humor measurement

To evaluate the utility of humor training there must be a reliable means of assessing it. McGhee (1996, 1999) developed the Sense of Humor Scale (SHS) for this purpose. In addition to the 24-item SHS questionnaire assessing sense of humor, separate 8-item measures of playful/serious attitude and positive/

Several generations of humor scholars have been influenced by the research and scholarship of Paul McGhee. We were encouraged to find the relevance of humor to all areas of psychology. Goldstein and McGhee (1972) gave us an awareness and a commitment to careful design, accurate measurement, and thorough scholarship when studying the slippery topic of humor. Because of his writing, research and editorial work I had an early respect for Paul. My first face to face meeting with him was at the second international humor conference in Los Angeles organized by Harvey Mindess and Joy Turek (1979). As often happened at these conferences a few of us gathered in a hotel room and shared, among other things, ideas. Also part of the group was Roger Fouts who had talked about “humor” in primates. The discussion took many directions in an effort to agree on what kind of humor the admittedly very playful primates did display. McGhee (1979) at that time had outlined the development of humor as it paralleled intellectual maturation in children. The task of analyzing humor in primates seemed straightforward but didn’t quite get launched that night.

Twenty years later a biology/anthropology student, Jenifer Gamble, turned up in my humor seminar. She had plans to spend time with Francine Patterson and Koko, the ape with sign language. Jenifer embraced the project with enthusiasm and intelligence. Using the stages of humor development McGhee had described for children, she reported examples that showed “apes appreciate and produce humor in a manner comparable with humans.” (Gamble, 2001) The long reach of Paul McGhee’s scholarship was indeed valuable and appreciated.

--Peter Derks, College of William and Mary plderk@wm.edu

Figure 1: Paul McGhee: Inspiration and colleague. Remarks on humor in non-human primates.

negative mood were also created. This questionnaire aims to measure playful attitude, positive/negative mood, and sense of humor. The Sense of Humor Scale has been evaluated by Ruch and Carrell (1998) and extended by Ruch and Heintz in a contribution to this Festschrift, after they first consider the Scale’s psychometric properties.

Renè Proyer (this issue) examines the properties of playfulness and humor, considering their unique and shared variance and features. Proyer provides support for McGhee’s (1996, 1999) notion that humor is a special variant of play.

5 Humor training and well-being

McGhee (1996, 1999) developed an evidence-based humor intervention program that emphasizes strengthening key humor habits and skills. Initially called the 8 Step Humor Training Program, it was relabeled the 7 Humor Habits Program (7HHP) in 2010 because the eighth step consisted simply of integrating the first seven (McGhee 2010a). The Humor Habits Program (7HHP) consists of seven core habits:

1. Surround yourself with humor.
2. Cultivate a playful attitude.
3. Laugh more often.
4. Create your own verbal humor.
5. Look for humor in daily life.
6. Laugh at yourself.
7. Find humor in the midst of stress.

The 7HHP uses two approaches to strengthen humor habits: ‘home play’ assignments and ‘humor log’ exercises. Keeping a humor log requires participants to actively think about issues related to their sense of humor, basically a cognitive exercise. Home play assignments, such as practicing laughing more often and more heartily and creating verbal humor, represent behavioral components.

Ruch and McGhee (2014) review studies of the effectiveness of the 7-step humor training program. The program has been evaluated with various adult and elderly populations and found to effectively raise SHS scores (Sassenrath 2001; Rusch and Stolz 2009; Crawford and Caltabiano 2011), which remained elevated for up to three months. The 7HHP interventions boost positive emotions and subjective well-being.

The effectiveness of the 7 Humor Habits Program has been documented in research on three continents (see McGhee 2010a for summary). Studies in the USA, Switzerland, Australia and Germany have confirmed the effectiveness of this program in boosting sense of humor. Evidence also shows that it improves daily mood, boosts optimism and improves the ability to cope with stress. There is also some support for using the 7 Humor Habits Program as a tool in reducing clinical depression and anxiety. This led to the creation of a manual (in German) for therapists to use as a supplementary tool in treating patients with these conditions (Falkenberg et al. 2013).

Humor training has been shown to be effective for all ages, from college students to seniors in their eighties. For example, Andress (2010) at LaSierra University (CA) obtained data on the effectiveness of the 7HHP with college students. The class met twice weekly to discuss humor research and theoretical issues and used the 7HHP Program for eight weeks. Students brought examples of humor to each session and discussed them in class. They also kept a Humor Diary during the training. The Sense of Humor Scale was used as a pre- and post-test to determine the effects of humor training. The 7HHP integrated into a college course was sufficient to produce significant improvement in each of the seven areas of the sense of humor scale. The training also cultivated a playful attitude and a more positive mood.

Gunderson (1998) examined the impact of 7HHP training on coping with stress. An eight-week training program taken by senior citizens living in a retirement community resulted in greater use of humor in stressful situations and reduced levels of stress on two different measures. Similarly, Andress and Matsumoto (2015) found that a 10-week training period using the 7HHP with seniors resulted in significant increases in positive mood (using the positive vs. negative mood scale and reduced depression).

Since verbal humor is considered a key component to everyone's sense of humor, McGhee (2004) created a special tool to boost one's ability to play with language while individuals are working on the 4th Humor Habit (spontaneous verbal humor). His book *Small Medium at Large* provides several hundred jokes of varying types with a key part of the punchline missing. A clue is provided (if needed) to get the reader thinking in the right direction without providing the answer. After going through this process hundreds of times, a generalized skill of playing with language in different ways is developed. An example is provided below. While Paul has not created a separate humor training program for children, he has created a similar tool for children aged 7–11 years to boost their own verbal humor skills (McGhee 2002a, McGhee 2002b).

What makes a road broad?

Clue: Look carefully at the words 'road' and 'broad'.

When do doctors get most annoyed?

When they're out of ____.

Clue: Whom do doctors treat?

Ruch and McGhee (2014: 190) conclude that *"humor is trainable and that training humor in turn leads to other desirable outcomes (i.e., increased positive emotions, decreased negative emotions, increased coping with life stressors) Training-induced changes prevail at least for a few months."*

5.1 Laughing at oneself

Jennifer Hoffmann (this issue) examines one step of McGhee's seven-step humor training program, the ability to laugh at oneself. She presents her original research on the measurability and convergent validity of laughing at oneself, using the subscale from the Sense of Humor Scale, and considers the feasibility of training in this area. In the study, individuals filled in the Sense of Humor Scale and were then presented with distorted photos of themselves with funny captions. Their emotional responses towards those photos were assessed via

self-report and facial indicators, and participants rated the degree of funniness and aversiveness. The results show a moderate convergence between different ways of assessing laughing at oneself and further showed that the SHS laughing at oneself scale predicted the absence of negative emotions – in line with McGhee’s notion that to be able to laugh at oneself, one has to overcome negative feelings and responses.

6 Humor and health

In *Humor: the Lighter Path to Resilience and Health* McGhee (2010b) notes that the first studies of humor and health demonstrated humor’s ability to strengthen the immune system, reduce pain and reduce levels of stress hormones. These general health-promoting benefits led researchers to study the impact of humor and laughter on specific diseases. This exciting work has shown health benefits of humor in connection with coronary heart disease, asthma, COPD, arthritis, diabetes and certain allergies. The two cerebral hemispheres of the brain are shown to play different roles in our understanding and enjoyment of humor. Also, specific dopamine-based pleasure centers in the brain have been identified which account for the good feeling that results from humor and a good belly laugh. (See papers by Buxman; Rodden this volume)

Frank Rodden offers a comprehensive review of the neuropsychology of humor, laughing, and smiling, presenting case studies in Part I, and summarizing an impressive body of research on the neuroscience of humor and laughter in Part II. McGhee presaged this voluminous research topic in his 1983 chapter in the *Handbook of Humor Research*, “The role of arousal and hemispheric lateralization in humor.”

According to McGhee, the key to understanding humor’s contribution to health and wellness is its ability to build both more positive emotion and reduce feelings of anger, anxiety and depression. Humor helps provide the emotional resilience needed to meet the challenges presented by steadily increasing stress in our personal and work lives. It is a powerful tool for coping with any form of life stress, and a means of sustaining a positive, optimistic attitude toward life. Karyn Buxman describes how Paul’s work and workshops have profoundly influenced the nursing profession. Humor also plays a key role in generating a happy marriage (e.g., Alberts 2013; Cann et al. 2008; Rust and Goldstein 1989; Ziv and Gadish 1989) and greater happiness and life satisfaction in general.

While Papousek (this issue) supports the role of humor in emotional well-being, she wisely cautions against exaggerating the role that humor and laughter

can play in health. She warns “*not to give in to the temptation to pass off humor as a miracle cure-all and to refrain from sharing premature, poorly substantiated, oversimplified or overgeneralized conclusions about its benefits... This damages the credibility of humor research, and it may cause harm.*” Similar cautions were raised earlier by Goldstein (1982) and Lewis (2006).

7 Academic career, and more

Paul has taught at the University of Minnesota, Morris, and State University of New York at Albany (1970–1973), and California State University at Los Angeles and at Northridge (1976–1978). He was at Texas Tech University from 1978–1988. Paul spent two periods at the Sorbonne in Paris, first as a Visiting Professor and then as a Research Fellow at the National Center for Scientific Research, Laboratoire de Psychologie Differentielle, Ecole Pratique des Hautes Etudes.

Paul left teaching and research to devote his time to practical applications of humor while working as a professional speaker. After retiring from teaching, Paul began doing humor training, particularly for health care professionals. Since 1990 Paul has been President of The Laughter Remedy (Wilmington Delaware www.LaughterRemedy.com), which offers speakers, seminars and workshops on humor and emotional resilience/coping with stress, the playful brain, development of children’s humor, humor and health, humor and positive aging, and learning to use the *7 Humor Habits Program*.

Paul continues to write about humor, now in the context of applying humor to health and well-being. A sample of McGhee’s nearly 20 books includes two books that Jeff and Paul edited together, *Psychology of humor* (Goldstein and McGhee 1972) and the two-volume *Handbook of humor research* (McGhee and Goldstein 1983) and his highly influential 1979 book, *Humor: Its origin and development*. With Tony Chapman he edited *Children’s humour* (1980). This was followed by *Humor and aging*, which he edited with Nahemow and McClusky-Fawcett (1986). Other books are included in the references.

Paul is an inspiration and mentor to many. In Europe, he was a keynote speaker at the first humor meetings in Arosa and Basel (Switzerland). He was one of the two main speakers at the 1st International Summer School and Colloquium, Queen’s University of Belfast, Belfast, UK (June 25–30, 2001) organized by Willibald, which was attended by approx. 30 students from all over the world, and featured in a Dutch TV documentary. Later, in 2009, he taught the first doctorate seminar on humor and Positive Psychology (together with Chris

Peterson and Nansook Park) at the University of Zurich, Switzerland. Paul's humor training was picked up in the German speaking countries early and is now frequently offered in workshops. Several projects by doctorates in the Zurich lab are inspired by Paul, and the reading material of humor courses include several of his books. Like everywhere the lab computers have names, but ours are called Allport, Cattell, Eysenck, Ekman, and McGhee. Paul was a supportive mentor and he was particularly influential in Willibald's career, through discussing ideas but also giving feedback on the first articles at a time when publishing in English was not yet common for Germany-based academics.

Paul McGhee received the Odyssey Award from Oakland University (2009, Rochester MI) for "exemplifying the university's motto of seeking virtue and knowledge" and the Doug Fletcher Lifetime Achievement award from the Association for Applied and Therapeutic Humor (2011). In 2015 he received a Lifetime Achievement Award from ISHS "In recognition of his contributions to humor scholarship, research and the advancement of humor studies." Paul and his wife Amy have two children, Zach and Nicole. He is serious about the banjo, the most amusing of instruments, besides the tuba.

References

- Alberts, Janet K. 2013. The use of humor in managing couples' conflict interactions. In Dudley D. Cahn (ed.), *Intimates in conflict: A communication perspective*, 105–120. Routledge.
- Andress, William C. 2010. Empirical evidence for therapeutic laughter courses on a university campus. Paper presented at the Conference of the National Wellness Institute, Stevens Point, WI.
- Andress, William C. & Seiji Matsumoto. 2015. Impact of therapeutic laughter interventions on seniors. Paper presented at the Conference of the Association of Applied & Therapeutic Humor, Philadelphia, PA.
- Cann, Arnie, M., Ashley Norman, Jennifer L. Welbourne & Lawrence G. Calhoun. 2008. Attachment styles, conflict styles and humor styles: Interrelationships and associations with relationship satisfaction. *European Journal of Personality* 22. 131–146.
- Chapman, Antony J. & Hugh C. Foot. 1976. *Humor and laughter: Theory, research, and applications*. London: Wiley.
- Crawford, Shelley A. & Nerina J. Caltabiano. 2011. Promoting emotional well-being through the use of humor. *Journal of Positive Psychology* 6. 237–252.
- Falkenberg, Irina, Barbara Wild & Paul E. McGhee. 2013. *Humorfähigkeiten trainieren: Manual für die psychiatrisch-psychotherapeutische praxis* [Humor skill training: A manual for psychiatric and psychotherapeutic practice]. Stuttgart, Germany: Schattauer.
- Fry, William F., Jr. 1963. *Sweet madness*. Palo Alto, CA: Pacific Books.
- Gamble, Jennifer. 2001. Humor in apes. *Humor: International Journal of Humor Research* 14(2). 163–179.

- Goldstein, Jeffrey H. 1982. A laugh a day: Can mirth keep disease at bay? *The Sciences* 22(Aug/Sept). 21–25.
- Goldstein, Jeffrey H., Joan Harmon, Paul E. McGhee & Russell Karasik. 1975. Test of an information-processing model of humor: Physiological response changes during problem- and riddle-solving. *Journal of General Psychology* 92. 59–68.
- Goldstein, Jeffrey H. & Paul E. McGhee. 1972. *The psychology of humor* Foreword by H. J. Eysenck. New York: Academic Press.
- Gunderson, Amy L. 1998. *A comparison of the effect of two humor programs on self-reported coping capabilities and pain among the elderly*. Montclair, NJ: Montclair State University Unpublished master's thesis.
- Levine, Jacob. 1969. *Motivation in humor*. New York: Atherton.
- Lewis, Paul. 2006. *Cracking up: American humor in a time of conflict*. Chicago: University of Chicago Press.
- McGhee, Paul E. 1971a. Cognitive development and children's comprehension of humor. *Child Development* 42. 123–138.
- McGhee, Paul E. 1971b. Development of the humor response: A review of the literature. *Psychological Bulletin* 76. 328–348.
- McGhee, Paul E. 1979. *Humor: Its origin and development*. San Francisco, CA: Freeman.
- McGhee, Paul E. 1980. Development of the sense of humor in childhood: A longitudinal study. In Paul E. McGhee & Antony J. Chapman (eds), *Children's humor*, 213–226. Chichester, UK: Wiley.
- McGhee, Paul E. 1982. Explaining the evolutionary significance of intellectual play: Are we barking up the wrong tree? *The Behavioral and Brain Sciences* 5. 166–167.
- McGhee, Paul E. 1988. Are animals capable of humor?. In Don L. F. Nilsen & Aleen Pace Nilsen (eds.), *WHIMSEY VI: International humor. Proceedings of the 1987 WHIM conference*. Tempe, AZ: Arizona State University Press.
- McGhee, Paul E. 1989. *Humor and children's development: A guide to practical applications*. New York: Haworth.
- McGhee, Paul E. 1996. *Health, healing, and the AMUSE system. Humor as survival training*. Dubuque, IA: Kendall-Hunt.
- McGhee, Paul E. 1999. *Health, healing and the AMUSE System: Humor as survival training*, 3rd edn. Dubuque, IA: Kendall/Hunt.
- McGhee, Paul E. 2002a. *Understanding and promoting the development of children's humor*. Dubuque, IA: Kendall/Hunt.
- McGhee, Paul E. 2002b. *Stumble bees and peplephones: How to develop a powerful verbal sense of humor*. Dubuque, IA: Kendall/Hunt.
- McGhee, Paul E. 2004. *Small medium at large: How to develop a powerful sense of humor* (adult edition). Bloomington, IN: Author House.
- McGhee, Paul E. 2010a. *Humor as survival training for a stressed-out world: The 7 Humor Habits Program*. Bloomington, IN: Author House.
- McGhee, Paul E. 2010b. *Humor: The lighter path to resilience and health*. Bloomington, IN: Author House.
- McGhee, Paul E. 2011. *Humor, health and happiness: How to get the FUNtastic benefits of humor into your life*. Singapore: Mind Edge.
- McGhee, Paul E. 2018. Chimpanzee and gorilla humor: Progressive emergence from origins in the wild to captivity to sign language learning. *Humor: International Journal of Humor Research*. This issue.

- McGhee, Paul E. & Antony J. Chapman. 1980. *Children's humor*. Wiley: Chichester UK.
- McGhee, Paul E. & Jeffrey H. Goldstein. 1983. *Handbook of humor research*. Vol. 1, *Basic issues*. Vol. 2, *Applied studies*. New York: Springer-Verlag.
- McGhee, Paul E. & Theodora Panoutsopoulou. 1990. The role of cognitive factors in children's metaphor and humor comprehension. *International Journal of Humor Research* 3–4. 379–402.
- McGhee, Paul E., Willibald Ruch & Franz-Josef Hehl. 1990. A personality-based model of humor development during adulthood. *Humor: International Journal of Humor Research* 3. 119–146.
- Mindess, Harvey. 1970. *Laughter and liberation*. Los Angeles: Nash.
- Mindess, Harvey & Joy Turek. 1979. *The study of humor: Proceedings of the second international conference on humor*. Los Angeles: Antioch University
- Nahemow, Lucille, Kathleen McClusky-Fawcett & Paul E. McGhee. 1986. *Humor and aging*. New York: Academic Press.
- Roeckelein, Jon E. 2002. *The psychology of humor: A reference guide and annotated bibliography*. Westport CT: Greenwood.
- Ruch, Willibald & Amy Carrell. 1998. Trait cheerfulness and the sense of humor. *Personality and Individual Differences* 24. 551–558.
- Ruch, Willibald & Paul E. McGhee. 2014. Humor intervention programs. In Acacia C. Parks & Stephen Schueller (eds), *Wiley-Blackwell handbook of positive psychological interventions*, 179–194. London: Wiley-Blackwell.
- Ruch, Willibald, Paul E. McGhee & Franz-Josef Hehl. 1990. Age differences in the enjoyment of incongruity-resolution and nonsense humor during adulthood. *Psychology and Aging* 5. 348–355.
- Rusch, Sandra & Heidi Stolz. 2009. *Ist Sinn für Humor lernbar? Eine Anwendung und Evaluation des 8 Stufen Programms (McGhee, 1999)* [Can a sense of humor be learned? An application and evaluation of the 8-Step Program (McGhee, 1999)]. Switzerland: University of Zurich Unpublished master's thesis.
- Rust, John & Jeffrey H. Goldstein. 1989. Humor in marital adjustment. *Humor: International Journal of Humor Research* 2. 217–223.
- Sassenrath, Simone 2001. *Humor und Lachen als Stressbewältigungsstrategie* [Humor and laughter as coping mechanism.] Austria: University of Vienna Unpublished master's thesis.
- van Hoof, J.A. & S. Preuschoft. 2003. Laughter and smiling: The intertwining of nature and culture. In Frans B. M. de Waal & P. L. Tyack (eds), *Animal social complexity: Intelligence, culture, and individualized societies*, 260–287. Cambridge MA: Harvard University Press.
- Zigler, Edward, Jacob Levine & L. Gould. 1966. Cognitive processes in the development of children's appreciation of humor. *Child Development* 37. 507–518.
- Ziv, Avner & Orit Gadish. 1989. Humor and marital satisfaction. *Journal of Social Psychology* 129 (759–768). doi:10.1080/00224545.1989.9712084

Bionotes

Jeffrey Goldstein

Jeffrey Goldstein has been at Utrecht University (Netherlands) since 1992. He is currently at the Institute for Cultural Inquiry, Utrecht University. He studies the uses of entertainment in education, health, and science.

Willibald Ruch

Willibald Ruch is a Full Professor of Psychology at the University of Zurich, Switzerland. His research interests are in the field of personality and assessment, with a special focus on humor and laughter, cheerfulness, and smiling. In his doctoral dissertation at the University of Graz (Austria) in 1980, he developed a taxonomy of jokes and cartoons and studied their relation to personality. His more recent work, together with his research team at the University of Zurich, includes humor from a positive psychology perspective, the effectiveness of humor training programs and clown interventions, the ability to laugh at oneself, the fear of being laughed at (gelotophobia), and the measurement of humor.