



Revisiting the Origins of EMDR

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Abstract

Francine Shapiro, the founder of Eye Movement Desensitization and Reprocessing (EMDR), reported that the therapeutic use of eye movement patterns was discovered by chance while walking in a park. An alternative accounting for the origins of EMDR comes from research that demonstrates individuals are unable to perceive their own eye movements and from historical sources that document Shapiro's acceptance of Neuro-Linguistic Programming theory on eye movement patterns and super-achievers. The present paper brings together this diverse set of findings to provide a more accurate context within which Shapiro's purported discoveries and subsequent claims can best be viewed.

Keywords EMDR · NLP · Eye movements · History · Origins

Eye Movement Desensitization and Reprocessing (EMDR) is a widely recognized set of procedures that originally was based on the novel idea that eye movements could facilitate the desensitization of traumatic memories by accelerating information processing (Shapiro, 1989). Despite controversy surrounding EMDR at most every turn (DeBell & Jones, 1997; Devilly, 2002; Herbert et al., 2000; Lohr et al., 2015; Rosen, 1999), a set of positive findings eventually took precedence (Lee & Cuijpers, 2013) and EMDR came to be listed as an evidence-based treatment. Still, debates continue as to whether eye movements and other forms of bilateral stimulation meaningfully contribute to treatment outcomes beyond allegiance and placebo effects (e.g., Cuijpers et al., 2020). Efforts to find a plausible mechanism that might elevate EMDR from evidence-based to science-based status (Lilienfeld, 2019) also fall short. For example, the hypothesis that eye movements present a dual task that taxes working memory, thereby reducing emotionality and facilitating desensitization (van den Hout & Engelhard, 2012), does not account for fixed eye conditions and other non-taxing dual tasks that yield equivalent outcomes (e.g., Pitman et al., 1996; Renfrey & Spates, 1994).

In the midst of controversies that continue to beset EMDR it is relevant to revisit how the method's founder, Francine Shapiro (1948–2019), came to discover the therapeutic application of eye movements. This manuscript examines Shapiro's recounting of EMDR's origins; reviews research calling that story into question; brings together a diverse set of historical findings; provides a cohesive alternative narrative; and considers the importance of contextualizing claims made by creative innovators.

The Origin Story as told by Shapiro

As reported by Shapiro (1989) it was during a walk in a park that she noticed how recurring, disturbing thoughts arose and then disappeared without intentional effort. Shapiro explained that careful self-examination led to the realization that her eyes were involuntarily moving in a multi-saccadic manner as disturbing thoughts arose: Then the thoughts disappeared completely and when deliberately retrieved were no longer upsetting. After this serendipitous observation Shapiro explored with volunteers and clients the therapeutic possibilities of eye movements.

Shapiro's reported experience of observing involuntary saccades was said to have occurred in May 1987. At that time Shapiro was enrolled in an unaccredited doctoral program at the Professional School of Psychological Studies. Shapiro (1995) explained (preface, p. vi): "The eventful walk in the park that led to the discovery of the effects of the

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eye movements occurred just as I was beginning to look for a dissertation topic. In that single moment my cross-country search for mechanisms of mental change and my need for a doctoral research project neatly converged.” Years after the discovery of EMDR, Shapiro was asked in an interview if anything had prepared her to be open to the discovery of eye movements. Shapiro’s response provided historical and personal context (Luber & Shapiro, 2009, p. 218):

Ten years previously I had been diagnosed with cancer, which shifted my attention from my plans to become a university professor in English literature to what caused stress reactions in people because the whole field of psychoneuroimmunology was just emerging. The work of Norman Cousins and Pelletier and others were [sic] focusing on the interaction between mind and body. That became fascinating to me, as well as wondering why— as a society— we had so many technological advances but weren’t really able to handle these mind-body issues. So I decided to go and look for ways to do that and get them out to the general public. I closed up in New York and headed out toward California where there were numerous cutting edge workshops going on and I entered into every one that I could find to see what the latest was known (sic) and then did the same in a professional psychology program. During those 10 years, the approach was basically to use my own mind and body as a laboratory to see what worked. So, over those 10 years, I had cultivated the ability to carefully self-monitor. I think when the thoughts came up that were disturbing, I was able to notice them, and then pay attention and notice the saccadic eye movements that occurred when that type of thought arose, and then move on from there.

By the time of her death in 2019, Shapiro had achieved world wide acclaim for having discovered the therapeutic use of eye movements. Solomon and Maxfield (2019) offered these remembrances (p. 161):

In 1987, she had her life changing walk in the park, which led to the development of EMDR therapy. Few people walk this planet with the gifts that Dr. Shapiro had. Francine Shapiro was a genius. She possessed an amazing understanding of human nature and an ability to pull together and integrate diverse ideas in the flash of a second that was beyond brilliance.

Research Challenges the Origin Story

Upon careful consideration, Shapiro’s accounting for the origins of EMDR is questionable. This is because saccades during everyday functioning are physiologically invisible (Moses & Hart, 1987). Rosen (1995) addressed this concern by asking six individuals if they could experience eye movements while walking around and thinking of positive and negative thoughts. None were successful.

After publication of Rosen’s challenge to Shapiro’s origin story she alerted members of an EMDR listserv (traumatic-stress@freud.apa.org, September 12, 1996) that a responsive critique would be published by a “world renowned perceptual psychology researcher.” Shapiro was referring to Robert Welch who repeated in a published paper the theme of his being an expert (Welch, 1996, p. 175): “I am interested in any attempts by non-perceptual psychologists to apply knowledge from my field to their own. Such an attempt was made by Rosen (1995).” Welch (1996) then critiqued Rosen’s efforts and argued it was incorrect to judge Shapiro mistaken just because a few individuals failed to report ocular experiences. In support of this position Welch reviewed relevant research and concluded: “It would seem more reasonable to assume not only that Shapiro had a strong personal interest in understanding her own behavior but that she, like other innovators, possesses an acute sensitivity to interesting, unexpected observations and the diligence to pursue them to their logical end” (p. 178).

Welch’s praise of Shapiro’s sensitivity and diligence, following as it did Shapiro’s praise of his expertise, occurred without either party disclosing a likely conflict of interest: they had a relationship and married (Carey, 2019). Remarkably, a similar failure to disclose involved Shapiro’s earlier marriage in 1969 to Gerald Puk (retrieved March 1, 2021 from <https://www.nycmarriageindex.com/>) when both were students in Brooklyn, New York. Puk completed his Ph.D. in clinical psychology and co-founded in 1981 the Institute for Psychotherapy and Hypnosis, located in Rhinebeck, NY (retrieved March 8, 2023 from <https://www.co.dutchess.ny.us/CountyClerkDocumentSearch/Search.aspx?q=nco13d226name13dPuk2bgerald&page=1>).

Licensed in New York State and without academic credentials (PsycInfo, retrieved on March 1, 2021) Puk was not on the faculty at the Professional School of Psychological Studies in California: yet somehow he became a member of Shapiro’s dissertation committee (Shapiro, 1988). As with Welch, Shapiro’s relationship history with Puk remained undisclosed to relevant parties (Anne Hanley, dissertation committee member, personal communication March 10, 2021).

More important than relationship and ethical issues, Welch misapplied the literature in an attempt to advance

an unsupportable position (see Rosen 1997). For example, Welch cited Brindley and Merton (1960) when he discussed feelings of ocular motion, but failed to point out that these authors found individuals unable to feel eye movements: a conclusion telegraphed by the very title of their paper, *The absence of position sense in the human eye*. A more recent article on the same topic (Clarke et al., 2017) conveys a similar conclusion under the title: *People are unable to recognize or report on their eye movements*.

An Alternative History: NLP and Shapiro's Human Development Institute

That the plausibility of Shapiro's origin story is challenged by research findings leaves open the question posed by Luber as to what prepared her for discovering eye movements. As it turns out, an answer to this question is found in Shapiro's own writings and business ventures two years prior to her 1987 walk in a park. It was in 1985 that Shapiro published an article in *Holistic Life Magazine* and discussed Neuro-Linguistic Programming (NLP) theories on various topics including the importance of eye movement patterns (Shapiro, 1985, pp. 41–43):

Neuro-Linguistic Programming is a technique developed over eight years ago. . . . It has been dubbed the "Super-Achievers" technology because the research team studied the most successful people they could find in law, medicine, business and psychology to see what made them so successful. . . . In NLP, the key is that since people share the same neurological system, responses are predictable, verifiable, and repeatable. In other words, Neuro-Linguistic Programming is scientifically rather than merely theoretically based. One of the findings of the Neuro-Linguistic Programming research is that all people cross-culturally (with the exception of the Basque nationality) show how they are thinking by the way their eyes move. . . . Even without their saying a word, if you watch their eyes carefully, you can determine whether they are seeing a picture, hearing, or feeling something. As a further refinement, you can tell if they are remembering something or constructing it. Thousands have learned to walk on red-hot coals without injury, using Neuro-Linguistic Programming. . . . Using Neuro-Linguistic Programming, people are shown how to tap into their own unlimited source of personal power, get rid of even the basic fear of fire and change their physiology to walk across the coals. The major dilemma that people are confronted with in Neuro-Linguistic Programming is the question of manipulation and free will. Since the

powerful technology allows you to practically "read minds" and have people respond automatically in any way you choose, there is a distinct ethical issue.

While the main purpose in citing Shapiro's 1985 article is to establish her ties to NLP, the article also provides insights into Shapiro's understanding of psychology and scientific methods during her fourth year as a graduate student (chronology obtained from Shapiro's 1991 application with California's Board of Psychology; public information request). For example, Shapiro demonstrated confusion as to what constitutes science and theory when she concluded that NLP was "scientifically rather than merely theoretically based" because of the hypothesis that people share the same neurological system such that their responses are "predictable, verifiable, and repeatable." This theorizing was presented as fact in the absence of supporting research. Actual published peer reviewed papers, some of which were available to Shapiro during her graduate studies, generally failed to support NLP theory (e.g., Sharpley 1984), a situation that led Sharpley to conclude (1987, p. 106): "Certainly research data do not support the rather extreme claims that proponents of NLP have made as to the validity of its principles or the novelty of its procedures."

Shapiro's comments on firewalking and people tapping into their own "unlimited source of personal power" also are telling. These statements echoed claims made by Tony Robbins, a famous and controversial motivational speaker and "one of the most recognized personalities in NLP" (<https://nlp-mentor.com/anthony-robbins/>). After attending one of Robbins' seminars Leikand and McCarthy (1985) reported (pp. 25–27): "Halfway through the seminar, Robbins began describing neurolinguistic programming, a technique he claimed could enable its practitioners to cure people of tumors and long-standing psychological problems in a fraction of the time required by conventional treatments." Shapiro's acceptance of these exaggerated claims and the stage manipulations of a motivational speaker ignored science-based explanations for fire-walking that were available at the time (see Leikind & McCarthy 1985). Shapiro's acceptance of other questionable claims and constructs extended to the notion that powerful technologies could eliminate free will, NLP practitioners could read minds, people could be manipulated to do whatever NLP practitioners might choose, and Basque Nationals somehow had a different neurological system than all other groups of humans.

In addition to laying out NLP theory and strategies on how to become a successful super-achiever Shapiro provided the following information:

Francine Shapiro is Director of the Human Development Institute and an affiliate seminar production

company, MetaVox, both based in San Diego. She holds advance degrees in both Literature and Psychology, and is a facilitator of Neuro-Linguistic Programming. After 10 years as an educator in New York City, she moved to San Diego and started the companies to recruit the most powerful speakers and workshop leaders in the United States for the education of the general public. Human Development Institute presently offers workshops in Neuro-Linguistic Programming and a variety of other topics to the public, as well as special corporate, medical, and organizational training nation wide.

Contrary to these listed credentials the only advanced psychology degree Shapiro reported in 1991 when applying for licensure was her 1988 Ph.D., earned 3 years after the 1985 article. Additional records document that Shapiro's business ventures while attending the Professional School of Psychological Studies extended beyond the Human Development Institute and MetaVox. In 1982 Shapiro filed to incorporate under the name of New Age Health Services, Inc. for the purpose of selling health related products (California Secretary of State, retrieved on January 23, 2023 from <https://bizfileonline.sos.ca.gov/search/business>). By 1988 (Shapiro, 1989), and possibly as early as 1985 (licensing application with California Board of Psychology), Shapiro listed an affiliation with the Meta Development and Research Institute, another entity of her own creation. On occasion, the stated goals of these enterprises were lofty: The Meta Development and Research Institute fulfilled Shapiro's dream to start a non-profit for the benefit of humankind (EMDRIA, 2021); MetaVox was founded "to recruit the most powerful speakers and workshop leaders in the United States" (Shapiro, 1985, p. 42). Shapiro's use of the term "meta" in two of her four endeavors also is of interest as it paralleled the language of NLP leaders who developed "meta programs" and published with *Meta Publications* (e.g., Bandler et al., 1975; Dilts, 1983). Hall (2019) discussed the formative years leading to NLP (p. 17): "The group had no name from 1972 through 1974. The word they often used for themselves at the time was *meta*. They were the *meta-people*."

1985 Newspaper Interviews

In the same year that Shapiro published in *Holistic Life Magazine* she was interviewed by a reporter with the LA Times (McClean, 1985) for an article entitled: *Aiming at Superachievers: NLP: Influencing Anybody to Do Just About Anything*. The article presented Shapiro's views on NLP and what made certain people super-achievers: "Why some lawyers won case after case, why some therapists

were able to consistently pull off cures in one session." Shapiro explained to the reporter that NLP practitioners can assess how individuals think and experience the world by observing body language cues, including the position of the eyes. Shapiro reported: "Normal breathing and eyes moving side to side signal that the person is in an auditory mode." The LA Times article highlighted weekend workshops that Shapiro was providing through her Human Development Institute, at a cost of \$225.00. These workshops reportedly taught students how to use NLP techniques in practical situations to accelerate learning.

In a separate interview that same year (Bonasia, 1985) Shapiro reported: "We can be objective because we have no vested interest in any of the technologies we study. And right now, NLP is absolutely the most effective because of its wide range of applications." Bonasia reported that Shapiro also claimed NLP could improve one's personal life, health and love relations, as well as one's career. The article closed with this announcement: "Shapiro and Grinder have scheduled two free NLP workshops on January 23 and 30, for those who would like to learn more. The pair can be contacted at the Human Development Institute."

There is much to unpack in these 1985 newspaper articles. Once again Shapiro handled concepts in a manner inconsistent with the training of a typical fourth year graduate student: this time by advancing the unfounded notion that the scope of problems to which a method is applied provides a measure of that method's effectiveness. In point of fact the very opposite is the case: "cure-alls" and quackery have gone hand in hand throughout the ages (Fishbein, 1932; Kang & Pedersen, 2017; Lawrence, 1910). It also is difficult to understand how Shapiro reported having no vested interest in the very technologies she was promoting through her own business enterprise. Further, Shapiro's promotional claim of offering workshops with John Grinder is significant as Grinder worked with Richard Bandler and Frank Pucelik (Hall, 2019; Grinder & Pucelik, 2013) in the 1970s to develop Neuro-Linguistic Programming. In a personal communication, Grinder denied ever participating in workshops with Shapiro and he denied ever hearing of the Human Development Institute (J. Grinder, personal communication June 7, 2021). Putting aside these conflicting reports, the point remains that Shapiro advanced numerous claims that document her commitments to NLP theory and practice: including the notion that super-achieving therapists can apply NLP principles and achieve one-session cures.

2014 Exchange of Papers

Shapiro's early involvements within the NLP community lay dormant for years as she advanced the story of her own chance discovery and pursued her dissertation. It was not

until 2014 that Shapiro's ties to NLP were called out by Grimley (2014) who was responding to a review of EMDR and Shapiro's contributions ((Logie, 2014a). In no uncertain terms Grimley chastised Shapiro for crediting herself for the discovery of eye movement patterns while failing to acknowledge her background in NLP. In support of his stance, Grimley cited John Grinder's accounting of how Shapiro, while working for Grinder in administration and sales, had requested advice to assist a friend who had been raped. Grinder reportedly told Shapiro to put her friend in what was called a resourceful state and have her "systematically move her eyes through the various accessing positions typical of the major representational systems." Grinder recalled that Shapiro later reported to him that her efforts had been successful. Grinder observed: "You may imagine my surprise when I later learned that she had apparently turned these suggestions into a pattern presented in an extended training, with no reference to source, with a copyright and a rather rigorous set of documents essentially restricting anyone trained in this from offering it to the rest of the world." After quoting Grinder and referencing Shapiro's 1985 article Grimley discussed how the NLP community had known for a long time the therapeutic effects of working with "eye-accessing cues" (p. 561) and it was time for the EMDR community to act professionally, demonstrate integrity, and acknowledge Dr. Grinder's claims and Shapiro's association with NLP.

Logie (2014b) responded to Grimley with a contrary narrative that contained these four sampled statements, among others (pp. 638–639):

- *Bruce Grimley's letter in the August issue of The Psychologist in response to my article includes a claim by Dr. John Grinder that he suggested to Francine Shapiro a way to treat a rape victim and that he is therefore the originator of EMDR.*
- *According to Dr. Shapiro (personal communication), no such conversation ever took place. Further, even a cursory examination of the content demonstrates the lack of any association to EMDR therapy.*
- *The tenets of NLP clearly have not defined the EMD(R) procedures. In fact, Dr. Grinder's claim seems more in line with an NLP procedure called 'eye movement integration' (EMI).*
- *Perhaps Dr. Grinder was misremembering a conversation he had with the innovators of EMI. In any event, it is clear that no such conversation has any bearing on EMDR therapy.*

Shapiro's reference to EMI and the reality that NLP practitioners were using eye movement patterns in the 1980s is consistent with NLP publications from that time frame

(e.g., Andreas & Andreas 1989; Dilts, 1983), Grinder's story as recounted by Grimley, and Grinder's personal correspondence with this author on the use of eye movements by the early to mid-1970s. Clearly, denials notwithstanding, Shapiro's ties to NLP exposed her to theories and practices focused on eye movements.

Logie (Personal communications, March 9 & 11, 2021) reported to this author that his response to Grimley had been based on a letter he received from Shapiro. Without Logie's disclosure and his written permission to quote from the letter, a copy of which he provided, Shapiro's direct involvement in the 2014 exchange between Logie and Grimley would never have been known. In the context of this new understanding, matching statements from Shapiro's letter can be compared to Logie's published response.

- *Dr. Grimley's letter in the previous issue of the Psychologist in response to my article (cite and put in reference section) includes a purported claim by Dr. Grinder that he suggested to Dr. Shapiro a way to treat a rape victim and he is therefore the source of EMDR.*
- *According to Dr. Shapiro (personal communication), no such conversation ever took place. Further, even a cursory examination of the content demonstrates the lack of any association to EMDR therapy.*
- *While NLP may have been one of the methodologies she evaluated during the 1980s[Emphasis added to text not included in Logie's published response] its tenets clearly have not defined the EMD(R) procedures. In fact, Dr. Grinder's purported claim seems more in line with an NLP procedure called "Eye Movement Integration" (EMI).*
- *Perhaps Dr. Grinder is misremembering a conversation he had with the innovators of EMI. However, it is clear that no such conversation has any bearing on EMDR therapy.*

As one reads these statements it is striking to realize that the text consists of Shapiro's own words about herself, written in the third person as if the author was Logie. Basically, Shapiro penned the entirety of a response to Grimley and left for Logie the task of pasting text along with a few edits.

Logie's response to Grimley is not the only example of Shapiro arranging for her own words to be attributed to another source. Shapiro and Forrest (1997) published a popular book entitled, "EMDR: The breakthrough therapy for overcoming anxiety, stress and trauma." The back jacket of this book contained the following statement: "EMDR 'comes of age'... Recent independent studies have found it up to 90% successful. American Association for the Advancement of Science." For those unfamiliar with the American Association for the Advancement of Science



(AAAS), it is the world's largest general scientific society and publisher of the highly respected journal *Science*. Upon reading what appeared to be an endorsement of EMDR this author emailed AAAS to clarify who might have issued the "endorsement type statement." Just a few days later Dr. Michael Strauss with AAAS emailed back (personal communication, April 28, 1997): "We are, in fact, wondering ourselves where the quote originated and are pursuing that with the EMDR people in Palo Alto.. . Can you tell us anything about EMDR? Is it a legitimate therapy?" As reported by McNally (1999) AAAS investigated the endorsement statement and determined that a reporter had paraphrased what Shapiro herself stated during an interview for an AAAS sponsored radio program. Rosen and Davison (2001) coined the phrase "echo attribution" to characterize the AAAS episode wherein Shapiro attributed to a prestigious organization what was only a repetition of her own words. Within a year, Shapiro was chastised for engaging in the same activity, this time involving the Association for Advancement of Behavior Therapy and its publication *the Behavior Therapist* (Zeiss, 1998). Here it is interesting to note a historical parallel with Elisha Perkins, a New England physician who invented in 1796 the "Perkin's Tractor." Called by Walsh (1912) the "Prince of Quacks" Perkins sent one of his tractors to the Royal Society in London knowing that he would receive a formal letter of thanks without the Society giving any scientific consideration to the merits of his invention. As discussed by Walsh, Perkins took all possible advantage of the situation by using the letter to let people know of the Society's acceptance of and appreciation for his discovery. Walsh referred to this trickery as an old story that is renewed on every possible occasion "for securing recognition and obtaining the apparent approbation or recommendation of some scientific society or institution" (p. 50).

When one steps back from the 2014 exchange of papers and considers the source of Logie's reply to Grimley, it becomes all the more remarkable that Shapiro denied the conversation reported by Grinder (even challenging his memory), while simultaneously failing to acknowledge that she worked in Grinder's office, published an article in *Holistic Life Magazine*, and established the Human Development Institute for the purpose of promoting NLP workshops (even claiming Grinder was involved). A dispassionate observer might see Shapiro's statement to Logie in the third person that NLP "may have been one of the methodologies she evaluated during the 1980s" as a disingenuous concession that ignored the elephant in the room.

Historical Context

As this author contacted various parties to research the origins of EMDR several individuals associated with Shapiro and the EMDR Institute failed to cooperatively respond while authorities within the NLP community made themselves readily available. These authorities (C. Andreas, personal communication, June 4, 2021; R. Dilts, personal communication, April 24, 2021) openly observed that the NLP community in the 1980s was experiencing internal conflicts and had been ostracized by mainstream science. Indeed, research had failed to support NLP (e.g., Druckman & Swets, 1988; Sharpley 1987) and its theories were increasingly viewed as untestable and pseudo-scientific. As suggested by Andreas and Dilts this reality possibly joined with the strength of Shapiro's beliefs in NLP and super-achievers such that she felt it necessary to strike out on her own and claim the fortuitous discovery of a fresh idea.

Whatever reasons Shapiro had for reconstructing her history and the origins of EMDR it is time to consider the therapeutic use of eye movement patterns in a full and accurate context. In the absence of such efforts any creative innovator can shape a narrative to advance claims of discovery and success, unduly sway the practices of clinicians, and misdirect the focus of researchers. Here the author thanks Harald Merckelbach (personal communication, June 21, 2021) for observing parallels between current research on Shapiro's claim of a serendipitous discovery and Sulloway's (1992) analysis of Freud's description concerning the origins of psychoanalysis. As reviewed by Sulloway, Freud claimed that his discoveries occurred during a period of isolation, completely on his own, while he was going through a deep personal crisis. In his reconstruction of Freud's claimed discovery, Sulloway (1992) showed that the doctor's account contradicted historical facts. He suggested that Freud's motive for mystifying the origins of psychoanalysis was to obscure his intellectual indebtedness to contemporaries. More generally, Sulloway argued that decontextualization is a prerequisite for myths. Taking Sulloway's argument to heart, the present paper has brought together a diverse set of findings to contextualize the origins of EMDR and provide a framework within which Shapiro's purported discoveries, subsequent dissertation efforts, theories, claims of cures, and changing methods can best be viewed. It remains to be seen what role, if any, eye movements should play in the treatment of psychiatric disorder and how Francine Shapiro's contributions will be judged by those who write the history of clinical psychology.

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Declarations

Conflicts of interest The author has no conflicts of interest.

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References

- Andreas, C., & Andreas, S. (1989). *Heart of the mind: Engaging your inner power to change with neuro-linguistic programming*. Moab, Utah: Real People Press.
- Bandler, R., Grinder, J., & DeLozier, J. (1975). *Patterns of the hypnotic techniques of Milton H. Erickson, M.D. (Vols. I & II)*. Capitola, CA: Meta Publications.
- Bonasia, J. (1985). Success: Why it eludes some of us and how to obtain it. *La Costan, January 10* Retrieved on May 9, 2021 from https://www.nlp.ch/pdfdocs/Historie_EMDR_Wingwave.pdf
- Brindley, G. S., & Merton, P. A. (1960). The absence of position sense in the human eye. *Journal of Physiology*, 153, 127–130.
- Carey, B. (2019, July 11). Francine Shapiro, Developer of Eye Movement Therapy, dies at 71. New York Times. Retrieved on May 9, 2021 from <https://www.nytimes.com/2019/07/11/science/francine-shapiro-dead.html>
- Clarke, A. D. F., Mahon, A., Irvine, A., & Hunt, A. R. (2017). People are unable to recognize or report on their own eye movements. *The Quarterly Journal of Experimental Psychology*, 70, 2251–2270.
- Cuijpers, P., van Veen, S. C., Sijbrandij, M., Yoder, W., & Cristea, I. A. (2020). Eye movement desensitization and reprocessing for mental health problems: A systematic review and meta-analysis. *Cognitive Behaviour Therapy*, 49, 165–180.
- Debell, C., & Jones, R. D. (1997). As good as it seems? A review of EMDR experimental research. *Professional Psychology: Research and Practice*, 28, 153–163.
- Devilly, G. J. (2002). Eye Movement Desensitization and Reprocessing: A chronology of its development and scientific standing. *The Scientific Review of Mental Health Practice*, 1, 113–138.
- Dilts, R. B. (1983). *Applications of NLP in health*. Capitola, CA: Meta Publications.
- Druckman, D., & Swets, J. A. (Eds.). (1988). *Enhancing human performance: Issues, theories, and techniques*. National Academy Press.
- (EMDRIA) EMDR International Association (2021). A community of heart profile: Francine Shapiro. Retrieved on May 9, 2021 from <https://francineshapiribrary.omeka.net/items/show/7635>
- Fishbein, M. (1932). *Fads and quackery in Healing*. New York: Covici, Friede, Publishers.
- Grimley, B. (2014). Origins of EMDR- a question of integrity? *The Psychologist*, 27, 561.
- Grinder, J., & Pucelik, F. (Eds.). (2013). *Origins of Neuro linguistic programming*. Carmarthen, UK: Crown House Publishing.
- Hall, M. (2019). *NLP secrets: Untold stories*. Clifton, CO: Neuro-Semantic Publications.
- Herbert, J. D., Lilienfeld, S. O., Lohr, J. M., Montgomery, R. W., et al. (2000). Science and pseudoscience in the development of Eye Movement Desensitization and Reprocessing: Implications for clinical psychology. *Clinical Psychology Review*, 20, 945–971.
- Kang, L., & Pedersen, N. (2017). *Quackery: A brief history of the worst ways to cure everything*. New York: Workman Publishing Company, Inc.
- Lawrence, R. M. (1910). *Primitive psycho-therapy and quackery*. Boston: Houghton Mifflin Company.
- Lee, C. W., & Cuijpers, P. (2013). A meta-analysis of the contribution of eye movements in processing emotional memories. *Journal of Behavior Therapy and Experimental Psychiatry*, 44, 231–239.
- Leikind, B. J., & McCarthy, W. J. (1985). An investigation of firewalking. *Skeptical Inquirer*, 10, 23–34.
- Lilienfeld, S. O. (2019). What is “evidence” in psychotherapies? *World Psychiatry*, 18, 245–246.
- Logie, R. (2014a). EMDR: More than just a therapy for PTSD? *The Psychologist*, 27, 512–517.
- Logie, R. (2014b). EMDR: Origins and anomalies. *The Psychologist*, 27, 638–639.
- Lohr, J. M., Gist, R., Beacon, B., Devilly, G. J., & Varker, T. (2015). Science- and non-science-based treatments for trauma-related stress disorders. In S. O. Lilienfeld, S. J. Lynn, & J. M. Lohr (Eds.), *Science and pseudoscience in clinical psychology* (2eds., 2nd ed., pp. 277–321). New York: The Guilford Press.
- Luber, M., & Shapiro, F. (2009). Interview with Francine Shapiro: Historical overview, present issues, and future directions of EMDR. *Journal of EMDR: Practice and Research*, 3, 217–231.
- McClean, D. (1985). Aiming at superachievers: NLP- Influencing anybody to do just about anything. *LA Times*, February 13. Retrieved on May 9, 2021 from https://www.nlp.ch/pdfdocs/Historie_EMDR_Wingwave.pdf
- McNally, R. J. (1999). EMDR and Mesmerism: A comparative historical analysis. *Journal of Anxiety Disorders*, 13, 225–236.
- Moses, R. A., & Hart, W. M. (1987). *Adler's physiology of the eye: Clinical application* (8th ed.). St. Louis: C.V. Mosby Co.
- Pitman, R. K., Orr, S. P., Altman, B., Longpre, R. E., et al. (1996). Emotional processing during eye movement desensitization and reprocessing therapy of Vietnam veterans with chronic posttraumatic stress disorder. *Comprehensive Psychiatry*, 37, 419–429.
- Renfrey, G., & Spates, C. R. (1994). Eye movement desensitization: A partial dismantling study. *Journal of Behavior Therapy and Experimental Psychiatry*, 25, 231–239.
- Rosen, G. M. (1995). On the origin of eye movement desensitization. *Journal of Behavior Therapy and Experimental Psychiatry*, 26, 121–122.
- Rosen, G. M. (1997). Welch's comments on Shapiro's walk in the woods and the origin of Eye Movement Desensitization and Reprocessing. *Journal of Behavior Therapy and Experimental Psychiatry*, 28, 247–249.
- Rosen, G. M. (1999). Treatment fidelity and research on eye movement desensitization and reprocessing (EMDR). *Journal of Anxiety Disorders*, 13, 173–184.
- Rosen, G. M., & Davison, G. C. (2001). Echo attributions” and other risks when publishing on novel therapies without peer review. *Journal of Clinical Psychology*, 57, 1245–1250.
- Shapiro, F. (1988). *Efficacy of the multi-saccadic movement desensitization technique in the treatment of post-traumatic stress disorder*. Ann Arbor: UMI Dissertation Services.
- Shapiro, F. (1989). Efficacy of the Eye Movement Desensitization procedure in treatment of traumatic memories. *Journal of Traumatic Stress*, 2, 199–223.
- Shapiro, F. (1995). *Eye Movement Desensitization and Reprocessing: Basic principles, protocols, and procedures*. New York: Guilford.

- Shapiro, F. (1985, Summer). Neuro-Linguistic Programming: The new success technology. *Holistic Life Magazine*, 41–43. Retrieved on May 9, 2021 from https://www.nlp.ch/pdfdocs/Historie_EMDR_Wingwave.pdf
- Shapiro, F., & Forrest, M. (1997). *EMDR: The breakthrough therapy for overcoming anxiety, stress, and trauma*. New York: Basic Books.
- Sharpley, C. F. (1984). Predicate matching in NLP: A review of research on the preferred representation system. *Journal of Counseling Psychology*, 31, 238–248.
- Sharpley, C. F. (1987). Research findings on neurolinguistic programming: Nonsupportive data or an untestable theory. *Journal of Counseling Psychology*, 34, 103–107.
- Solomon, R. M., & Maxfield, L. (2019). Obituary: Francine Shapiro. *Journal of EMDR Practice and Research*, 13, 158–162.
- Sulloway, F. J. (1992). *Freud, biologist of the mind: Beyond the psychoanalytic legend*. Harvard University Press.
- van den Hout, M. A., & Engelhard, I. M. (2012). How does EMDR work? *Journal of Experimental Psychopathology*, 3, 724–738.
- Walsh, J. J. (1912). *Psychotherapy*. New York: Appleton & Co.
- Welch, R. B. (1996). On the origin of eye movement desensitization and reprocessing: A response to Rosen. *Journal of Behavior Therapy and Experimental Psychiatry*, 27, 175–179.
- Zeiss, A. (1998). EMDR 1997 update. *The Behavior Therapist*, 21, 28. (Retrieved upon request from Association for Behavioral and Cognitive Therapies, March 29, 2023).

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