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Exploring the Unseen: The Self as Reflected in Non Reversing Mirrors

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Exploring the Unseen

Non Reversing Mirrors: A New Psychological Tool

Abstract:

This expository paper introduces the use of Non-Reversing Mirrors (NRMs) as an innovative tool for investigating psychological and neurological aspects of human self-awareness, self-understanding, personalities, and relationships. The core enabling factor of an NRM is that one’s eyes and face communicate accurately within the NRM, and conversely, they communicate inaccurately in the standard reversing mirror (RM). From this pivotal discovery, a wide range of effects can be demonstrated in individuals, with the primary outcome of experiencing their eyes becoming vividly alive for the first time. From this natural communication, they experience more of who they are, not just what they look like. There are new insights into one’s sense of self, along with questions about what effects the non-natural communication within standard RMs are having on these very attributes. This paper describes the author’s observations on individuals’ responses to this new reflective experience, suggesting that numerous mental health issues pertaining to self-identity could be directly addressed and improved by fostering accurate self-communication. Towards that objective, this paper lists multiple studies in different disciplines that could be undertaken, yielding significant findings that may reshape current theories concerning self.

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Introduction:

Non-Reversing Mirrors (NRMs) are a seamless join of two “first-surface” mirrors at a perfect 90.00 degree angle, creating a mirror that reflects without reversing or inverting the left and right sides. The precise and seamless join allows the mirror to be used for accurate eye contact by the individual. The experience looking into one is remarkable because unlike photos and videos (which can also be non-reversed), the reflection is full-sized, 3 Dimensional and provides real-time interactivity through direct eye contact and ongoing facial expressiveness.

The idea of a NRM is not a new one, first patented in 1887, but until now it was seen as a novelty or physical vanity. However, a key observation of the author is that our eyes and faces communicate accurately and realistically within an NRM while they don’t in standard Reversing Mirrors (RMs).

For all of history, and even prehistory, humans have only seen themselves reflected in reverse, which, especially with glass mirrors, creates an experience of altered communication that is ubiquitous, unchallenged, unconscious and solitary, since childhood no less. We are the only ones who interact with ourselves in this reversed fashion. The effects this have not been researched yet, but it could be a root cause of many unexplained and seemingly intractable disorders in self-relationships.

Now for the first time, NRMs provide individuals with a realistic and continuous, view and assessment of their thinking, emotional states, and appearance. The NRM allows for animated expressions, communication, and self-assessment, actively addressing some of the RM’s inconsistencies, and allowing the synchronization of one’s inner and outer selves. Reversing Mirrors alter facial expressions and the meaning behind them, introducing information distortion into the real-time communication feedback loop with one’s self. This distortion leads to a misinterpretation of one’s emotions and appearance,

which over a lifetime of lived experience, is potentially where to a wide range of self-image inconsistencies and even disorders might come from.

So far there have been no peer-reviewed studies of this phenomenon¹, this paper outlines the author's findings and an invitation to research this psychological tool in more than 10 potential studies. Use of NRMs is fertile ground for uncovering new insights, benefits, and treatments for addressing previously intractable issues relating to self-image, self-awareness, self-understanding, self-confidence and sense of self. The inherent inauthenticity of self within the standard RM is postulated to be a root cause of many mental health issues, and by extension, because it is occurring for every single individual on the planet, there may be causes behind social ills as well.

How it works: The physics and psychodynamics of looking at one's true reflection

A Non-Reversing Mirror (NRM) is created by two mirrors at 90 degrees, but in order to be work right, "first surface"² mirrors are required and the angle must be precisely 90.00 degrees. The join between the two mirrors then becomes seamless, creating an accurate 3Dimensional, full spectrum, non-reversed reflection. Being seamless is vitally important, because the seam runs through both eyes simultaneously, and if not invisible, then true eye contact is disrupted. Even though the idea for such a mirror is more than 135 years old, that particular type of glass was not readily available, and since it was only used for novelty or vanity, the need for perfection wasn't required.

Once the optics are made correctly, then it is possible to have direct and real-time eye contact with oneself, as with standard RMs but now with the eyes correctly positioned. Both RMs and NRMs create a highly dynamic feedback loop to oneself, but because the new view is both physically and informationally accurate, the NRM allows the viewer to have an animated conversation with themselves. The message within the face matches what is seen, allowing for a true response to the message repeatedly in real time.

The most compelling confirmation of this concept is how the NRM activates genuine smiles with oneself. During face to face communication with others, smiling is a regular occurrence that conveys understanding, empathy, humor, trust, compassion, and more. In addition to the well-known physical elements of a genuine smile (the Duchenne smile), the reason it feels genuine is what appears in the eyes; it appears as "light" or a "sparkling". That light carries meaning for **why** we are smiling: When we talk with each other, we read that light very accurately, and generally smile back with our own light in the eyes.

In the standard RM the message within the eyes behind the smile doesn't match what is real. What we are thinking and feeling doesn't match what we see, and thus we interpret it as not genuine, which rapidly causes us to stop smiling. In showing this to more than 30K individuals, there were just a handful of people who could hold a genuine smile in the RM for more than a couple of seconds before fading.

¹ Two studies have been conducted using NRMs, but neither examines the self-communication element of the experience. One study included fighting fish, and the other examined how the NRM impacted choices for plastic surgery. See references

² A "first surface", or "front surface" mirror has the reflective surface (aluminum) on the front of the glass, instead of behind it. Thus when the two mirrors touch, there isn't the usual large gap that would be created by the glass in between the reflective surfaces.

Thus, smiling, one of our most active expressions that conveys so much information and emotion to others is lost to us in our own mirror reflections.

Why this occurs is likely related to the way our brain is organized, with the concept of brain hemisphere differentiation playing a significant part. While over generalizing the nature of each side is unwelcome (i.e. talking about a feeling side vs. logic side), we do know with certainty that the sides are different. The premise here is that each side of the brain belongs on the correct side for their different messages to be conveyed accurately, most especially in the eyes. With the continual feedback loop of a mirror reflection that includes interpretation and response, even the tiniest alteration from real will cause the subsequent messages to become even more non-real. In practice, within less than a few seconds most individuals become relatively expressionless, almost mask like, with the eyes not communicating with little or no animation. It's postulated that over a lifetime, we unconsciously realized that many expressions don't work in mirrors, so we stop doing them right away

What effects have seeing ourselves without our full expressive nature had on us? And what effects, benefits, challenges, insights and more can come from actually being able to see ourselves with our expressions, with the thoughts and feelings behind the expressions matching what is actually inside oneself? These are the main subjects this paper raises; the author's belief is that the researching this will touch on many different psychological, neurological, educational, relational, and societal elements of our shared human experience.

Historical Background:

Human beings have recognized themselves in mirrors since prehistory, probably first when seeing themselves in a reflected pool of water, then polished stone, metal, and finally glass. With glass mirrors becoming commonplace in the 1800s, we believed we perfected the reflection and thus were clearly seeing ourselves. However, for this entire time, the person in the reflection has had the sides inverted – left on the right, right on the left. As fish in water, we never question the nature of this inversion, it has always been assumed that it is accurately reflecting us.

In England in 1887, John Hooker patented the idea of a “Mirror for Obtaining a True, or Positive Reflections”. In his patent application, as well as every subsequent design patent granted since, there is no mention of the psychological aspects of seeing oneself more accurately this way. It was always about cosmetics, novelty, vanity, or some other physical purpose. Approximately 10 design patents for NRMs have been issued since then, yet none of them venture beyond the physical as the reason for the idea.

In 1982, the author discovered this difference did matter. He saw himself in a double mirror combination in a way that felt completely different – more natural, alive, and genuine. He recognized himself and his feelings, and it didn't fade as he looked. His smile was the biggest difference, as it felt warm, genuine, and happy, vs. the traditional RM where it felt forced, fake, and untethered. Instead of fading, his smile grew, and the light of recognition for what he was seeing added to the significance of the experience. Over 40 years later, the effect is still present for him and has motivated him to share this effect with others.

In 1992, the author began producing NRMs that were optically accurate, promoting it under the registered trademark “True Mirror®” with its primary goal being to see and know oneself accurately. As he began showing this mirror, he discovered a vast range of reactions that were difficult to predict and understand. Over time, it became clearer what was going on and how to get people to see the

difference, even with varied initial responses. The clearest analogy is the electric bike – most people would not see it as much better, and perhaps even worse than a regular bike because it's heavier and bulky. That is, until they are shown that there is an “on switch” that reveals the major upgrade in performance. Likewise, most people need to be guided in order to break their learned pattern of non-expressive interactions with themselves in a mirror, and to engage with themselves using active and animated eye contact. Once they do, they both generate and see the “light in their eyes” and the difference becomes very apparent.

This small amount of guidance is a key element of advancing any study of the NRM to uncover the more significant aspects of this experience. While some may argue that it biases and potentially invalidates the study, without it, null results will be more common. Just like pointing out the on switch and letting the person ride the bike; there are many subsequent outcomes that do not require additional guidance. For context, roughly 10% of almost any demographic will see the difference immediately without any guidance. This 10% often is comprised of individuals who generally speak with a lot of light in their eyes – they can't help but see it in the NRM, versus having it fade in the RM.

Ultimately, the purpose of bringing the NRM to the world is to provide an accurate, useful, and validating experience for individuals with their reflected image, and to simultaneously begin to depreciate the value of what is reflected in the RM. This may go as far as counseling towards not using RMs anymore due to the difficulties they create for one's sense of self. The studies listed below could support this vision and illuminate what is possible with this new psychological tool.

Key Findings

In an NRM, the eyes and face continue to communicate accurately while that is not the case with RMs. The information being carried in the facial expression is altered by being reversed, which through the dynamic feedback loop within an RM, causes many expressions to stop within a few seconds. That same feedback loop exists in the NRM, yet because the information is positioned correctly, the message in the expression is consistent, and remains active and animated.

Since 1992, the author has demonstrated the NRM to approximately 35,000 individuals in hundreds of different settings. His primary goal during each session, lasting about 3 minutes on average, was to have the individual discover the qualitative differences in facial communication in the NRM vs. standard RMs. They were told to look into their eyes and notice how they continued to “work” or communicate properly, as compared to how they stop working and become expressionless in RMs. This small amount of guidance was required, because most people are pre-inclined to just stare at their reflection, a pattern that likely started in late childhood as they intuitively, yet unconsciously realized that expressions are not worth doing in RMs.

When these individuals connect with themselves in this way, their eyes come alive in the NRM and increase in expressiveness, and the comparison with the RM is striking. As soon as the person saw the difference, their response was overwhelmingly more animated than what a small amount of guidance could be expected to elicit.

The key expression that works in the NRM, and fails dramatically in the RM, is the genuine smile. There is more to making the smile genuine than just the physical elements classically described by Duchenne – it's the information in the eyes that is conveyed with the smile that makes it genuine. There is a recognizable light that is generated in the eyes, and that light has meaning. By inverting the eyes, the

meaning is altered and the smile becomes disconnected from its source and feels fake, making it fade rapidly. In the NRM, the expression carries both the physical qualities (smile, light, Duchenne eye lines), but also the informational and emotional qualities of what is being said with the smile, which is ongoing and dynamically changing. The author posits that it is likely that the mechanism of mirror neurons is at play here, because it's so easy for the subject to smile back when they see their own genuine smile.

There are a host of other responses to the NRM, including an unfortunate yet exaggerated perception of asymmetry and even lopsidedness. This is a big stumbling block for almost 50% of first-time viewers. A recalibration of the eye/mind link is helpful, where the subject will tilt in all directions while keeping eye contact, and then to keep them level, similar to recalibrating a phone for GPS. Any study of the advanced uses of the NRM will need to find ways to account for this and allow the subject to get beyond their first impressions of asymmetry.

Since 2021, the author has been videotaping these interactions for social media and has posted more than 750 of them on popular channel³. The joy and excitement from individuals seeing their own active self is dramatically evident through this large sample set. These accounts indicate the potential for the NRM to enhance and deepen self-communication and opens the door for many potential uses and benefits of having a genuine, real self to interact with.

Psychological research studies – an invitation

Research into NRMs based on the premise that they reflect our selves accurately, plus the converse that NRMs do not, opens a valuable tool for investigating self-awareness, self-image, growth, and emotional processing in multiple disciplines. There is potential to improve therapeutic outcomes and enhance our understanding of the human brain and behavior. It may help guide children to develop more in line with who they are, especially during difficult growth stages later on. It also could explain some of the dichotomies present between one's own self-perception vs. how the world perceives us, such as Body Dysmorphic Disorder (BDD). By extension, it may uncover previously unknown impacts that this is having on our cultural and societal makeup, since this RM experience is universal among virtually all people.

The following sections highlight some of the promising domains that hold potential for further research and discovery. Because this is a new concept with real world consequence, it is fertile ground for both students and professionals to create significant and meaningful research papers.

Designing research studies:

As with any research, careful attention must be given to the design of experiments, objectives, data collection and analysis, experimental controls, as well as safety and ethical considerations. Due to the unexplored nature of this concept, yet matched with something as universal and common as looking into a mirror, designing a well-crafted experiment becomes a valuable exercise in of itself for both

³ Good examples of high quality responses in the social media posts are listed in the Appendix. However browsing the large set of videos will also show the broad range of responses and some of the intriguing avenues for further research.

students and instructor. The last section in this paper explores some of the unique challenges and opportunities the NRM presents in order to qualify and quantify valid results.

Study 1: Identifying effects from social media posts

In addition to the author's personal experience with tens of thousands of individuals seeing themselves in the NRM since 1992, there is now evidence from over 750 videos that demonstrate distinctly new and vibrant interactions individuals exhibit when seeing themselves in a NRM. Each video shows the subject both types of mirrors one or more times, with subsequent interactions being explained to the subject as it is happening.

This large data set of people seeing themselves for the first time, with the required guidance, provides a rich set of material to identify and validate the core effect of active communication in the NRM and lack of same within the RM. The following would be quantified and qualified:

- Degree of differences seen
- Demographic patterns within responses (if any)
- Whether prompting was required and it's subsequent results
- Impact on the viewer
- Comment section analysis
- Authenticity measurement
- Depth of experience
- Subject's analysis of the effects they experience
- Insights to various self-image issues and disorders as expressed by the subject

Note: almost every person needs to have the effect pointed out and/or explained in order to trigger the more enhanced responses possible. The author believes this is because we are conditioned to not be expressive in mirrors because it just doesn't work well and we tend to stare in either reflection. Staring in the NRM often creates a null difference between it and the RM, but once the expressive interactivity is catalyzed, it often stays continuous and animated. The author acknowledges that some guidance he has given is pushed too quickly, causing it to look as only the power of suggestion, but the data set is large enough to see that there it is more than that at play.

The essential guidance is this: "You are seeing yourself without being reversed for the first time. Notice how your eyes continue to function actively and accurately to yourself. Now, notice how they settle into a more masklike, expressionless stare in the Reverse Mirror." Subsequent conversations then explore what this means to the subject, which elicits a very wide range of responses.

Study 2: Proof of Concept and Benefits Using Neuroimaging

To prove this effect is real, testing how someone's eyes and face "light up" to themselves within the NRM, will be a clear signal that will show up prominently in neuroimaging techniques such as fMRI and EEG scans. Conversely, the almost instant loss of expressiveness when the subject looks in their mirrored eyes should also be apparent and measurable.

Because there is increased stability and continuity of a facial expressions, the activation patterns observed in specific brain regions can be more readily correlated with the subject's reported cognitive

and emotional states. Especially if there are strong thoughts or emotions, the signal should be clear. In RMs, the disruption of the natural emotional state will only allow a fleeting glimpse in a brain scan before shifting to something less.

What also may show up in the standard RM measurements are strong, “hard wired” patterns that are caused and reinforced by the daily exposure to their more static reversed face. These patterns may be dramatically different than what is usually present when they are interacting with others. In other words, a different self-image may be apparent in the RM scans.

In practice, in RMs many people become more critical and judgmental with themselves, vs. experiencing more empathy and compassion in the NRM. Instead of an inherently inauthentic emotional expression, they are seeing the genuine emotions and reasons behind having the emotion. How that correlates to brain scans should be intriguing and illuminating, and suggesting avenues for further exploration and research.

Study 3: Unraveling the Underlying Mechanism:

Determining the factors that contribute to the differences between the two reflections is part of for understanding the underlying mechanisms at work. Some key questions are:

- What causes this difference? How repeatable are they within a subject, especially as familiarization sets in?
- How do the right brain/left brain differences, particularly as manifested in communication within the eyes and face, influence interpretation and subsequent interactions, especially when the reversal of the image alters the pattern so significantly?
- How can this enlighten our understanding of brain hemisphere specialization as the subject can report accurately what they are seeing as matched to what they are thinking/feeling
- What role do mirror neurons, known for their role in imitation and empathy, play in this phenomenon? Is their function fundamentally disrupted by reversal and enabled by non-reversal?
- How do feedback loops contribute to the observed responses? What is different as compared to regular interactions with others, again with our regular non-reversed faces?
- How is this different from individuals viewing their non-reversed faces in photos and videos? What role does this new direct, real-time, 3-Dimensional eye contact play in the difference?
- How can we account for the significant variations in reactions from one individual to another?
- With this altered pattern of self-interaction present since childhood, how deep does this mechanism affect long-term behavioral patterns and influence an individual's relationship with themselves?

Study 4: Mapping psychological profile with Non-Reversing Mirror Response

After discovering a very broad and initially unpredictable set of responses, the author postulates that the psychological profiles play a key part in the variations. Surprisingly, standard demographic factors such as age, race, sex, class, education, IQ, nationality, and culture show little to no correlation with how individuals respond to their non-reversed image in an NRM. Instead, it appears that various personality characteristics play a more significant role. For instance, outgoing and vivacious individuals tend to immediately notice and appreciate differences in their NRM reflection, while analytical personality types usually perceive minimal differences. Another strong correlation for a significant response is from

those who have done significant self-development work, indicating high self-awareness, whereas those that are not self-aware tend to see no difference, or not want to look at all.

Another factor is how much the individual has interacted with their reversed mirror image in the past, which may also be correlated with personality types, but not necessarily. Typically those who are more interactive with themselves in mirrors will recognize and interact more strongly with the differences they see within the NRM. In practice, it may be that most people do not interact with themselves much at all in mirrors, above and beyond just the facial and body appearance aspects, not the personality aspects. This might be because of long exposure to their non-expressive faces, leading most to unconsciously not interact with themselves.

Exploring these variations and identifying patterns that align with established personality types could offer valuable insights. It might even lead to the development of a diagnostic tool that therapists can use to gain rapid initial understanding of their new clients. Understanding the relationship between psychological traits and NRM responses has the potential to provide insights for personal growth, self-awareness, and therapeutic interventions.

Study 5: Investigating the impact of mirrors and NRM on mental disorders such as BDD

This study would examine the effects of both RMs and NRMs on individuals with self-image disorders such as Body Dysmorphic Disorder (BDD). BDD is characterized by an excessive concern over perceived flaws in appearance, which may be invisible to others or only slightly noticeable. The objective of this study is to explore whether the lifetime use of RMs, which causes a two-dimensional, static (non-animated and personality deficient) representation of oneself. Does this lead to a fixation on physical appearance without the dynamic aspects of one's personality and actions that compensate for, and even enhance, one's overall appearance? This would help answer the question of why some have such a distorted sense of self as compared the way others see them.

The literal flatness of the RM reflection contributes to this phenomenon: it lacks the depth and three-dimensionality of a real person. In contrast, NRMs project a true three-dimensional image. More importantly however, there is the loss of liveliness and expressiveness that quickly sets in when viewing oneself in the mirror. This loss is not observed by others who interact with the individual regularly. Instead, they perceive the person as three-dimensional and continuously engaged, with a range of expressions and actions that provide a broader perspective, minimizing any actual flaws.

As a therapeutic tool, NRMs can provide the subject with valuable insights into what is truly real—seeing themselves as an active “being” rather than just a static image and body. By utilizing NRMs, individuals can gain a more accurate understanding of themselves and their appearance, moving beyond the fixation on perceived flaws. This accuracy can be utilized by everyone as well, not just those with a significant self-image disorder: At some level, by definition even, the RM is dysmorphic. Everyone is impacted by the differences between their mirror image vs what is real.

Finally, as discussed above, the key expression that works in the NRM is the genuine smile and the animated quality of it. In RMs that is lost, the light in the eyes stops after a few seconds. However, the expressions that are representing down expressions, such as sadness or doubt or anger appear just as down in the RM, if not more, since the response has the added effect of feeling inauthentic. This could be a big part of the emotional spiral that many who have mental disorders might be going through when engaging with themselves in RMs.

Study 6: Early Childhood Development

The way children perceive themselves has ties to their social, emotional, and cognitive development. While there are many childhood experiences that can have a lasting negative impact on self-concept, the RM is one that has not yet been explored for its contributions to some of these poor mental health outcomes.

Standard reversing mirrors, RMs, have been a common experience for virtually every child in the modern world, but it introduces a heretofore unnoticed and ongoing distortion due to the reversal of the reflected image. This is true at the physical level, but more importantly, at the informational level.

It raises the biggest question: What is the child communicating to themselves, about themselves, by themselves, through this ubiquitous altering interface? There is an ongoing dialog the child has with themselves that is completely solitary – no one looks into their eyes in that same, feedback looped way with the ongoing distortion from what is real. Investigating the impact of this reversal and comparing it to the non-reversed reflections in NRMs suggests a diverse range of studies. The following questions arise in this context:

- How do children behave differently when interacting with others compared to how they perceive and interact with themselves in a RM?
- At what ages do differences become noticeable, as observed by researchers, and how can these differences be mapped to various stages of child development? For example, what facial expressions emerge in RMs that differ from reality, and does this correlate to when elements of self-criticism appear?
- What are the ways that children interact with the NRM and if different, can it be correlated with other personality traits. Can it be used as a diagnostic tool to detect these characteristics?
- How would growing up with knowledge of and access to NRMs throughout childhood affect self-image, self-awareness, social awareness, empathy, and compassion?
- How can NRMs be beneficial to children in later stages, such as pre-teen and adolescence? What difficulties in growing up can be traced to the altering and subsequent “dulling” effects of the RM itself?
- What effects are observed when children are aware of both mirror images from an early age?

Exploring these questions will contribute to a deeper understanding of the psychological and developmental implications of mirror reflections and possibly lead to warnings about how RMs are negatively influencing various aspects of a child's growth.

Study 7: Autism research

A NRM could be used to help understand and develop therapies and exercises for autistic children. Because of both the accuracy and novelty of the reflection within the NRM, insights for both the child and the therapist could lead to breakthroughs in common autistic self-image issues:

- Self-awareness: Autistic children often struggle with self-recognition and understanding their own emotions. With the NRM, the child can observe themselves in a more authentic, continuous and unaltered manner. This can aid in developing self-awareness and recognizing their own facial expressions and body language as connected to how they are thinking and feeling inside.
- Social skills: Many autistic children have difficulty interpreting and understanding social cues. With the NRM, they can practice observing and mimicking facial expressions, gestures, and body language. Seeing their own faces with the non-verbal communication being expressed, can help them develop a better understanding of other's nonverbal communication, which is crucial for social interactions.
- Working with their therapist or parents within the NRM, the connection to another person can be observed, with correlating and accurate thoughts and feelings being seen in their own faces.
- Self-regulation: NRMs can serve as a tool for self-regulation and emotional expression. When an autistic child is experiencing strong emotions, seeing what that looks like in an NRM provides a visual feedback loop that matches their emotions. They can observe their own facial expressions and recognize the intensity of their emotions, allowing them to better manage and regulate their feelings.

Because each autistic child is highly unique, the benefits of a NRM will vary from individual to individual. Researching the uses and benefits (and potential negative consequences) in a controlled setting is crucial to finding where and how NRMs can fit into strategies and interventions to help autistic children.

Study 8: Improving therapeutic outcomes

NRMs have the potential to be used as a tool to improve therapeutic outcomes because it presents a realistic and positive reflection of the patient. The reversal of RMs introduces a filter of information distortion that has been present since childhood, and conceivably causes a host of self-image issues. The primary negative interactional consequence of looking in an RM is that vibrant, positive expressions such as happy and genuine smiles just don't reflect naturally, causing them to stop, but negative expressions such as fear, sadness, anger, and doubt tend to stick around, even deepening with a layer of judgement or criticism.

The mechanism is straightforward: The light in the eyes from vibrant expressions is different between left and right, in terms of the messages they convey. When reversed, the light does not "read" correctly, which makes the expression feel inauthentic, which is then responded to with less vibrancy, which is then again responded to with less vibrancy, over and over again in a feedback loop. Within seconds vibrant expressions feel forced and fake, which makes them stop.

At the same time, the expressions which are more negative, such as those associated with anger, cynicism or sadness, don't have that "light" in the eyes, and still appear to read properly, causing them to stay present and even deepen with a layer of judgement and criticism.

On top of this, there is a common aversion to mirrors in many people, likely caused the lifetime experience with this altered self – where positive expressions are fleeting and negative ones are

reinforced. They don't blame the RM, they believe there is something wrong with themselves, and so they avoid many kinds of self-introspection that can lead to self-improvement.

As a therapy tool, the contrast between the standard mirror and the NRM can uncover some of these unconscious impacts, and guide both the subject and the therapist towards a more realistic and positive view of the actual self. Seeing and interacting with oneself with the expressions that do have the light and life can be helpful towards building up self-image and self-esteem. One of the most significant results is a feeling of "I'm OK", because for the first time, normal and genuine expressions can be seen and believed.

The NRM facilitates a more accurate perception of one's "real" self, empowering both the subject and therapist in guiding the therapeutic process toward a more realistic and positive view of the individual's identity. It also suggests that by avoiding the inaccurate version of self that is reflected in standard RMs that lower self-image will not be reinforced.

Study 9: Psychedelic therapy sessions including treating PTSD

The emerging field of therapy using psychedelic substances such as psilocybin, Ketamine and MDMA offer promising ways of treating difficult mental health conditions and disorders. The introduction of NRMs into this process might prove to be especially effective in identifying core issues and even ways of healing them.

From the author's large set of anecdotal evidence coming from many exhibitions at festivals, where many are using psychedelics, looking into a NRM while under the influence of psychedelics can be a deep and profound positive experience, and not the usual negative experience that is often ascribed to looking in the RM in this state.

The feedback loop of self-communication is sped up dramatically by the subject being under the influence, and in the NRM, the new accuracy creates the ability to easily stay present with these amplified thoughts and feelings. In contrast, in the RM, because one is in the same sped up feedback loop but with constant information alteration, the mind can go "down the rabbit hole" to a bizarre experience. There is ample advice in the urban legends to not look in a standard mirror while on psychedelics⁴.

Adding the NRM into a guided psychedelic therapy session could use that amplified, accurate self-communication to find deeper understanding, empathy and compassion. Especially in the context of working through difficult states, such as post-traumatic stress disorder (PTSD), the ability to uncover and empathize with the true depth of the emotions can both validate and ameliorate these feelings. The breakthroughs that have been already documented by the introduction of psychedelics in these situations can be strengthened by seeing these breakthroughs in one's own face, in real time as they are happening.

⁴ See <https://www.vice.com/en/article/pa73a7/the-truth-about-looking-in-the-mirror-on-psychedelics>

Study 10: Exploring Abnormal Psychology Utilizing Non-RMs (NRMs)

Introducing the NRM into the studies of abnormal psychology opens new windows into the emotions, thoughts, and states of being within psychopathic and sociopathic individuals. The accuracy of expressions within an NRM leads to increased and deeper communications of these individuals with themselves and their therapists. It can illustrate discrepancies between emotional experiences and how they display these emotions within their eyes and expressions.

One of the key features of psychopathy and sociopathy is a deficiency in experiencing and expressing genuine empathy and emotions. Traditional RMS, by reflecting expressions with reduced emotional content, might be a source of the disconnect between their own genuine emotions and self-image, and how it compares to others. As this paper theorizes, this is likely true for everyone, but may have more significant consequences with those tending towards more abnormal psychological profiles. In the NRM, what those individuals will see and feel emotionally may surprise both researcher and subject, and perhaps provide new insights for treating these disorders.

Moreover, NRMs can shed light on the potential role of self-perception and self-esteem in psychopathy and sociopathy. Individuals with these disorders often exhibit a distorted and inflated self-image, coupled with a lack of remorse or guilt for their actions. By providing a more accurate reflection, NRMs may challenge and disrupt this distorted self-perception, potentially leading to a greater understanding of how these individuals construct and maintain their sense of self. It also may pierce their hardened self-image towards finding more genuine responses.

Additionally, NRMs can be employed to explore the impact of social interactions from psychopathic and sociopathic individuals. As these disorders are often characterized by manipulative and deceitful behavior, NRMs can be used to examine how these individuals present themselves to others and how they perceive their own manipulative expressions, especially since they have only seen themselves in RMs, which is essentially a source of misinformation about the individual. Interventions might be developed using these new insights.

Study 11: Testing self-awareness in animals

The use of mirrors to test for self-awareness in animals has been a subject of study for decades. However, the idea that RMS have not been reflecting expressions accurately is might be one of the reasons that most animals do not interact with themselves in a mirror, especially at the introspective level that humans do. The information distortion in an RM might be too confusing and challenging for animals to interpret. In contrast, the NRM provides an image that more accurately reflects the animal's appearance and expressions, potentially providing a more reliable tool for testing self-awareness and even generating introspection.

While the test for self-awareness is simple, testing for introspection is more challenging, especially if using the standard mirror. One classic test of self-awareness in animals is the mirror test, in which animals are presented with a mirror with a mark on their forehead, and observed for signs of recognition and self-exploration. Most studies agree that only a handful of species exhibit self-awareness by this test. However, the reversed images produced by conventional RMs can make it difficult for non-responsive animals to recognize what they are seeing and may have led to false negative results.

While chimpanzees and other primates have demonstrated evidence of self-awareness in mirror tests, NRMs could provide a more reliable tool for testing these abilities in other species, potentially expanding the list of those who are self-aware.

Studying if animals are introspective could get a boost from using the NRM. The underlying premise that expressions are accurate would lead to the animal, especially an advanced primate such as a chimpanzee, to exploring more about what they are thinking about as they gaze at themselves, as opposed to just checking their appearance. Animals who have learned to communicate via sign language may have interesting things to say about what they are seeing in the NRM.

Furthermore, NRMs could be used to explore the neural mechanisms underlying self-awareness in animals. For example, researchers could use functional neuroimaging techniques such as fMRI to study brain activity in animals as they interact with NRMs, providing insights into the neural basis of self-awareness and introspection.

Study 12: Experimental design training

The introduction of NRMs into a research protocol creates a tremendous challenge for researchers and students to correctly design experiments that will produce consistent and valid results. This is because it is both a completely new experience looking into one, yet very similar to the most common experience that every person has. The following are some considerations:

- Study objectives: from the above listing of broad topics and paths to explore, narrowing down to specific characteristics to be tested
- Sample size and quality: From experience, a very broad range of human characteristics and responses are reflected in the NRM, which also are not particular to any demographic. Thus determining statistically significant findings will be dependent on the subjects within the sample, and a large enough size is required to determine patterns.
- Establish what a control would be based on mirror reflections and/or interpersonal interactions.
- Teaching about the “on switch”: telling subjects about how our eyes communicate correctly in the NRM in order for them to see it. Almost everyone requires this coaching in order to break the normal, non-expressive pattern induced by RMs. How to account for this without invalidating the findings is a key challenge, but the resulting highly active responses in the NRM should allow for this small amount of coaching to exist. Without it, null results will be more likely, but not a valid test of what is possible.
- Accounting for the sense of exaggerated asymmetry. A key stumbling block for many is a sense of exaggerated asymmetry, even lopsidedness. Unless the subject is able to re-adjust, to see themselves with the same asymmetry as what is real, almost no other perception can be realized. In practice, this takes the form of recalibrating, similar to the way cell phones require recalibration in all directions for GPS to work properly.
- Randomizing and blinding: reduce bias by randomizing exercises in front of either mirror, as well as using blinding techniques to help validate the results. Again, how to do this with something as both common and unique as both types of mirrors are is a very big challenge.
- Data collection and observation: Because of the unique and highly individualistic nature of the responses, the following are even more important to design properly: Protocols to

- capture unique and individualistic responses (what to look for), variables, how to record and quantify responses, standardize procedures, and track changes during NRM familiarization.
- Multiple trials with different scenarios: enlarge the data set and allow for patterns to emerge from the many possible interactions. Determine what triggers to use for specific responses
 - Data Analysis: Quantitative analysis of the statistical differences between the NRM and standard RMs, and determining significance or not, and qualitative analysis of subjective reports and interviews to form a narrative that identifies what is going on within the NRM
 - Replicating existing mirror studies. Pre-existing mirror studies with their quality designs and controls can be run again using the NRM. For instance, the classic test for self-awareness in animals (the mirror mark test), is straightforward. But other studies, such as the value of mirror meditations could be redone using NRMs to see where there are significant differences.
 - Ethical considerations: In an established research study (vs. a social media post), Obtain informed consent, address risks and benefits, and ensure privacy, especially with video recording. Get approval from ethical review boards.
 - Replication and Peer review: Design experiments so they can be clearly replicated to validate the findings, and submit the findings to journals for appropriate peer review.

Conclusion:

Non-Reversing Mirrors (NRMs) offer a range of potential avenues for psychological and neurological research, creating and validating tools for understanding and treating many self-related issues. They provide a more accurate reflection and experience of the self, with thoughts and emotions more pronounced, connected and continuous, which can be useful in studying brain function and perception. They may help explain and treat body image and related disorders, including psychopathy and sociopathy. NRMs may also help patients see themselves in a more positive and realistic light, potentially improving therapeutic outcomes. There are possibly many applications in early childhood development and autism research. Additionally, NRMs offer a promising tool for studying self-awareness and introspection in animals, answering deeper questions of how they are experiencing their own consciousness. Overall, NRMs offer a brand new, versatile and valuable tool for researchers, psychologists, educators and therapists.

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Social Media Links:

TikTok: [@truemirrorco_jwalter](https://www.tiktok.com/@truemirrorco_jwalter)

Instagram: [@truemirrorco](https://www.instagram.com/truemirrorco)

YouTube: <https://www.youtube.com/@TrueMirrorJWalter>

Sample links to specific videos that illustrate the effect well

<https://www.instagram.com/p/C07FgdqOXvB/>

<https://www.instagram.com/p/Cv0cJihNsEd/>

<https://www.instagram.com/p/CtanGf6tKP1/>

<https://www.instagram.com/p/Cm4rvFHjzIO/>