



CASE REPORT OPEN ACCESS

# Using Virtual Reality to Promote Self-Identity Reconstruction as the Main Focus of Therapy

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## ABSTRACT

Based on the repertory grid technique, we developed Explore Your Meanings (EYME), a digital platform that helps patients explore identity values and internal conflicts using virtual reality (VR). EYME was part of a research project treating depression in young adults, including 10 weekly, 1-h sessions aimed at changing personal constructs—cognitive schemas that shape how individuals interpret reality. We present the case of Mary, a 21-year-old woman diagnosed with persistent major depressive disorder and social phobia. Early sessions with EYME revealed key implicit dilemmas in Mary’s worldview, such as feeling that she had to be selfish (an undesired personal characteristic) to become smarter and more self-confident (desired pole). As Mary visualized these constructs in VR, she began to recognize her identity conflicts and strengths, ultimately helping her to improve her negative self-image. Interventions focused on reframing these constructs, particularly around “intelligence” and introducing “emotional intelligence,” which helped Mary adopt a more nuanced view of herself. A key session involved a two-chair dialog between her “critical” and “emotional” selves, facilitating the integration of polarized aspects of her personality. In subsequent sessions, EYME reinforced these changes, with Mary reinterpreting behaviors like being “selective” as protective rather than negative. By the end of therapy, she no longer met the criteria for depression or social phobia, and her psychological distress had normalized.

## 1 | Introduction

The integration of virtual reality (VR) into psychotherapy has opened new avenues for immersive, experiential interventions, offering unique advantages over traditional therapeutic approaches. Over the last three decades, the relevance of VR-based interventions has grown significantly, particularly in exposure therapy, where VR has shown to be as effective as in vivo methods while offering greater control and flexibility (e.g., Morina et al. 2023; Schröder et al. 2023; Wiebe et al. 2022; Tan

et al. 2024). This is due to VR’s ability to recreate environments that might be difficult or impractical to simulate in real life. In addition, VR applications in psychotherapy provide a safe space for individuals to confront fears, practice new skills, and explore challenging emotions within a controlled setting. This unique aspect of VR makes it an exceptional tool for advancing both symptom management and deeper psychological work.

Despite the widespread success of VR for exposure-based interventions, its potential to address broader psychological

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processes, such as self-identity, remains underexplored. The field has largely focused on symptom alleviation, neglecting the therapeutic benefits VR could offer in enhancing self-awareness, processing internal conflicts, and reconstructing self-identity. Self-identity is integral to many psychotherapeutic approaches, yet few VR applications specifically target this dimension of human experience. The immersive quality of VR, however, has the potential to make abstract concepts like identity more tangible and accessible, allowing clients to engage with their sense of self in new, meaningful ways. This innovative use of VR could represent a significant shift in how therapists approach identity work, providing an engaging, dynamic platform for self-exploration and growth.

Many theoretical orientations suggest the need to focus on psychological processes that might be having a substantial effect on the patient's symptoms. One could see different approaches referring to selfhood processes and personal identity. For psychodynamic approaches, internal conflicts between parts of the psyche (id, ego, superego) and, more recently, difficulties in mentalization (i.e., capacity to understand the mental states of self and others) are relevant targets for psychotherapeutic work. For Gestalt and emotion-focused therapies, dealing with conflicts between parts of the self is one of the main targets of intervention. In transactional analysis, different parts of the self (parent, adult, and child) are also considered essential for understanding people's problems. Self-identity (composed of different modes such as vulnerable child, angry child, and healthy adult) is a key component of schema therapy, as schemas often revolve around beliefs about one's worth, competence, lovability, and autonomy. These core beliefs are also considered central in cognitive-behavioral approaches. Constructivist approaches assume that the central task of psychotherapy is the reconstruction of meanings about self, others, and problems. In sum, we can consider self-identity reconstruction as a common factor in psychotherapy (maybe with the exception of behavior therapy which does not pay much attention to the self). Despite its well-recognized importance across different concepts and approaches of psychotherapy, self-identity is rarely assessed as an outcome variable (see Winter 2003, for an exception).

One of the main challenges in developing therapeutic interventions targeting self-identity, both in face-to-face and VR formats, is the lack of conceptual clarity around these terms. As mentioned earlier, various theories address the issue of self-identity in distinct ways, with diverse emphases, and using a range of terms (often avoiding the use of the word "identity" altogether). Consequently, another challenge lies in the absence of satisfactory measurements for these elusive concepts.

We approach the reconstruction of self-identity as the main focus of the therapeutic process by adopting the framework offered by personal construct theory (Feixas and Villegas 2000; Kelly 1955; Walker and Winter 2007), which informs the recently formulated *Personal and Relational Construct Psychotherapy* (Procter and Winter 2020). Based on a view of human beings as informal scientists, the main focus of this constructivist approach (e.g., Feixas and Villegas 2000; Neimeyer 2009) is the schemas or constructs forming the personal theories with which we interpret and respond to events. As academic theories are made of theoretical constructs, these other informal theories

are composed of personal constructs. Each construct captures a dimension of meaning represented by two poles (e.g., "without prejudices—selective"), each of which represents the grasping of a difference, a specific contrast that, along with many other dimensions, forms the person's subjective "map of meanings." For exploring these dimensions representing the subjective meanings given to previous experience, researchers and clinicians inspired by personal construct theory developed the repertory grid technique (RGT, Feixas and Cornejo 2002; Fransella, Bell, and Bannister 2004). It is a semistructured interview designed to assess the system of personal constructs that the patient uses to define the "ideal self" (how the person would like to be), the "self now," and significant others. Then, the interviewer asks the patient to rate each of these elements on each of the personal constructs elicited during the interview using comparative questions. These ratings use a seven-point Likert scale ranging from "very much like the left pole of the construct" (e.g., "without prejudice") to "very much like the contrasting right pole" ("selective"). This provides a matrix of ratings for each participant's grid, with columns representing important people of their interpersonal world (elements) and rows representing construct dimensions. Several measures can be obtained from the analysis of repertory grid data (e.g., Feixas et al. 2021; Winter 2003), but for our purposes here, we will consider those regarding personal identity based on the construction of self and others (how the person considers the self-similar to the ideal self and significant others). In addition, we will follow the procedure of Feixas and Saúl (2004) to detect a type of internal conflict representing implicit dilemmas because these can serve for case formulation and to design specific interventions targeting the elaboration of these dilemmas.

Recently, we developed a digital platform for applying the RGT named *Explore Your Meanings* (EYME; Feixas, Alabèrnia-Segura, et al. 2021). It begins with an automated interview based on the RGT including the mentioned rating task with the constructs elicited from the person. EYME performs the grid data analysis and provides a report with the most relevant measures interpreted in a plain language, to be understood by therapists of all orientations. Using multivariate statistics, EYME provides a representation of the person's "map of meanings" by positioning each construct pole, self, ideal, and significant others in a three-dimensional space that can be explored using VR. In this way, the therapist guides the individual through a customized and immersive exploration of their personal identity that has great potential to increase self-awareness and suggest innovative avenues for personal change. Immersion, a central feature of VR, increases emotional responses that directly influence client motivation (Bell et al. 2024), an effect that is less easily achieved with the conventional "pen and paper" application of the RGT.

Another advantage of the VR environment is that it enhances clarity in understanding the configuration and relationships between personal characteristics and significant others. These relationships often form complex networks and clusters that can be challenging to comprehend in traditional two-dimensional (2D) formats. The application allows users to manipulate the environment by changing perspectives, rotating the space, and activating or deactivating elements. This dynamic interaction makes it easier to gain a comprehensive

understanding, as the ability to explore and adjust the virtual environment provides insights that would be difficult to achieve through static, 2D representations.

Regarding the technical aspects of EYME, the automated interview and subsequent analysis are entirely cloud-based and functioning as a web application. Consequently, users require only a computer with access to any modern web browser. For the VR component, Meta headsets are necessary, specifically the Go or Quest models.

Because facilitating both self-knowledge and the reconstruction of the sense of identity is a fundamental goal of psychotherapy, we regard EYME as a valuable tool for therapists. The subsequent case has been chosen specifically because the exploration of identity was central to the therapeutic progress. Moreover, this case highlights the social and relational issues closely tied to identity, allowing us to focus on these dimensions within the therapeutic context. This illustration demonstrates how VR can be effectively integrated into therapeutic practices aimed at understanding and redefining identity. We hope that this case serves not only to advance the field of VR applications in psychotherapy but also to inspire the development of further applications grounded in identity work.

## 2 | Presenting Problem and Client Description

Mary was a female participant in a pilot study where EYME was integrated into a research project aimed at treating depression in young adults. The study comprised 10 weekly, 1-h sessions with a focus on altering personal constructs and cognitive schemas used to anticipate reality (Montesano et al. 2021). She was 21 years old during the course of the intervention. A diagnostic interview based on ICD-10 criteria revealed that she met the diagnostic criteria for a current major depressive episode, social phobia, alcohol dependence, substance dependence, and generalized anxiety disorder.

Her brother was 24 years old at the time. Her parents were divorced and lived in different towns. She also had a good relationship with her grandmother, whom she regarded as her primary caregiver. She alternated between living in her father's or mother's house. Her father's house was located in a town that was better connected to other places, but she preferred to stay at her mother's house. She felt more emotionally supported by her mother and more comfortable being with her. Nevertheless, her father encouraged her more to "pursue her dreams," while she perceived her mother as being more "realistic." This was particularly relevant because Mary loved dancing and had aspirations to pursue a career in it. Her mother opposed this idea, considering it uncertain, while her father supported her goals verbally but was not inclined to finance her interests. Mary's attempts to find a career that suited her interests and values were a central theme during the therapeutic process. Finding her place in the world of work made sense from a developmental perspective in the industrialized Western society, as a transition to becoming a "productive person." This issue was deemed relevant for the therapeutic process to understand Mary's context. In addition, the intervention mainly took place

during 2021, while the world was still facing the challenges of the COVID pandemic, which were particularly difficult for young people.

During the first session, the therapists worked with Mary to define the problems that would be addressed during the intervention process. These could be summarized as follows: (a) to become more self-confident, (b) to not care about what others think. Mary also expressed views of herself as insecure, prone to "social anxiety," and with low self-esteem, feeling that she was neither smart nor cultured. She also felt she was not fun because she did not know what to say in social contexts, believing that others perceived her as boring. This contrasted with her image of her brother, who seemed to be the opposite—outgoing, social, smart, self-confident, and unashamed, doing what he enjoyed. However, this came with a drawback, as her brother needed to remain "unconsciously selfish" to maintain this demeanor. Mary perceived being selfish as a prerequisite for happiness, as it entailed caring less about other people. This attitude was reflected in her brother's behavior, as he did not take care of their grandmother. Nevertheless, Mary's relationship with her brother was very good, characterized by a loving bond and common interests, though conflicts arose between them from time to time.

The way Mary described herself and others, particularly her brother, was crucial not only descriptively but also for understanding her and achieving change. The words she used encapsulated deeply rooted constructs that formed her internal "map of meanings."

From the previous description of her brother, a dilemma could be extracted. In Mary's conceptualization of the world, there was an implicit idea that to become more "self-confident," one needed to be somewhat more "selfish." This implicit dilemma (Feixas and Saül 2004) was detected using EYME becoming "smarter" meant becoming more "selfish." Thus, Mary found herself trapped between two negative outcomes—she could remain a "good person" and continue caring for others but not be socially competent, or she could become more "self-confident" and "smart" at the cost of becoming "selfish" (see Figure 1).

### 2.1 | The Therapists

The intervention was conducted by two therapists, both in their early thirties. The male therapist held a PhD in Clinical Psychology and had a medium level of expertise, while the female

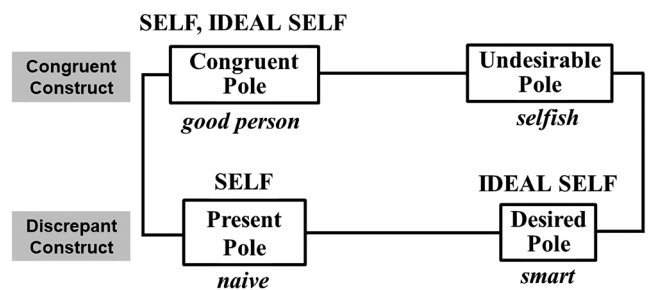


FIGURE 1 | Representation of one of Mary's implicit dilemmas.

therapist was a novice. The approach employed by the therapists could be described as constructivist (e.g., Feixas and Villegas 2000; Neimeyer and Mahoney 1995). This approach emphasizes the role that individuals play in creating meaning about the world, the self, and others. In some sense, it can be considered a cognitivist perspective as it places importance on mental content and information processing. In addition, it is heavily influenced by the systemic school, as it stresses the significance of relationships and how they can explain behaviors within a contextual framework. Narratives are also considered as a means to understand how individuals assign meaning to the world, with considerable attention paid to existential and evolutionary issues to comprehend the client's context. Finally, both therapists acknowledged the importance of the therapeutic relationship as one of the main components of a successful intervention.

## 2.2 | Case Formulation

As humans, we make predictions about our environment, including the behaviors of other people and ourselves. We create “maps of meanings” to understand and navigate our experiences. In a broader sense, the main goal of the therapeutic process is to explore alternative ways for the client to construe her “reality.” However, to achieve this with Mary, a critical first step was required: gaining an intimate understanding of how she perceived the world, particularly herself and her relationships. There will always be barriers, especially because language imposes limitations, and abstract concepts are sometimes challenging to articulate. In addition, the client may not have made the effort to fully explore all the ways she conceptualizes her experiences. Thus, an ongoing effort throughout the therapeutic process was to ensure that both therapists and the client were able to articulate Mary's perceptions. This also had a powerful effect in strengthening the therapeutic relationship. The intervention process was seen as a safe space where therapists and the client participated jointly and co-constructed alternative ways of thinking and behaving. The client was considered the protagonist of the process, and therapists were respectful of the topics that needed to be addressed during the intervention. A significant amount of attention was paid to the words Mary used to describe the world, and therapists attempted to incorporate them as much as possible. In addition, therapists introduced novel ideas and concepts that could help describe new observations about reality but never attempted to impose them. EYME was used to assist Mary and the therapists in the task of exploring this “map of meanings.”

Now that the general framework has been described, we are prepared to discuss the specifics of the case. As hinted earlier, we found that the conflict between the characteristics that Mary wanted to change and those she wanted to uphold was very useful in understanding the problems she faced. This can be summed up in the following rhetorical question framed as it was asked by Mary herself: “How can I become more self-confident and smarter without becoming selfish?” This implicit dilemma was not explicit in her discourse but identified using EYME. It was crucial to understand why Mary had a hard time changing. Not being able to modify this “map of meanings” to

accommodate new experiences in a way that is coherent with the person's identity has detrimental consequences for well-being and for achieving desired changes. The individual is kept in a state of confusion and disorientation, which can manifest itself as a mental disorder and an impediment to personal development. This was the main working hypothesis of the therapeutic process and served as the guiding thread during the sessions. To help Mary unlock the situations where she was stuck, new ways of understanding “intelligence,” “self-confidence,” or other relevant concepts were explored, aiming to reframe these ideas so they could be seen in a new light.

## 2.3 | Course of Treatment

Aligned with the therapeutic goals presented earlier, the therapeutic intervention focused on finding alternative ways to understand self-confidence, intelligence, and social relations. Efforts were made to reframe these concepts and understand the implications they had for Mary's well-being. The idea was to find new ways to conceptualize the world that aligned with Mary's identity. Thus, great care was taken to preserve the core constructs that defined her identity and only change those that were generating conflicts.

### 2.3.1 | Session 1—Exploring Mary's Concerns

The first intervention session was conducted without a structured interview. Mary had already undergone a more formal psychological assessment provided by another psychologist from the research team. One objective of the first session was to define the problems that concerned Mary using her own words, and her goals for therapy. This session served to gain insight into Mary's life and her relationships, especially with family and friends, with particular emphasis on the difficulties in her social interactions.

### 2.3.2 | Session 2—Exploring Personal Characteristics and Significant Relationships With EYME

During the second session, EYME was introduced for the first time using a laptop computer. Around 20–30 min of the session were dedicated to this automated interview that follows the logic of the RGT (e.g., Fransella, Bell, and Bannister 2004). Mary went through a series of questions directed at collecting the names of the people she found relevant in her life. As a second step, EYME customized questions based on previous responses by comparing these people in pairs with questions such as “In which way is ‘mom’ similar to ‘dad?’” and “In which way is ‘mom’ different from ‘dad?’” Answers to these questions (e.g., “naive”) are entered into the system and then EYME asks for the opposite word for each characteristic (e.g., “smart”). Taken together, these characteristics describe the personality or character of an individual. After one or more constructs are elicited using the first part of elements, usually father and mother, another pair is taken and the same series of questions are made by EYME. Therapists can assist the client if there are any doubts.

Fourteen personal characteristics (and their contrast poles) and 13 people were gathered using this method with Mary. The most relevant personal constructs for the therapeutic process were: “naive—smart,” “empathetic—unable to put oneself in others’ shoes,” “negative—positive,” and “without prejudices—selective.” Some of these characteristics had already emerged during the conversation that occurred in the first session. Therapists had noticed certain words or short phrases that Mary frequently used to describe herself and others. Because personal constructs are used to categorize one’s relational world, it makes sense that some of them would arise spontaneously in the conversation. The more structured approach followed in the second session, which arrived at similar constructs, provided additional support for the importance of these characteristics in better understanding Mary and her context.

In the third step of this procedure, EYME asked the interviewee to rate each person according to each of the elicited constructs, including also the “ideal self,” using a 7-point visual Likert scale. This allowed us to determine where Mary situated herself on the poles of the previously mentioned characteristics, namely “naive,” “empathetic,” “negative,” and “without prejudices.”

The score assigned to the “ideal self” indicated that “empathetic” was her preferred pole. However, this coincidence between “self now” and “ideal self” did not occur in other characteristics, for example, “smart” and “positive” were seen as the desired poles. Lastly, Mary was uncertain about whether she wanted to be “without prejudices” or “selective,” and this construct ended up being quite relevant to the subsequent therapeutic process.

An important therapeutic maneuver that took place during this session was the reframing of the concept of “intelligence.” Updating and increasing the complexity of the mental model used to interpret the world is seen as essential to the therapeutic process. This was done by adding nuances to the current “map of meanings.” Thus, therapists introduced the concept of “emotional intelligence.” This concept was not intended to be understood in the academic and technical sense but rather loosely related. The important factor here was to provide Mary

with a new way of conceiving “intelligence.” This was a novel idea for Mary, emerging from outside her repertoire. Although she may not have initially accepted this new term, it was later confirmed as useful because she spontaneously used this term in later sessions and reflected upon it. “Emotional intelligence” was used to address her identity of being an “empathetic” person, attempting to shorten the distance between these concepts.

### 2.3.3 | Session 3—Visualizing Personal Characteristics and Significant Others in VR

EYME was used again in the third session to help Mary visualize the constructs and ideas addressed during the first two sessions. EYME creates a VR environment with the information provided during the automated interview and the rating task. Characteristics and people are represented by “labels” and “spheres” of various sizes, with their size representing how meaningful each person or construct pole is for the current worldview of the client (see Figure 2). In other words, how useful they are for representing the meanings of the person. Therapists guided Mary through the visualization process as they could observe on their computer’s screen what she was seeing with the VR headset when immersed in the personalized scenario created by EYME. Special attention was paid to the distance between people or characteristics and how they grouped together in clusters. This way, for example, it was possible to explore which people were more closely related to the characteristics that Mary wanted to acquire. The opposite was also possible; Mary could switch places in the VR scenario and see the world around her by taking the position of other people.

New meanings were explored during this session as well. The characteristic “without prejudices—selective” was addressed. It was discovered that being “selective” could be useful as a way to filter people and discard those that will only provide “fake relationships.” Thus, being reserved or shy could also be seen as something positive as it could be interpreted as protective behavior. This appreciation aligns with making the meaning system more flexible and adding nuances to it. Furthermore,



FIGURE 2 | Virtual environment created by EYME to explore Mary’s identity.

not being social could be seen as a behavior that people with “emotional intelligence” use to identify people who really matter.

### 2.3.4 | Session 4—Reflecting on Challenges and Strengthening Commitments

The fourth session took place after Mary returned from another country where she was contracted to perform a temporary job. She was feeling very troubled and despaired as she had gone through various terrible episodes. One of her male friends tried to cross limits and made her uncomfortable by attempting to sleep with her. She felt betrayed but also stated that she was able to learn from this situation. In addition, one of her close female friends had recently had a psychotic episode triggered by cannabis consumption. Then, she was sexually assaulted at the mental institution she had entered. More unpleasant situations occurred, but these examples suffice to illustrate the case. Therapists congratulated her for defending her limits in these various situations. She herself decided to quit marijuana as she was alarmed by what had happened to her friend. This was not a topic that was directly addressed during therapy but was a behavior that changed positively during the course of it, probably as an indirect result of the other changes that took place and the new commitments that Mary made about her life.

### 2.3.5 | Sessions 5 and 6—Navigating Self-Worth and Career Aspirations

In sessions 5 and 6, more practical issues about her options for finding a job and pursuing a professional career were taken into consideration. Mary agreed with the therapists that her self-worth ideas were very much linked to the validation of others. She felt particularly unwell when she did not have plans for the weekend. She said: “I live so much from the others’ point of view that I don’t know who I am.”

### 2.3.6 | Session 7—Integrating Identity Through the Two-Chair Technique

In the seventh session, following the indications of the manual for working with dilemmas (Feixas and Compañ 2016), it was decided to introduce the two-chair technique as a way to help Mary experience a semantic polarity that had been identified with EYME and elaborated during the therapy process. Mary had a conversation between two parts of her identity: the “critical Mary” and the “emotional Mary.” These labels were chosen by her and encompassed the concepts that had been previously discussed. She alternately sat down on each of the two chairs facing each other and engaged in a dialog between these two parts. The therapist helped her to take on these roles and stay in character, guiding her with questions if Mary was not able to come up with new ideas. The application of this technique was emotionally charged. Mary had the opportunity to express the function and the reason for each part. To end the process, the two parts were integrated by helping Mary achieve a conclusion that could benefit each part. “Critical Mary”

agreed to be less punitive and harsh and to help Mary to be more motivated. On the other hand, “emotional Mary” made the commitment to be less “idle” and “try harder.” The following dialog is a segment used to illustrate the application of the two-chair technique. It is a translation from Spanish to English, adapted to facilitate comprehension.

[...]

Emotional Mary: Why do you get so frustrated about everything? About the future, about making the most of your time, about everything you do?

Therapist 1: Ok, now if you can sit here...

Emotional Mary: Ok? And now I answer...? (laughs)

[...]

Therapist 2: Now you need to feel like Critical Mary.

Critical Mary: I don’t really know how to answer... Hmm... Because, because I want to make the most of my potential, and not waste time, even though I don’t really know why I worry so much about time... But I think you could improve in many areas. At the same time, I think you’re not good enough for other things. And that’s why I’m sometimes very harsh.

Therapist 1: And what could you ask of Emotional Mary? Can you think of a question or a request? Maybe some advice?

Critical Mary: I can’t really think of anything... I guess you should worry more about yourself and not so much about what others expect from you. You should do things because you feel like it, because you need it, not because of how others will see it. That’s really important. And... even though you’re an emotional person, try not to get frustrated by small things that happen to you and that aren’t really as important as you make them out to be.

Therapist 1: Great, Mary, now you can sit back over here.

[...]

### 2.3.7 | Sessions 8–10: Embracing Self-Discovery and Deepening Personal Insights Through EYME

In Session 8, therapists felt that Mary was improving, as she stated: “It is time to listen to myself.” Mary seemed to be in a good mood and explained that she saw therapy as a process to know more about herself. In the ninth session, EYME was introduced again, and the automated interview and rating task were conducted again. In Session 10, the resulting “map of meanings” was explored again using VR. The following is a transcription of the original conversation that occurred during this procedure. Again, it has been translated from Spanish to English and adapted where necessary to ensure clarity and comprehension.

Therapist 1: To assume the perspective of another person, you have to point at it with your right controller and click with your left controller.

Mary: I want to go to my “self now.”

[...]

Therapist 1: The size of the sphere means how representative a person is at this moment. It doesn't mean how important they are to you. It means how much of an example they are for you...

Mary: That the characteristics they have are very meaningful...

Therapist 1: Exactly. For example, that person represented with a big sphere has a lot of characteristics that you dislike. That's why that person is important in the sense that they help you recognize if someone else shares those traits, they might also be unpleasant. If a sphere is small, it doesn't give you much information... For example, your “ideal self” is also big...

Therapist 2: What characteristics do you have around your “ideal self”?

Mary: “Understanding,” “powerful,” “decisive.” I also have some friends around it... “focused,” “mature”...

[...]

Therapist 1: Are these characteristics related to being more motivated, something you're noticing?

Mary: Well, yes, “decisive,” that's something I'd like to be... and also more “understanding.”

Therapist 1: In what sense?

Mary: To better understand things... well, I'm not really sure.

Therapist 2: Maybe “understanding” of others? Or yourself?

Mary: No, I think it's more about others... But it could also be about myself...

Therapist 1: I have the feeling that these two things are closely related... because last time, you mentioned that just as you can go through hard times, others can as well. Being more “understanding” of yourself gives you the chance to better understand others, too.

Mary: Yes, it seems that way.

Therapist 1: Being okay with others might mean being more comfortable with yourself.

[...]

Mary explained that visualizing the relation between people and characteristics was helpful, giving her more trust in herself and paving a path for the future. She commented that she was now

prioritizing her needs before making plans with other people. She was grateful for the intervention process.

## 2.4 | Outcome and Prognosis

During the case formulation, we discussed the implicit dilemma that Mary was facing, summed up with the question: “How can I become more self-confident and smarter without becoming selfish?” The therapists aimed to help Mary overcome this dilemma, although it was never explicitly stated; it served as a working hypothesis. The introduction of the concept of “emotional intelligence,” the reframing of “shyness,” and the work done with the two-chair technique were all means to address this dilemma. EYME was able to detect this dilemma by analyzing the data collected at the second session. It was no longer present the second time EYME was used. While this does not guarantee the resolution of the dilemma, it might indicate some progress made during the therapy process.

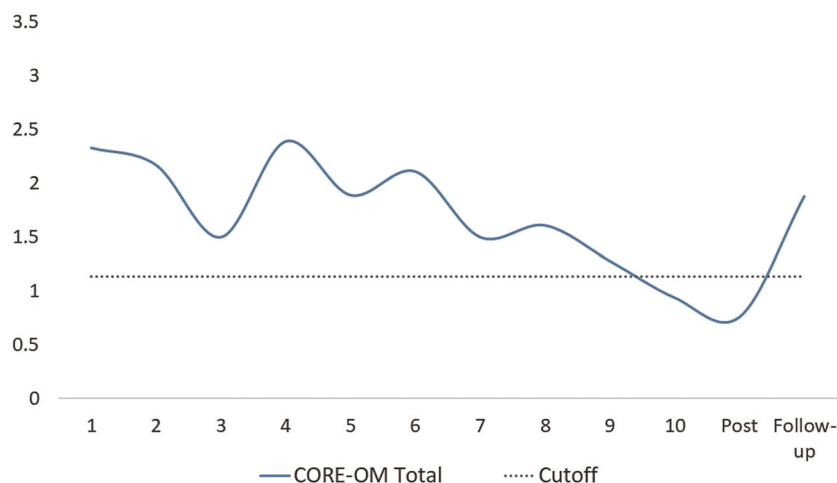
Another indication of progress that EYME provided was that Mary's cognitive “map of meanings” became more complex and multidimensional. This suggests that Mary became more sensitive to the nuances of her experience, which is an expected outcome of therapy.

Furthermore, when EYME was applied in the second session, Mary regarded herself as “negative” and her ideal as “positive.” By the ninth session, she defined herself as “positive,” with new characteristics such as “mature” and “not idle” emerging, reflecting steps Mary took during therapy. However, a new characteristic with negative connotations appeared: “social-distant.” She perceived herself as distant and wanted to be social. In addition, “smart—naive” was replaced with “educated—non educated,” indicating some degree of reconstruction with respect to this idea.

The Spanish version of the CORE (Trujillo et al. 2016) questionnaire was administered during each session to provide an appreciation of her psychological distress. In its short version (CORE-SFB), it consists of 18 items (with good psychometric properties) covering the domains of subjective well-being, symptoms or problems, life functioning, and risk (for self and others). In the first session, Mary's scores were within the clinical population range, but by the last session, the postsession assessment scores were within the nonclinical range (Figure 3). The CORE scores showed a peak during the fourth session, coinciding with the already mentioned multiple stressful events in Mary's social context.

Unfortunately, the assessment at a follow-up session conducted after 6 months indicated that she was again within the clinical range. It is unclear whether this change reflected a regression to her previous state or a temporary setback, as no further follow-up measures were scheduled in the study's design (Montesano et al. 2021).

During the follow-up session, Mary explained to the therapist that she had ended a relationship with one of her closest friends, who had been vital in supporting her to seek therapy.



**FIGURE 3** | CORE evolution.

She was disappointed with him, feeling that he was selfish and sexist. This was the last contact therapists had with Mary, so it is unclear what happened in the following months.

It is important to acknowledge that not all individuals achieve their therapeutic goals within a predetermined timeframe, as psychological change is a complex and often nonlinear process. The 10-session structure used in this case was designed specifically within the context of a research study and should not be interpreted as a standard therapeutic endpoint. In a real-world setting, the conclusion of therapy would typically involve a more gradual termination process, including closer follow-up and opportunities to address potential setbacks. Nevertheless, this study sheds light on the possibilities of the therapeutic process, demonstrating how structured interventions can facilitate significant psychological changes, even within a limited timeframe. Future studies could explore the benefits of integrating more follow-up measures and extended therapeutic contact to better support long-term outcomes.

During the posttherapy assessment, therapeutic goals were evaluated using the change interview (Elliott, Slatick, and Urman 2001). Three changes were noted, all coded as unexpected and of maximum importance for her. In addition, the last two were annotated with a low probability of occurring without therapy: (a) become more sincere/assertive, (b) improved motivation, and (c) improved mood.

The change interview serves a crucial role in capturing the patient's subjective experience and understanding of their therapeutic journey. It provides insights that may not be fully reflected in quantitative data, highlighting the significance of the therapy from the patient's perspective. For instance, the change regarding her sincerity and assertiveness closely relates to the skills she developed in therapy, including advocating for herself, establishing boundaries, and fostering self-confidence. This newfound assertiveness signified a significant transformation in her interpersonal relationships and self-perception.

Moreover, the improvements in motivation and mood were interconnected with the recent strides she made in therapy, where she engaged more actively and committed herself to her future

aspirations. These changes indicated a shift toward a more proactive stance in her life, suggesting that the therapeutic process not only facilitated emotional relief but also empowered her to envision and pursue a more fulfilling existence.

The diagnostic interview was also conducted again during this assessment, and three of the five previous diagnostic labels were no longer applicable: major depressive episode, social phobia, and alcohol dependence.

## 2.5 | Clinical Practices and Summary

Ka-Yee Essoe et al. (2022) highlight that advancements in VR technology have outpaced clinical research, identifying this as a major challenge for its integration into psychotherapy. Similarly, Selaskowski et al. (2024) emphasize the need for more high-quality research, pointing to the disconnection between the technological development of VR applications and their theoretical grounding in clinical practice as one of the key challenges in the field. We hope that this paper offers a modest contribution toward bridging this gap.

We believe that this therapeutic approach was well-suited for Mary's problems, as her identity and social relations were crucial for understanding her experiences. EYME proved to be a helpful technique for Mary to visualize and integrate information in a more experiential way. However, we believe that more sessions would have been beneficial for her to ensure that changes were well integrated.

Reflecting upon the process, we have the impression that the use of EYME in clinical interventions is particularly effective for individuals where relational problems are very salient. It can be argued that all psychological problems are, or at least have an important component of, relational issues. In cases like Mary's, it is very evident that the main issues are related to the social world and how the patient interacts with it.

In other situations, where the patient feels that her problems are not so immediately connected to the social dimension, the

use of EYME might not be as fitting. As stated previously, one of the main tenets of the constructivist approach is the importance given to the co-construction of the therapeutic process. This means that all techniques involved must be meaningful for the patient and presented in accordance with her needs. We believe it is very important to continue experimenting with EYME in different clinical scenarios to better understand when its use will be most beneficial.

The primary drawback of using EYME is the need for therapists with specialized knowledge of the theoretical framework underlying its application. While it is not essential for therapists to become experts in the constructivist approach, they do need a solid understanding of its core principles to use EYME effectively. As noted earlier, the concept of “self-identity” is common across various therapeutic models, so it would not be entirely foreign to most practitioners. However, the way identity is operationalized within EYME is based on Personal Construct Psychology. Importantly, this operationalization offers enough flexibility to be adapted by therapists working from different theoretical orientations. While some effort will be needed to integrate EYME into their framework, this flexibility ensures that the tool can complement various approaches. Therapists intending to incorporate EYME would require formal training, hands-on experience, and a few trials before confidently applying it in real-world settings.

That said, EYME has been designed as a user-friendly application with low technical difficulty and is equipped with an interactive guide. However, as a VR application, it will benefit from updates that implement ease-of-use solutions. One area for improvement is ergonomics; with more trial and error, we can learn how different people react to the virtual environment, allowing for better personalization to meet clients' needs. Also, clients vary in their technical expertise, so some may benefit from having more tools at their disposal. Graphics is another area where significant improvements can be made, especially considering that the specifications of commercial VR headsets are constantly evolving. EYME could benefit from enhanced graphic capabilities to display more immersive environments.

In light of the foregoing considerations, we contend that EYME presents significant opportunities for advancing the field of VR interventions centered on therapeutic identity work. Given that this application is novel and the field itself is expansive, articulating a succinct proposal for future research remains a challenging endeavor. A pressing priority would be the development of specific intervention techniques and protocols derived from EYME, accompanied by rigorous evaluations of their impact on therapeutic outcomes. For instance, devising a systematic approach to address implicit dilemmas may yield substantial benefits. While this endeavor may introduce certain technological challenges that must be navigated, implicit dilemmas have consistently demonstrated their utility as a construct in psychological interventions.

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