INNERWORLD: VIRTUAL REALITY FOR PSYCHOSOCIAL SUPPORT

USER GUIDE

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CONTENTS

CONTENTS

1. Introduction

The primary purpose of the "InnerWorld: Virtual Reality for Psychosocial Support" project is to revolutionize the delivery of mental health support for young individuals, with a specific focus on displaced youth affected by the conflict in Ukraine. The project seeks to create a sustainable, digitalized framework for psychological recovery by providing a safe, immersive environment where young people can express themselves and develop emotional resilience without the constraints of traditional therapy. By integrating Virtual Reality (VR) technology, the project aims to foster digital transformation in the youth work field and increase the digital readiness of both service providers and beneficiaries.

1.1. Project Objectives

The project is built upon four concrete objectives designed to create a measurable impact:

Technological Innovation: To innovatively develop, test, and execute an alternative VR solution that caters to the diverse needs of young individuals while increasing digital literacy.

Quality Enhancement: To enhance the quality of mental health assistance for 60 displaced youth and train 6 mental health professionals to integrate high-tech digital tools into their psychosocial support practices.

Universal Accessibility: To widen the availability of support by eliminating "entry barriers" such as language differences, financial constraints, age-related obstacles, and geographic limitations.

Knowledge Dissemination: To share implementation guidelines through local events and this online User Guide with at least 45 organizations, ensuring the project's sustainability and reach.

1.2. Significance in Mental Health Support

The "InnerWorld" project represents a critical advancement in psychosocial support by introducing Virtual Reality (VR) as a practical, evidence-based tool designed to overcome the structural and clinical limitations inherent in traditional therapeutic models. Its significance is built upon several key factors that address the specific needs of displaced youth and the professionals who support them.

Key Significance Factor	The Challenge / Traditional Limitation	The VR Advantage & Significance
1. Therapy Limitations	Relies on visualization, which is difficult for severe trauma	Removes **cognitive burden** via controlled, immersive scenes
2. Ecological Validity	Clinical settings feel detached from everyday life	Triggers **real-world responses** in near-natural environments.
3. Embodied Experience	Often limited to verbal processing of memories	Addresses **physical and psychological** effects simultaneously.
4. Accessibility	Language, cost, and geographic entry barriers.	**Low-intensity, scalable** support that democratizes care.
5. Digital Engagement	High stigma and low engagement among youth.	"**Presence**" and gamification increase participation
6. Integration	Stress hinders employability and social fabric.	Builds resilience for **education and labor markets**.

Table 1. From Traditional Therapy Limitations to VR-Based Advantages

One of the primary significances of this technology is its ability to overcome the limitations of traditional therapy, such as talk "**therapy or** "**imaginal exposure**". These conventional methods often depend on a patient's ability to mentally visualize traumatic scenes, which can be extremely difficult or even impossible for individuals suffering from severe trauma. VR solves this by providing a controllable, immersive environment that simulates real-life scenarios, allowing users to interact with a safe reproduction of stimuli without the cognitive burden of active imagination.

Secondary, the project enhances ecological validity and realism in a way that clinical settings often cannot. Unlike traditional offices that may feel detached from everyday life, VR allows for interaction in near-natural environments in real time. Researchs confirms that individuals respond to these virtual environments as if they were real, producing consistent physiological and emotional responses that facilitate better habituation and recovery.

Thirdly, vital aspect is the provision of an embodied experience. VR-based interventions offer a profound sense of embodiment that exceeds the constraints of simple verbal processing. This allows displaced youth to address both the physical and psychological effects of their memories simultaneously, which is essential for fostering post-traumatic growth and improving overall quality of life.

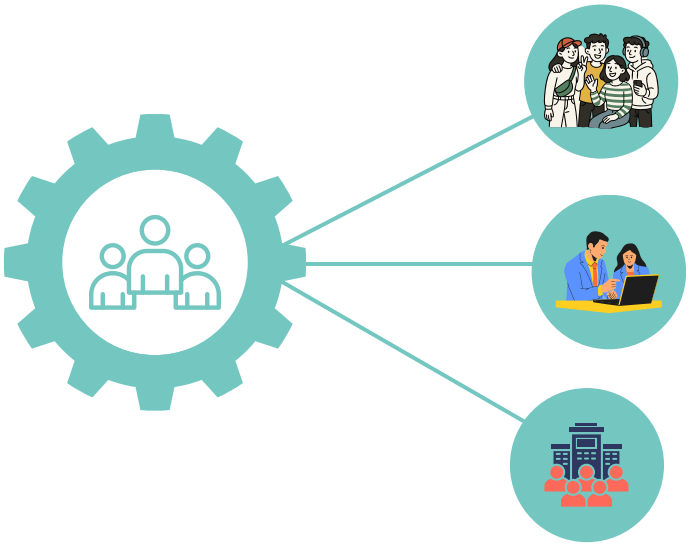
Fourthly, significantly improves accessibility for marginalized groups who are often excluded from traditional care. Displaced youth frequently face "entry barriers" such as language differences, high costs, and geographic limitations. VR serves as a low-intensity, scalable intervention that democratizes access to support, proving particularly effective in reducing symptoms of anxiety and PTSD in shorter timeframes than conventional methods.

Additionally, the technology fosters digital engagement and the feeling of "presence". The subjective experience of "being there" in the virtual world significantly increases user engagement, especially among younger, tech-savvy generations. By incorporating elements of gamification, VR makes the support process more enjoyable and less stigmatized, which encourages consistent participation among vulnerable populations.

Finally, the project is significant because it supports social and economic integration. Mental well-being is viewed not as an isolated goal, but as a prerequisite for employability and social cohesion. By reducing acute stress and enhancing social skills through nature-based virtual scenarios, the project empowers youth to integrate more effectively into the education and labor markets of their host countries

1.3. Target Groups

The primary target group for the InnerWorld project consists of displaced youth aged 13 to 20, specifically those who have been affected by the conflict in Ukraine. These young individuals are the central beneficiaries of the intervention, with an initial cohort of 60 youth (20 from each partner country: Turkey, France, and Bulgaria) serving as active participants during the testing and development phases. The project specifically targets this demographic because they often encounter significant "entry barriers" to traditional mental health care, such as language differences, financial constraints, and geographic limitations. By providing a safe, immersive environment, the tool helps these youth address both the physical and psychological effects of trauma without the high cognitive burden required by traditional "imaginal exposure".



Beyond the youth, the **project identifies secondary and tertiary beneficiaries** who are essential for the long-term delivery and scaling of support. The secondary target group includes psychosocial support providers, social workers, and psychologists who receive extensive training to facilitate VR-based sessions and integrate high-tech digital tools into their professional practice. This training enhances their digital readiness and reduces their reliance on language-intensive intervention formats, which is critical when working with diverse displaced populations. Additionally, a tertiary and indirect group comprising over 40 similar organizations and the broader public benefit through the project's online User Guide and dissemination efforts. This ensures that the knowledge and technological framework established by the project can be independently used by other professionals to support a wider range of vulnerable groups

2. Virtual Reality (VR) in Mental Health Support

2.1. Overview of VR Technology: From Immersion to Presence

Virtual Reality (VR) is an innovativecomputer-generatedtechnology that creates three-dimensional (3D) artificial environments where users can experience real-life-like sensations through specialized hardware such as head-mounted displays (HMDs), motion-tracking sensors, and headphones.
The core technological evolution in VR is marked by the shift from Three Degrees of Freedom (3DoF), where a user is a mere "spectator" observing the environment, to Six Degrees of Freedom (6DoF), which enables users to become "active participants" who can physically move through and interact with the virtual space.

The psychological power of VR lies in the concept of "**Presence**" the subjective experience of "being there" in the virtual world despite being physically located elsewhere. This is achieved through high levels of immersion, where images are continuously rendered in real-time relative to head and body movements. Modern VR systems often go beyond visual and auditory stimuli by incorporating tactile (haptic) and even olfactory (smell) stimuli, allowing for a multisensory reproduction of reality that can elicit genuine physiological and emotional responses.

2.2. Applications of VR in Psychosocial Support

VR has established itself as a transformative clinical tool, offering safe and controlled alternatives to traditional therapeutic methods. Its applications include:

- ***Virtual Reality Exposure Therapy (VRET):*** VRET is considered an alternative to traditional "imaginal exposure". While traditional therapy relies on a patient's ability to mentally visualize traumatic events—which can be difficult for those with severe trauma VR provides a controllable, immersive environment where individuals can face fears (such as phobias or PTSD triggers) gradually and safely.

- ***Nature-Based Relaxation and Mindfulness:*** Immersive nature scenes, such as virtual forests, beaches, and waterfalls, are utilized to reduce stress and induce relaxation by activating the parasympathetic nervous system. These simulations provide a "safe haven" for youth who may lack access to real-world nature due to displacement or urban isolation.

- ***Social Skill Training:*** VR platforms offer simulated social scenarios (e.g., public speaking, classroom interactions) where youth can practice communication, problem-solving, and emotional regulation without real-world social pressure. • Distraction and Pain Management: VR serves as a potent distraction mechanism that diverts the brain's attention away from acute pain or medical triggers (like needles), significantly reducing distress during procedures

- ***Embodied Experience for PTSD:*** Unlike talk therapy which focuses on verbal processing, VR provides an embodied experience, allowing displaced youth to address both the physical and psychological effects of trauma simultaneously.

2.3. Benefits of Digital Transformation in Youth Mental Health

The digitalization of mental health services brings multi-faceted benefits, particularly for tech-savvy generations who increasingly rely on digital modes for communication, learning, and support. For young people, especially those with disrupted life trajectories such as ***displaced youth***, digital tools offer new pathways to care that are flexible, engaging, and responsive to individual needs.

One of the most significant advantages of digital transformation is its ability to break accessibility barriers. Digital and VR-based interventions democratize psychosocial support by reducing dependence on physical locations, rigid schedules, and costly infrastructures. Services can be accessed across different settings such as schools, community centres, or safe spaces and can often be delivered with greater time flexibility. This is particularly relevant for young people facing geographic isolation, mobility constraints, or financial limitations that make traditional therapy difficult to reach.

Digital mental health tools also contribute to stigma reduction and increased openness. Many young people find it easier to be honest and expressive in digital environments, where the perceived distance and anonymity reduce fear of judgement. For those who are not yet ready for face-to-face support, digital platforms can function as a destigmatizing stepping stone, encouraging early engagement with mental health services and lowering the threshold for seeking help.

Another key benefit lies in the potential for **measurement-based and blended care**. Digital technologies enable the collection of real-time, real-world data through tools such as mood tracking, sleep monitoring, or brief self-assessments conducted outside formal sessions. This continuous flow of information acts as a form of "digital glue," enriching in-person or facilitated sessions with deeper insight into daily emotional patterns. As a result, professionals can design more integrated and personalized support pathways that combine digital experiences with human guidance.

Digital transformation also supports the development of a **poly-digital ecosystem** of care. Rather than relying on a single intervention, young people can benefit from a coordinated set of digital tools—such as applications focusing separately on sleep, mood regulation, mindfulness, or emotional reflection. Together, these tools generate an aggregation of small but meaningful gains that positively influence overall mental well-being.

When used strategically, such ecosystems allow support to be tailored to multiple dimensions of a young person's life.
Engagement is further strengthened through gamification and interactive design. Elements such as goals, rewards, exploration, and progression systems increase motivation and sustained participation. This approach aligns particularly well with the preferences of so-called "Generation Mute," a cohort that often favours text-based and digital interaction over voice-based or formal communication. By making psychosocial support more relatable and enjoyable, digital tools reduce resistance and encourage consistency.

Finally, digital and VR-based interventions foster emotional learning and resilience through experiential practice. Immersive environments allow young people to rehearse coping strategies, manage stress responses, and navigate social situations in a safe and supportive space. Each successful interaction strengthens self-efficacy and builds confidence that transfers into real-life contexts. Over time, this process supports long-term emotional regulation, social integration, and psychological well-being.

3. Development and Implementation Phases

- Content Creation: Developing VR Scenarios for Psychological Support.
- Software Design and Technical Development.
- The Testing Phase: Implementation with Displaced Youth.

The development and implementation of the InnerWorld VR tool followed a structured, evidence-informed process designed to ensure both technological reliability and psychosocial relevance. The three core phases; content creation, software development, and field testing were carried out collaboratively by partners in Türkiye, France, and Bulgaria, each contributing their expertise in mental health support for displaced youth.

3.1 Content Creation: Developing VR Scenarios for Psychological Support

The creation of VR scenarios began with desk research conducted by the project team to identify evidence-based models for using immersive technologies to support emotional regulation, trauma recovery, and stress reduction. This research drew on established applications of VR in exposure therapy, nature-based relaxation, and embodied emotional processing, as described in clinical literature and reflected in Chapter 2 of this guide.

Building on these insights, displaced Ukrainian psychologists working within partner organisations in Bulgaria and France engaged in facilitated discussions to determine which interventions would be most appropriate for displaced youth. Their professional experience with trauma, uncertainty, and prolonged displacement informed the selection of five VR interventions, each addressing core needs such as grounding, stress reduction, mindfulness, and emotional stabilization.

- **We focused on self-regulation skills (breathing, grounding, body awareness), not trauma processing.**
- **We kept sessions short to reduce emotional overload and cybersickness risk.**
- **We designed for transferability, so organizations without specialist equipment or clinical staff can still use the tools responsibly.**

Why immersive video-based VR?

VR was chosen as the core technology because immersion changes how we experience emotions. Virtual Reality creates a sense of presence — the feeling of "being there", which makes it especially powerful for emotional regulation and stress reduction.

Within a VR environment, users can temporarily disconnect from external stressors, focus their attention more easily, engage their senses in a calming environment and practice techniques more effectively. For many users, especially young ones, VR feels less clinical, less intimidating and more engaging than traditional support methods. VR works well with youth as it feels familiar and natural to digital-native generations, lowers resistance to emotional work, and creates a safe, controlled environment.

The project chose guided VR video experiences for reasons related to practical, ethical, and implementation-related considerations. Video-based VR experiences can be deployed with minimal technical setup and work reliably on widely available headsets. This makes adoption easier for NGOs and youth services. Additionally, for displaced youth living in situations of high uncertainty, predictability and consistency is key. Video scenarios allow facilitators to know exactly what will happen in the session (pace, visuals, audio cues), reducing uncertainty and the risk of triggering content. During periods of distress, complex navigation or game-like tasks can overwhelm users. Guided videos keep the focus on regulation, not performance, while a standardized, guided experience supports consistent delivery across different countries, teams, and contexts. It also helps professionals with limited VR experience facilitate safely. Not least, VR video tools allow support without pressure to talk about trauma.

Additionally, compared with developing and maintaining interactive VR software, video scenarios are simpler to update, translate, and distribute—important for long-term sustainability after the project ends

How the five interventions were chosen?

The five InnerWorld scenarios were selected using a practical framework centered on high evidence base for reducing stress and supporting regulation, low risk for triggering traumatic memories, fast impact (useful within minutes), and usability in both individual and group settings. We also prioritized selecting tools that would be easy to explain and acceptable across cultures. Each scenario also matched common needs observed by psychologists working with displaced youth: hyperarousal (panic, agitation), hypoarousal (numbness, disconnection), rumination, sleep difficulty, and concentration problems.

Scripts were written in short, clear language suitable for youth. Instructions were designed to be non-judgmental and non-pressuring. Visuals were selected to reduce overstimulation and avoid culturally sensitive or potentially triggering imagery.

1) Triangle Breathing
Breathing regulation is one of the most accessible and evidence-supported ways to reduce acute stress. Triangle breathing provides a simple rhythm that helps reduce physiological arousal (rapid heartbeat, tension, agitation). It supports quick calming and slowing down, building a sense of control over the body and provides stress regulation in daily life (school, work, conflict situations). It is particularly suitable for a VR environment as the immersive focus reduces distractions and helps users follow breathing cues more easily than on a phone or in a noisy environment.

2) Square Breathing
Square breathing offers structure and a slightly more "active" regulation pattern that supports focus and stabilisation. It's particularly helpful for anxiety that includes racing thoughts and restlessness. It supports emotional stabilisation, attention and concentration, and is particularly suitable for situations of pre-performance stress (before school, interviews, tasks). The visual rhythm inside VR supports pacing and helps users stay engaged without effort.

3) Body Scan
Displacement and trauma often disconnect young people from bodily sensations (either through tension or numbness). A body scan supports safe reconnection with the body and helps reduce stored tension. It supports relaxation and sleep readiness, noticing and releasing tension and helps rebuild interoception (awareness of internal bodily states). The exercise was developed to remain gentle and avoid deep trauma-focused somatic work.

4) Cinema Meditation (Worries as a Movie)
Many displaced young people experience rumination like repetitive, intrusive worry loops. This practice introduces a simple cognitive distancing technique: observing thoughts rather than being pulled into them. It helps reduce the intensity of worry spirals, supports mental "space" and emotional distancing and improves self-control when thoughts feel overwhelming. This tool is intended for manageable worries and general stress. It is not designed for direct trauma exposure, and facilitators are instructed to monitor emotional reactions and avoid using it in acute trauma states.

5) Grounding Exercise
Why it was chosen: Grounding is one of the most important trauma-informed tools for stabilisation. It is useful for both hyperarousal (panic) and hypoarousal (numbness, dissociation). It also provides a clear "safety anchor" during sessions. It supports returning to the present moment and reducing overwhelm, increases emotional and sensory stabilisation, and provides safe closure after stronger emotional reactions. Grounding is not only a standalone tool, it is also the recommended fallback option if any session becomes uncomfortable.

3.2 Software Design and Technical Development

Once the content framework was defined, technical development focused on producing stable, user-friendly VR videos that offered high ecological validity. Attention was given to visual clarity, sound quality, and smooth head-tracking responsiveness, which are essential for generating a strong sense of presence. The simplified architecture allowed the VR tool to be operated by youth workers and psychologists without advanced technical skills, supporting long-term sustainability.
Developers worked closely with mental health professionals to refine pacing, transitions, and sensory load in each scenario. This collaboration ensured that the VR environment remained safe, predictable, and suitable for young people with heightened stress responses. Technical reliability across partner countries was later confirmed during the testing phase, where no major malfunctions or safety risks were reported.

Several VR technologies including Oculus-based platforms were explored during the design stage. To maximize accessibility, reduce costs, and eliminate technological barriers, partners opted to create video-based immersive content compatible with a wide range of VR headsets. This decision ensured universal usability, consistent delivery across countries, and alignment with the project's objective of widening access to psychosocial support.

3.3 The Testing Phase: Implementation with Displaced Youth

The testing phase was a core component of the InnerWorld project. Its purpose was not only to assess the immediate effects of the VR scenarios on young people's well-being, but also to test whether the tools could be implemented safely, ethically, and consistently in real-world youth work and psychosocial support settings.

Testing was carried out by all partner organizations: Ankara Bilim University, FSCOD, and CRU. Psychologists and trained professionals working within these organizations invited young people already engaged in their services to participate in the pilot phase. Participation was voluntary and open to any displaced youth aged 15–29, with available places filled on a first-come, first-served basis to ensure fairness and accessibility.

In total, 60 participants across three partner countries took part in the testing phase. All sessions were facilitated by professionals who had received prior orientation on the InnerWorld tools, safety protocols, and ethical boundaries.

The testing phase was designed to answer four key questions:

- **Can short, guided VR experiences support emotional regulation and well-being among displaced youth?**
- **Can these tools be used safely in non-clinical, community-based settings?**
- **Are the tools acceptable, understandable, and engaging for young people?**
- **Can organizations realistically replicate the methodology after the project ends?**

These four key questions established the operational boundaries for the testing phase. To provide evidence-based answers to these queries and validate the tool's effectiveness, a comprehensive methodological framework was developed to gather both quantitative and qualitative data. Rather than being a simple trial, the testing process was structured as a formal scientific data collection effort. The specific technical details regarding this structure, the evaluation scales used, and the session-by-session implementation are detailed in "Section 4: Implementation, Data Collection and Research Insights"

3.4 Implementation Process

During the testing phase, each project partner selected 20 displaced youth participants, resulting in a total sample of 60 participants across Türkiye, France, and Bulgaria. All participants tested the InnerWorld VR tool during structured psychosocial support sessions facilitated by two trained professionals per country, who were previously trained by the project trainers. Each weekly session followed the same core structure and this structured format ensured both emotional safety and methodological consistency throughout the implementation period.

Opening phase

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Viewing and testing of VR video content

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Short breathing and grounding exercises outside the VR environment between videos

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Closing phase

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Completion of a stress-level self-assessment survey

3.5 Session Flow

Pre- and Post-Testing
To assess changes in subjective well-being and overall impact, participants completed the WHO-5 Well-Being Index before and after the full testing period. This enabled partners to track changes in mental well-being over time and evaluate the effectiveness of the intervention.

Rotating Sequence of VR Content
The VR videos used during the sessions were presented in a rotating and randomized order. This approach minimized sequence effects, reduced predictability, and ensured that participants' responses were not influenced by a fixed content order.

Stress Level Evaluation
At the end of each weekly session, participants reported their current stress level on a scale from 0 to 5. These repeated measures provided continuous quantitative insights into participants' emotional states and allowed professionals to monitor stress trajectories across the six-month implementation period.

Participant Feedback and Technical Reporting
Throughout the testing phase, participants were encouraged to share feedback regarding their experiences and suggest potential improvements. Any technical issues encountered during sessions were reported to the facilitator, who then informed the relevant partner responsible for VR tool development.

Satisfaction Survey
At the conclusion of the testing phase, participants completed an online evaluation survey assessing their overall experience with the VR tool. The questionnaire was originally prepared in English and could be translated into national languages by each partner to ensure accessibility.

4. Practical User Manual: Guidance and Training

This section serves as the operational core of the InnerWorld project, bridging the gap between theoretical research and the practical application of Virtual Reality (VR) as a tool for psychosocial support. Its primary objective is to equip psychologists, youth workers, and social workers with the technical competence and trauma-informed sensitivity required to deliver immersive sessions that are not only effective but also fundamentally safe for displaced youth.

The guidance consolidated here is built upon the collective implementation experiences of partners in Türkiye, France, and Bulgaria, ensuring that the procedures are accessible, predictable, and emotionally secure for both the facilitator and the participant. It is important to emphasize that this manual characterizes InnerWorld as a psychosocial support tool rather than a clinical therapy; its focus remains strictly on stabilization, self-regulation skills, and grounding, rather than the processing of deep traumatic memories.
The manual is structured into three integrated components to ensure a holistic approach to service delivery:

1. **Step-by-Step Guidance for Using the VR Tool**
2. **Step-by-Step Training Guidance for Professionals**
3. **Step-by-Step Facilitating VR Sessions Guidance or Traumatized Youth**

Central to this manual is the project's ethical framework, which mandates that the participant remains in full control of their experience at all times. By utilizing guided VR video experiences—chosen for their predictability and ease of deploymentfacilitators are provided with a standardized medium that reduces the risk of overstimulation or accidental triggers. Ultimately, this section provides the necessary "digital glue" to integrate high-tech tools into routine psychosocial practice, helping to eliminate traditional entry barriers such as language differences and geographic limitations.

For professionals seeking even more granular technical or clinical details beyond this condensed guide, a comprehensive Guide for Professionals is accessible through the project's online portal at innerworld.online

4.1 Step-by-Step Guidance for Using the VR Tool

To write the instructions for section 3.4 of the user guide based on the sources, you should structure them into clear, actionable steps that cover technical setup, environment preparation, and safety protocols.
Below is a drafted instruction set drawing directly from the provided material:

Step 1: Technical Setup and File Transfer

Load the Content: Transfer the five VR video files onto your VR headset.
Oculus Quest Configuration:

1. Connect the headset to a computer using a USB-C cable.
2. Put on the headset and authorize file access inside the device.
3. Transfer the video files from the computer into the headset's designated internal storage folder.

Accessing Videos: Open the device's media viewer, select a video, and ensure it is launched in 360-degree mode for full immersion.

Step 2: Environment and Equipment Preparation

Create a Safe Space: Choose a quiet environment with enough physical space for the participant to move or sit safely.
Comfort: Provide appropriate seating options.
Audio/Visual Check: Adjust audio levels to a comfortable volume before the session begins to ensure the participant can hear the guided cues clearly.

Step 3: Participant Briefing and Safety

Informed Consent: Clearly inform the participant that they have full control over the experience.
The "Stop" Rule: Explicitly instruct the participant that they can stop the session at any moment simply by removing the headset. This is a core requirement of the project's ethical framework to ensure emotional safety.
Professional Presence: A trained professional must always be present during the VR exposure to monitor for signs of discomfort, such as cybersickness or emotional activation

4.2 Step-by-Step Training Guidance for Professionals

To draft Section 4.2: Step-by-Step Training Guidance for Professionals, you should focus on the structured two-day training program designed to ensure professional readiness and safe facilitation of the VR tool. Professional readiness is a prerequisite for safe VR facilitation, as the role of the professional is to provide an emotionally safe environment for displaced youth. The training program follows a structured method to build competence through the following stages:

Step 1: Theoretical Foundations and Clinical Purpose

Understanding the Context: Professionals must first gain a theoretical understanding of stress and trauma specifically as it affects displaced youth.
VR Literacy: Review the evidence supporting VR in psychosocial support, as well as its specific technological limitations.
Clinical Indicators: Become familiar with the clinical purpose of each of the five videos, identifying appropriate indications, participant readiness criteria, and potential contraindications

Step 2: Session Flow Mastery

Training emphasizes establishing a predictable and stable progression for every session to ensure consistency across different facilitators:
1. Opening Grounding: Start every session with a grounding exercise to stabilize the participant.
2. Guided Transitions: Learn to manage careful transitions between different VR videos to prevent emotional overload.
3. Micro-Debriefing: Practice body-focused micro-debriefs at the end of sessions to help participants process sensations without the need for intensive verbal therapy

Step 3: Technical and Ethical Preparation

Hands-on Technical Practice: Professionals must directly practice the technical setup to manage common disruptions calmly during a live session.
Ethical Boundaries: Modules focus on communicating informed consent clearly and maintaining strict professional boundaries while the participant is immersed in the VR environment

Step 4: Live Practice and Role-Playing

Experiential Learning: Psychologists and youth workers rotate through three roles: facilitator, participant, and observer.
Feedback Loops: This role-play allows for real-time feedback on tone, pacing, and how to contain emotional reactions or physical discomfort.
High-Risk Content Management: Specific focus is given to the Cinema Meditation video, teaching facilitators pre-framing language, clear exit strategies, and immediate grounding interventions

Step 5: Data Collection and Research Protocols

Professionals are trained to administer the project's evaluation tools in a respectful, non-intrusive manner. This includes:

Conducting WHO-5 Well-Being Index assessments (pre- and post-testing).
Collecting weekly stress-scale ratings (0–5) and post-session surveys

Upon completion of this training, professionals should demonstrate improved digital competence, increased confidence in using high-tech tools, and a reduced reliance on language-intensive intervention formats, which is critical when working with diverse displaced populations

4.3 Step-by-Step Facilitating VR Sessions Guidance or Traumatized Youth

Facilitating VR-based relaxation for youth with trauma histories requires a specialized, trauma-informed approach that prioritizes emotional safety and participant agency. Because this tool is designed for psychosocial support rather than clinical therapy, facilitators must focus on stabilization and self-regulation rather than trauma processing.

The following step-by-step guidance ensures that sessions are conducted safely and effectively:

Step 1: Pre-Session Psychological Preparation

Establish Reassurance: Before the participant puts on the headset, introduce the purpose of the session using simple, non-clinical, and reassuring terms.

Guide Physical Regulation: Help the participant find a comfortable posture and guide them into a regulated state by directing their attention toward their breathing and bodily sensations.

Manage Expectations: Explicitly inform the participant that they may experience unusual sensations and encourage them to observe these sensations neutrally rather than trying to suppress them.

Empower the Participant: Reiterate that they have full control and can stop the session at any moment by simply removing the headset, which strengthens their sense of agency

Step 2: The Structured Session Flow

To maintain consistency and safety, every session should follow this established sequence:

1. Opening Phase: Conduct a brief emotional check-in to assess the participant's current state.

2. Immersive Exposure: Launch the selected VR video content, utilizing guided experiences to ensure the pace and visuals remain predictable

3. Intra-Session Stabilization: Between different VR videos, lead the participant through short breathing or grounding exercises outside of the VR environment to prevent sensory overload.

4. Closing Phase: Conclude with a final grounding and reorientation exercise to ensure the participant is fully present before leaving

Step 3: Active Monitoring and Safety Protocols

Continuous Supervision: A trained professional must always be physically present during the VR exposure to monitor the participant for signs of cybersickness, emotional activation, or dissociation.
Immediate Intervention: If any signs of discomfort emerge, the session must be paused immediately.
Fallback Grounding: If a participant becomes overwhelmed, guide them through grounding techniques outside the headset; grounding is the mandatory fallback option for any uncomfortable session.
Ethical Documentation: Any incidents or strong emotional reactions should be documented in an Incident Log Template to support professional reflection and organizational accountability

Step 4: Body-Focused Debriefing

Prioritize Stabilization: Post-session discussions should remain short, concrete, and body-focused.
Avoid Interpretive Questioning: Facilitators must avoid "talk therapy" techniques or interpretive questions that could pathologize the experience or inadvertently trigger traumatic memories.
Focus on the Present: The goal of the debrief is to help the participant remain in the present moment and carry the feeling of regulation into their daily life

Step 5: Assessment and Feedback

Stress Level Tracking: At the conclusion of each weekly session, ask the participant to rate their current stress level on a scale of 0 to 5.
Maintain Privacy: To avoid placing pressure on the youth, do not take photographs or audio/video recordings during the session.
Long-term Monitoring: Use the WHO-5 Well-Being Index at the very beginning and the end of the full multi-week testing cycle to track overall improvements in well-being

5. Data Collection & Evaluation Methods

A mixed-methods approach was employed to ensure a robust and comprehensive evaluation of the InnerWorld VR tool.

Quantitative Data Collection

Quantitative evaluation focused on validated measurement tools to track changes in emotional and psychological well-being:

WHO-5 Well-Being Index	Sessionly Stress Level Ratings
Administered as pre- and post-tests, providing a score range from 0 to 5 to assess subjective well-being. Its for long term analysis.	Participants recorded their stress levels on a scale from 0 to 5 at the end of each session, enabling short term monitoring of stress patterns.

Demographic information such as gender distribution and duration of displacement was collected to contextualize results across the three partner countries.

Qualitative Data Collection

Qualitative analysis focused on understanding participants' lived experiences during the weekly VR-supported sessions. Data sources included session documentation, facilitator notes, and participant feedback. Researchers applied qualitative analysis techniques to identify recurring themes related to emotional processing, coping strategies, and engagement with the VR tool.

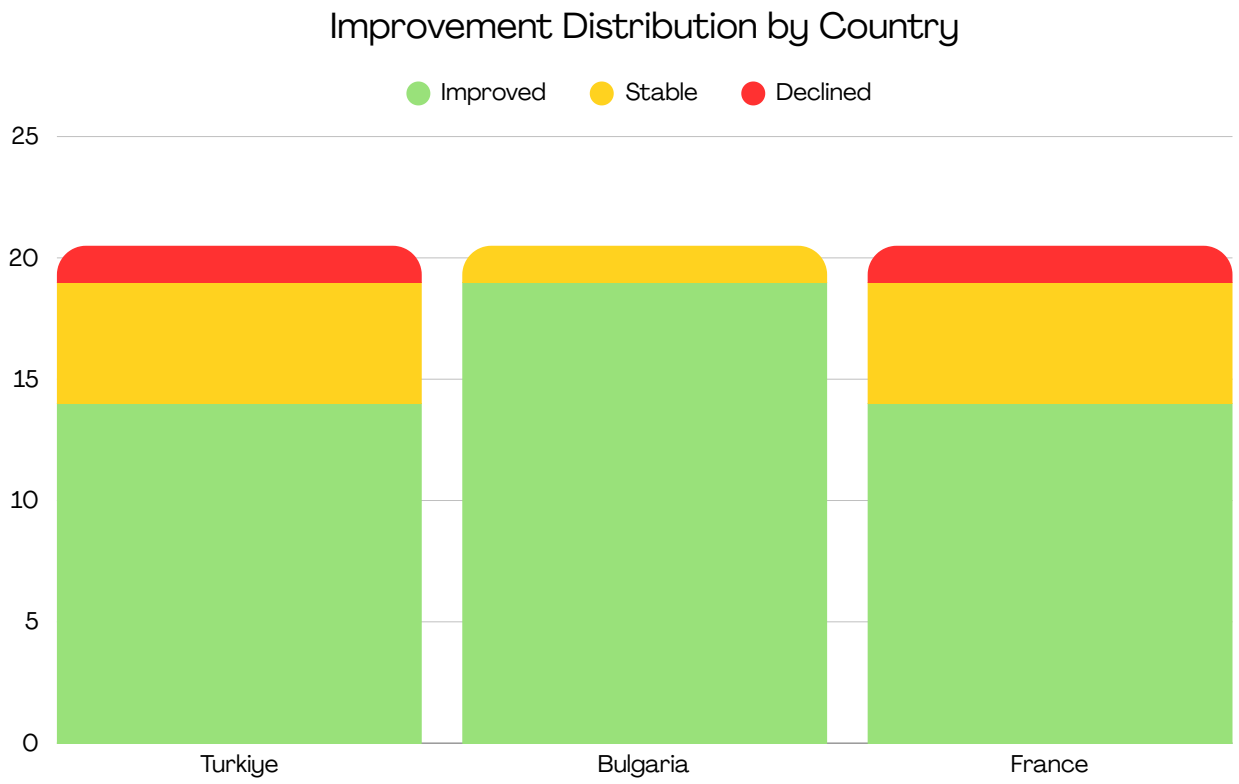
Participant Satisfaction Survey: The satisfaction survey focused on participants' overall impressions of the VR experience and invited reflective responses regarding comfort, relevance of the content, emotional impact, and willingness to engage with similar digital tools in the future.

6. Project Findings

6.1 Impact on Youth Well-Being

The implementation of the InnerWorld VR tool resulted in statistically significant improvements in the well-being of 60 displaced youth across Türkiye, Bulgaria, and France. Analysis of the WHO-5 Well-Being Index revealed an average increase of 19.33 points, corresponding to an approximate 40% improvement compared to baseline measurements.

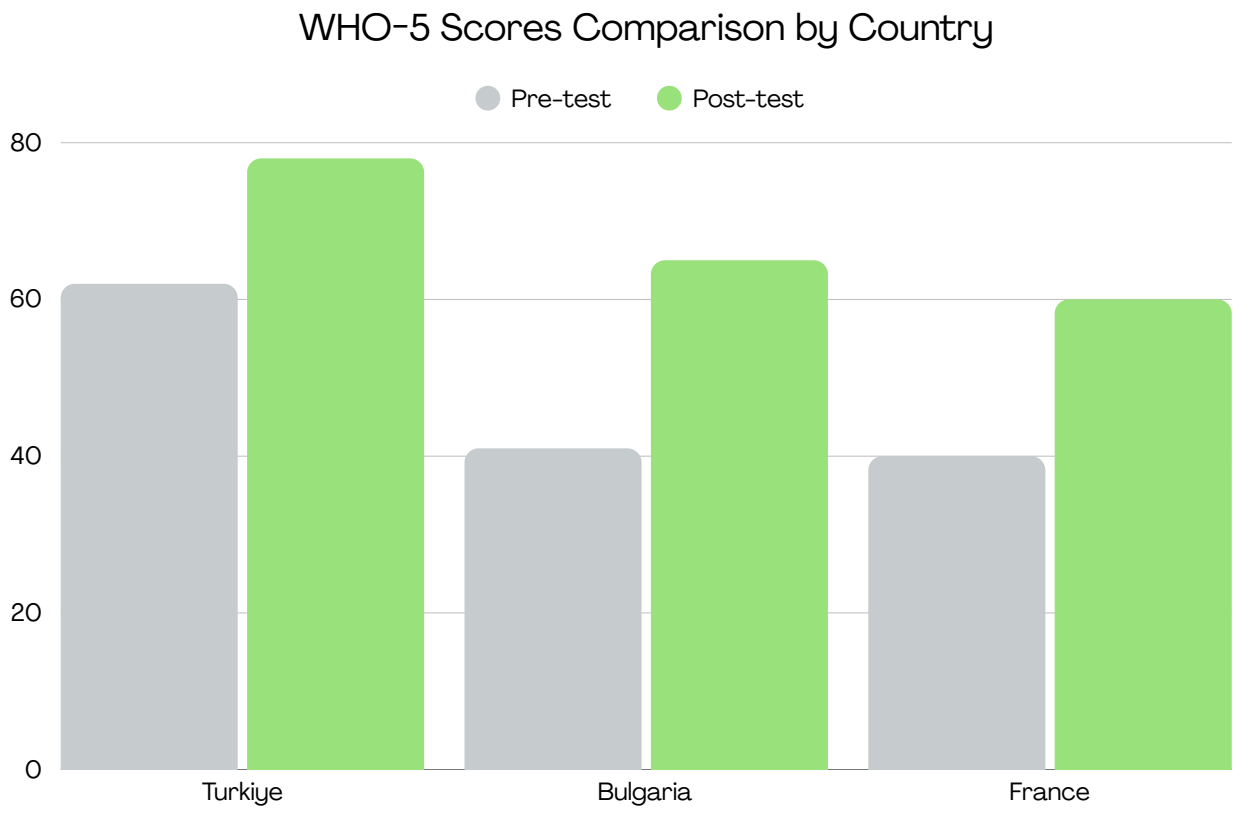
Overall outcomes showed that:



78.3% of participants achieved clinically meaningful improvements in well-being,

18.3% showed no significant change, and

3.3% reported a decline.



At the country level, results remained consistently positive, with Bulgaria demonstrating a particularly strong improvement rate of 95%.

High participation and attendance rates throughout the six-month testing phase further indicate that the VR-based approach was both acceptable and engaging for youth participants. Many participants reported feeling more actively involved and in control of their mental health support process.

6.2 Consistency Across Contexts and Participant Profiles

Further analysis confirmed that the VR-based intervention produced consistent outcomes across diverse contexts. While baseline well-being scores differed between Türkiye, Bulgaria, and France, the intervention generated large and comparable effect sizes in all three countries.

Importantly, no statistically significant differences were observed based on gender. Both male and female participants exhibited similar improvement patterns, indicating that the tool functions equitably across participant profiles. This consistency across cultural settings, displacement durations, and demographic variables highlights the adaptability and transferability of the InnerWorld VR tool as a supportive psychosocial intervention.

6.3 Outcomes for Mental Health Professionals

In parallel with youth-focused outcomes, the project delivered meaningful results in terms of professional capacity building. A total of six mental health professionals across the partner countries completed specialized training to facilitate VR-based psychosocial support sessions.
Following the training and testing phase, professionals demonstrated:

- Improved digital competences,
- Increased confidence in integrating innovative technologies into psychosocial support practices, and
- Reduced reliance on language-intensive and traditional intervention formats.

Beyond individual well-being improvements, the InnerWorld project demonstrates the broader potential of VR-based approaches to modernize youth mental health support systems. By reducing stigma, lowering access barriers, and offering an engaging alternative to conventional methods, the project supports resilience-building among marginalized youth.

The evidence gathered throughout the testing phase confirms that digital transformation can play a critical role in strengthening organizational capacity within youth and mental health services. Integrating VR-based tools into psychosocial practice contributes not only to emotional regulation and coping skills, but also to the wider social and socio-cultural integration of displaced youth, supporting their development and adaptation within new living environments.

7. SUSTAINABILITY AND FUTURE Directions

The InnerWorld: Virtual Reality for Psychosocial Support (VRPS) project is conceived not as a finite intervention, but as a sustainable foundation for future digital mental health initiatives. By establishing a modular and flexible framework, the project creates a lasting legacy that extends beyond its initial 18-month implementation period. Both the technological infrastructure and the methodology are designed to evolve, ensuring that the platform remains a responsive tool for serving vulnerable populations in the long term. This digital transformation strengthens organizational capacity within youth services by integrating VR-based tools into routine psychosocial practice

7.1 Scaling VR Tools for Other Trauma-Related Scenarios

While the current implementation specifically targets displaced youth affected by the conflict in Ukraine, the InnerWorld VR architecture is intentionally scalable and adaptable to diverse clinical and psychosocial contexts. A primary strength of VR technology is its ability to circumvent the limitations of traditional ***"imaginal exposure,"*** which requires individuals to mentally visualize distressing eventsa task often prohibitively difficult for those with severe or complex trauma. VR provides a ***controllable, immersive environment*** that reduces this cognitive burden while facilitating effective emotional processing.
Future applications and iterations of the InnerWorld framework include:

Post-Traumatic Stress Disorder (PTSD): The VR tool can be adapted for diverse PTSD scenarios, leveraging evidence that immersive environments support the simultaneous processing of both physical and psychological trauma responses.

Domestic Violence and Family Therapy: The core regulation techniques used in InnerWorld like breathing exercises and grounding can be adapted to support survivors of domestic violence and utilized in family therapy to foster emotional co-regulation.

Expansion to Other Pathologies: Scientific literature confirms the scalability of VR for conditions including Social Anxiety Disorder (SAD), Depression, Obsessive-Compulsive Disorder (OCD), Eating Disorders, and ADHD.

Customized Scenario Creation: Future development phases can further leverage VR's capacity for personalization by creating highly tailored environments that reflect individual experiences. This includes simulating specific social triggers, phobic stimuli, or situational stressors in a manner that remains safe, repeatable, and professionally guided.

7.2 Lessons Learned from the InnerWorld Project

The following lessons were derived from the implementation, testing, and evaluation phases across all partner countries. These insights are intended to inform future applications and scaling efforts of VR-based psychosocial support for displaced youth.

1. The Strategic Role of VR in Psychosocial Support

The project confirmed that while VR has meaningful potential for grounding, relaxation, and emotional distancing, it is an emerging field. It should be viewed as a complementary tool within a broader psychosocial framework rather than a standalone or mature intervention.

Youth do not respond to VR universally. While many are tech-natives, some approach the tool with curiosity while others remain skeptical or view it strictly as entertainment. Effectiveness depends heavily on participant agency and the freedom to choose whether to engage

2. Technical and Research Insights

Technical issues like lag or freezing, as well as the difficulty of using VR while wearing glasses, remain barriers to independent use.

Because the evidence base for VR in this field is still developing, interventions should be applied with methodological caution and realistic expectations. Future projects should adopt shorter assessment cycles and qualitative methods to better capture the changing realities of the participants

3. Content Design and Sustained Engagement

Although consistent structures provide safety, repeating the same scenarios can lead to disengagement over time. Participants expressed a strong preference for visual variety and modular content libraries to maintain interest.

Many youth evaluate VR tools through the lens of digital entertainment. Engagement is often linked to interactivity and progression; requests for "levels," rewards, or character selection suggest that future tools may benefit from more gamified elements.

The tool is most effective when the VR experience is explicitly connected to concrete skills such as breathing techniques or stress management. Content tailored to specific situations such as exam stress or loneliness is perceived as more relevant than generic relaxation

4. Implementation Challenges with Displaced Population

Conducting long-term interventions with displaced youth is challenging due to their fluctuating living conditions, legal statuses, and changing family situations. These external variables make longitudinal impact measurement complex.

Attendance is frequently interrupted by school, work, or travel distances. Flexible implementation models, such as decentralized delivery in community spaces (schools, libraries) and weekend sessions, are more effective than centralized clinical settings.

High levels of participant comfort and continuity were directly linked to local adaptation, including the use of native languages, cultural references, and the facilitator's specific style

5. Facilitation and Ethical Safety

The success of a session depends not only on the video quality but on how the facilitator explains the purpose before immersion and supports the participant afterward.

A structured, gradual session flow is essential to build trust and prevent overstimulation. Combining immersive content with short grounding and reflection moments outside the headset yielded the best results.

Minor issues such as cybersickness (dizziness/nausea), eye strain, and discomfort from headset weight are common. To minimize drop-outs, facilitators must ensure headsets are correctly fitted and strictly enforce the rule that a participant can stop at any time

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