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A Demonstration of BREEZE: A Reusable, Dynamically Configurable Gamified Breathing Training Component to Reduce Acute Stress and Strengthen Resilience

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Context: Adherence to digital health interventions often declines after initial adoption, limiting their real-world impact. BREEZE is a smartphone-based gamified slow-paced breathing training that uses real-time acoustic breathing detection and biofeedback: correctly timed exhalations accelerate a virtual sailboat. In a 10-week cohort study embedded in a relaxation app for people with cancer, BREEZE reduced momentary stress, yet engagement waned over time, declining to a small, stable core of returning users. This motivates a redesign that both sustains engagement and lets BREEZE be reused across interventions.

Methods: The new BREEZE is structured as a coherent narrative in which multiple worlds form one continuous journey, each comprising a sequence of stages. Intervention duration is set by configuring the number of worlds and the number of stages per world, so the same training can be scaled from a few days to multi-week programs. Users progress with two breathing-controlled vehicles, the original sailboat and a new hot air balloon, supported by a reward-and-progression loop of adherence-linked, daily-limited magical orbs that unlock visual vehicle customization. Crucially, BREEZE can be embedded into other interventions through a universal link and an API, letting a host intervention launch and configure it at runtime. It runs on iOS and Android.

Intervention: BREEZE functions as a highly reusable intervention component for reducing acute stress and strengthening mental resilience. It can be delivered as a standalone intervention or plugged into a larger digital health intervention as a configurable module, so one validated component can be reused across programs and populations, adapting its narrative duration and supported breathing pattern to each host.

Results: Several prior controlled lab and real-world field studies indicate that the gamified breathing training was rated as engaging and effective, and that, in a recent 15-day field study with university students, the reward-and-progression loop increased how often users returned, with participants active on a median of 7 of 15 days versus 2 in the control condition.

Conclusions: The new BREEZE is now a narrative-driven, duration-configurable breathing training that can be embedded as a reusable component into existing interventions. At ISRII, attendees can try it hands-on on a smartphone: follow the story across worlds and stages, switch between the two vehicles, and experience the breathing biofeedback and reward loop.

Implications: A concrete new application for BREEZE is the REACT project (Resource Activation for Teachers' Well-being with Timely, Needs-Based Support), which is developing a scalable Just-in-Time Adaptive Intervention to enhance the well-being of teachers. With a user-centered, evidence-based design, it will assess both effectiveness and implementation and integrate the new version of BREEZE as one component; the study starts in 2027.

Suggested submission type: Demonstration; **Suggested topics:** Game-based interventions; User Engagement & Design; Mobile health; Next generation interventions & Technology; Behavioral Health.

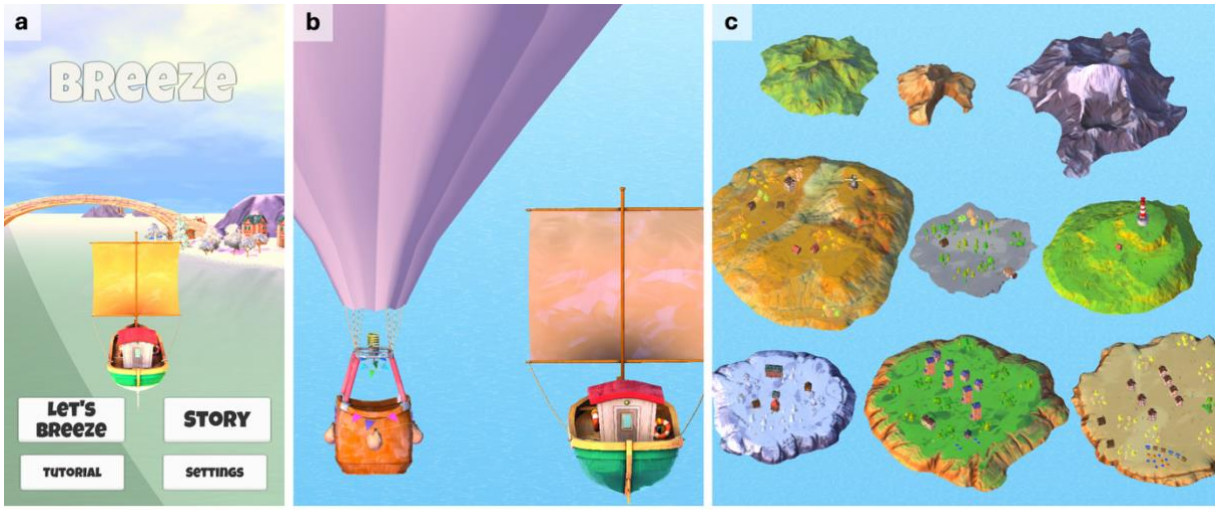

Figure 1. Main menu of BREEZE (a), exhalation-based biofeedback vehicles (b), and world variations (c).