



Virtual Experience Research Accelerator

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Virtual Experience Research Accelerator (VERA)

In recent years we have seen breakthroughs in consumer-level Virtual Reality (VR) technology that are resulting in a dramatic acceleration of consumer, professional, and corporate interest. VR promises benefits in a wide range of areas including scientific research, education, healthcare training and practice, social interactions, and personal well-being. While these benefits should be available to everyone, regardless of their age, gender, race, culture, ethnicity, class, ability, neurodiversity, etc., the vast majority of VR research studies rely on relatively small convenience samples of college-aged participants, e.g., majority White and middle to upper class undergraduate students, which results in study populations that are not representative of the population at large, and findings that are not generalizable. This is in part due to a combination of deadline-driven publication pressures and a lack of ready access to representative populations. At the grass-roots level the VR community is increasingly aware of and eager to remedy this problem, and the committees that oversee the community's journals, conferences, and other activities are increasingly demanding higher-quality human subject research studies based on larger and more diverse study populations. This presents challenges for all researchers, but especially for researchers who already face resource-related challenges to carrying out human subject research; for them these demands will inadvertently further increase the barriers to their participation. These dilemmas warrant a new way of thinking about how we carry out human subject research in VR.

During the preceding year, with input and enthusiasm from the VR community, including researchers, companies, and other relevant organizations, we have formulated extensive concrete plans for a four-year effort to develop a Mechanical Turk-like ecosystem (hardware, software, and people) that will enable VR researchers to carry out studies using large and diverse populations, thus enabling high-quality human subject research studies that will generalize to the population at large. We refer to the resource as the Virtual Experience Research Accelerator (VERA). VERA personnel, comprising investigators, paid staff, and volunteers from the VR community, will coordinate and facilitate the turn-key execution of VR user studies and data collection exercises carried out with a carefully curated large and diverse VERA participant pool. VR community researchers will submit research study proposals to VERA, accepted studies will be run with the participant pool, and the resulting measures will be collected from each participant, processed to mask their identity, and stored in a secure centralized repository. The data will include results from online questionnaires, and control/sensor telemetry transmitted from the participants' VR equipment back to VERA servers. The data will normally be embargoed for a period of time, allowing the researchers to analyze and publish their work, and then will be made public. VERA staff will develop and maintain the necessary servers and software, and the participant pool, including any hardware sent to the participants. VERA community volunteers will have roles in overseeing all operations, formulating policies, and making decisions. The wider community will be engaged through a variety of in-person and virtual mechanisms.

In addition to fostering studies carried out by individuals or small groups of researchers, the VERA investigators will seek to catalyze *big-team science*—VR experiments conceived of, planned, and carried out together by large numbers of researchers pursuing common goals.