

MxRPC

A gentle introduction to computer technology

MxRPC (pronounced "Mixer PC") is an offline and mixed reality immersion program that allows someone to use their smartphone or tablet to learn about PC hardware, computer networking, and how to upgrade and repair common problems associated with those technologies. MxRPC uses augmented reality (AR) and engages the sense of sight, touch and sound to learn PC hardware and computer networking to become Mixed Reality (MxR). Augmented reality is used to superimpose a digital object within the real world so someone can touch and hold a virtual CPU or stick of RAM. They will have a fully virtual 3D computer tower to see how the parts all fit together and be able to identify each component.

Users will be able to play videos that explain the functions of each component and see how data packets traverse networks with animations. They will have quizzes that test their knowledge and challenges that will test their hands-on skills. MxRPC will employ Webb's Depth of Knowledge (Webb, 1997) to move beyond identifying components and defining what it does, but will also present challenges so students learn when to upgrade a component, how to use that component for other purposes, and how it supports their coding and gaming requirements.

The Capstone for the PC hardware learning module will be a mixed reality computer where students will assemble all the parts to create a working virtual computer. They will also experience some challenges along the way which will help them learn PC repair and troubleshooting.

The easy and inexpensive availability of tablets and smartphones allows this type of technology to be available to anyone and anywhere and can help train someone to be a computer support specialist. However, it can also be used to supplement general instructions about how computers work. Instead of discussing abstract content, teachers could select relevant modules from the MxRPC app that helps students visualize how computers work. Accordingly, MxRPC will be available as a supplemental aid for any computer textbook that discusses computer hardware and networking. For example, a firewall is a device used to filter network traffic. Regardless of the textbook

used, students will be able to build a virtual LAN in 3D and animations will be available to show how the firewall actively blocks or allows network traffic to and from a virtual Internet.

Who is MxRPC for?

Anyone. Schools, prison education programs, drug rehabilitation centers, homeless shelters, home hobbyist, someone transitioning to a technology support role, or preparing employees for new careers. MxRPC introduces people to computer technology and teaches them computer support skills.

MxRPC is being designed with the following features:

1. Integration with existing lesson plans for educators

Don't change your current content, just make your lessons more interactive

2. Share AR experiences in the classroom

A concern for educators when using devices in the classroom is not being able to control what the student is doing. With MxRPC instead of talking about a computer and passing it around and losing their attention as you discuss another component, they can connect to the teachers PC and everyone can see the AR experience. Teachers can also see who is and isn't connected.

3. Educators can use their existing assessments

You can load your existing assessments into MxRPC. We are working to make MxRPC as seamless as possible to adopt. During our research and development, we will work with educators to learn how to best accomplish this task.

3. Track progress

Educators, managers, social workers, etc. can see progress in realtime and keep track of users to ensure users are completing the lessons.

5. Learning network

Knowing whether a product is working is good to know in real-time and sooner rather than later. MxRPC users can optionally share the progress (not personal user information) with a larger community to determine how well MxRPC is working. We analyze the data to help make the product better and we make the data public so the community and policymakers can see MxRPC's effectiveness.

6. Full Curriculum included

If your school or organization doesn't currently have someone that can teach computer technology, MxRPC comes with a full curriculum, how-to guide, and lesson plans that integrate the AR experiences. We can also provide remote support for organizations that need assistance in getting someone started or to respond to questions.

When will MxRPC be ready?

We are aiming for January 2020.

References

Webb, N. L. (1997). Determining Alignment of Expectations and Assessments in Mathematics and Science Education. *Nise Brief*, 1(2), n2.