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Build the Navy for Virtual Reality

The Navy should develop a virtual reality game for mass consumption, but the ultimate beneficiary would be the service itself. A high-quality game not only would contribute to the training and development of the force, but also would aid recruiting.

In the late 1990s, U.S. Army officers at West Point's Office of Economic and Manpower Analysis had a wild idea: create a high-quality, first-person-shooter video game for personal computers and release it as a free download. America's Army was a surprise success when it came out in 2002, praised for its realism, high-quality and engaging gameplay, and multiplayer online features that connected players around the world.

Sixteen years later, America's Army continues strong. With upward of 50 major and minor updates and content additions, it boasts a player base of several million active accounts and recently earned a multiplatform player base with Xbox, mobile applications, and a Playstation version released in July 2017. ¹ It has become one of the most successful Army recruiting tools in history; has seen expanded use in public relations events and internal training; and has been requested by non-Department of Defense agencies such as the Secret Service.

So, where is the America's Navy game? There isn't one.

The success of America's Army and the lessons learned from some of its key developmental challenges could inform how the Navy could develop a virtual reality (VR) game to achieve similar recruitment, training, and professional development goals.

The Navy Needs a VR Game

VR technology has the ability to transport a player to immersive, 360-degree environments. Commercial off-the-shelf (COTS) VR options are plentiful, and home systems such as Oculus Rift and HTC Vive have become more popular since they hit the market in late 2015. More than 100 million VR units shipped in 2016, with consumer demand expected to increase as both headsets and content improve. ²

Nearly 50 percent of the world's population plays video games, and companies such as PricewaterhouseCoopers are capitalizing on commercial gaming as a recruiting and training tool "that allows students to virtually experience what it's like to work for the firm." ³ The Entertainment Software Association reports that, as of 2016, 155 million Americans regularly play video games, 63 percent of U.S. households have at least one person who plays games three or more hours a week, and almost half of those frequent gamers play games with multiplayer (social) components. ⁴

A recent study by a U.K. think tank used America's Army as a case study for employing video games to recruit and train younger individuals (what it calls the "Digital Generation") and came to several conclusions:

- Interactions with the Digital Generation must be engaging, authentic, and transparent; "nothing is better than an online game for accomplishing this."
- Many in the Digital Generation will expect to virtually explore and even "test drive" organizations in which they have an interest.
- Games and simulations can prepare potential recruits for the job.
- Business cases for using games and simulations in this manner should take into account recruiting, learning and development, and increasing performance of the current workforce. ⁵

The Navy's afloat environment could offer a unique experience for those who crave virtual reality content and would engage the Digital Generation in ways that other mediums cannot match.

Naval war gaming on personal computers and consoles has been successful for years, with the best-selling titles World of Warships, the BattleStations series (Midway and Pacific), and older titles with great "replayability" such as the Silent Hunter series and Jane's Fleet Command. Despite numerous bugs and lack of developer support, games such as Dangerous Waters continue to make the top-ten list on wargaming sites. The success of these games presents an opportunity the Navy could exploit to recruit and train sailors.

As a start, the Navy could conduct a cost analysis on creating a publicly released virtual reality experience in light of new COTS hardware and software options to determine if acquisition is affordable. The internal and external benefits of such a game could be studied in greater detail by the Office of the Chief of Naval Operations, and acquisition professionals could work with America's Army developers to gain lessons learned, program management resources, and points of contact for industry experts.

America's Navy

Perhaps most challenging would be creating a game worth playing. To do so, the Navy must partner with a titan of the gaming industry, such as Activision or Ubisoft, to design the game with experienced developers. America's Army offers a case study in startup game development, and while many mistakes were made, the Army managed to retain total control of the game's content and publishing options. The Navy must follow a similar model, but where the Army developed the game in-house, the Navy should leverage industry to build a game even more people will want to play.

The game should start by building on existing virtual training, such as a ship-driving simulator similar to the Conning Officer Virtual Environment (COVE), and also should reimagine a shipboard environment inside virtual reality to incorporate damage control and navigating spaces. Combat scenarios within the ship's combat information center (CIC) also should be part of the game. The main campaign could move seamlessly among these various "levels" to give the player the experience of shiphandling and seamanship, shipboard life, damage control, and standing watch in CIC, all within a virtual reality space. An ad hoc challenge mode could return players to those scenarios for replayability, separate from the main campaign, with semirandomized scenarios to keep things fresh. Finally, a multiplayer component should be included, possibly cooperative modes of play with different players playing various watch stations. ⁶

Developing in VR offers unique player interactions that two-dimensional gaming cannot replicate and is a near-perfect medium for the Navy to create a captivating environment. Using controllers, players can manipulate objects in the game

environment (such a fire bottle or the throttle control on the bridge) with their hands, and a built-in microphone enables players to give voice commands (such as a conning officer giving orders to the helm).

A possible expansion to the game's main modes could elevate the player to the operational level of war, creating a strategy game with multiple ships in play. This mode of play would be well suited for multiplayer, would have high replayability, and, if done well, likely would become the most popular game mode. Yet another potential game mode could center on special operations, with players using a variety of publicly known special warfare equipment to eliminate drone targets, conduct a search-and-rescue operation, or provide humanitarian assistance in a timed exercise.

Why Release Commercially?

A commercial release allows the game to propagate to gaming market consumers and show a new generation of potential recruits the exciting aspects of life at sea. Simultaneously, current sailors can sharpen at-sea skills in the comfort of their own living rooms without the need to schedule overbooked, on-base simulator time. The game even could recognize active-duty personnel in unique ways that would both incentivize their participation and allow them to serve as virtual "mentors" to the masses playing alongside them. In addition, the Navy should consider the benefits for reservists, who are starved for training opportunities and would embrace a VR game as a way to maintain their connection with the active-duty force.

America's Army cost taxpayers \$33 million in development and sustainment funding over ten years—far less than the hundreds of millions of dollars spent on traditional recruiting and training methods.⁷ While the Army's game propagated for free, the Navy's game should have a small purchase price, allowing the Navy, game developer, and publisher to recoup development costs and, if the game generates a profit, reinvest in bug fixes, new features and modes, and follow-on titles. Game development is not cheap, especially if done to the standards the public expects, and the Army's original \$7 million budget for America's Army quickly was discovered to be insufficient. Charging a fair market price for a quality, replayable VR experience is not only reasonable, but also expected, as the player base would view such a game as an investment for follow-on content updates.

A "for official use only" version, or even a classified version, could be developed simultaneously for internal training purposes to improve current virtual training efforts or to push virtual training to the tactical level. For example, use of low-end VR solutions such as Google Cardboard at the shipboard level would allow watchstanders to receive out-of-band, on-demand training without getting under way or entering a training team environment that would disrupt other scheduled events. This on-demand, local, virtual training would enable the Navy to reduce backlogs and scheduling concerns with waterfront training facilities such as full bridge simulators or smaller COVE stations.

It Is Time for America's Navy

The gaming market is growing, and industry statistics show a Digital Generation of future sailors hungry for content. The drive to push virtual reality gaming into the mainstream presents a unique opportunity to create an America's Navy VR game to aid recruiting and contribute to the training and development of the current force, but the advantages do not stop there. Imagine the Naval War College developing a new war game scenario for the game and having that scenario play out in unique ways for hundreds of thousands, perhaps millions, of players, some of whom may discover new ways to overcome tactical obstacles that our academic, doctrine-minded organizations did not consider.

The Navy already is taking advantage of virtual reality within various training pipelines to train seamanship, shiphandling, navigation, and shipboard tactical scenarios.⁸ While these virtual training experiences have proved successful, they lack accessibility, with long periods between potential "reps and sets" for sailors. The training concepts the Navy practices within closed virtual reality can be sanitized for public consumption and capitalized on by experienced game developers to create engaging VR content for mass consumption, with the ultimate beneficiary being the U.S. Navy and a readier force.

1. Nikki Ficken, "[America's Army Set to Release July 18 on Playstation](#) [4] ," AMRDEC Public Affairs, U.S. Army, 14 July 2017.

2. Paul Armstrong, "Just How Big Is the Virtual Reality Market and Where Is It Going Next?" Forbes, 6 April 2017.

3. Louis Efron, "How Gaming Is Helping Organizations Accelerate Recruitment," Forbes, 14 June 2016.

4. Ibid.

5. Career Innovation Group, "[Case Study: How the U.S. Army Has Pioneered the Use of Game Technology to Recruit the Digital Generation](#) [5] ."

6. Ubisoft, Star Trek Bridge Crew [official website](#) [6] .

7. Jim Edwards, “ America’s Army Recruitment Video Game Cost Taxpayers \$33M ^[7] ,” CBS News Moneywatch, 11 December 2009.

8. Office of Naval Research, “ The Conning Officer Virtual Environment—Intelligent Tutoring System ^[8] .”

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