NAWCTSD

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Virtual Recruit Tracker (VRT) Research Development Training & Education (RDT&E), Transition and Production

Final Report

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Executive Summary

The Virtual Recruiting Study identified the Delayed Entry Program (DEP) as the most crucial area where a training tool should be implemented that could positively benefit Future Sailors' preparedness for recruit training. The study results performed by the Naval Air Warfare Center Training Systems Division (NAWCTSD)'s Manpower and Studies branch are published in the Virtual Recruiting Analysis and Process Development Study: Final Report, available at https://apps.dtic.mil/sti/pdfs/AD1047005.pdf. Partnering with stakeholders, NAWCTSD moved forward with prototyping the Virtual Recruit Tracker (VRT) system depicted in Figure 1. The three primary components of the VRT system include a recruiter dashboard called Management Component (MC), the VRT Mobile Application called eHelm, and cloud-based storage (Learning Record Store (LRS)) that captures interactions between the first two components. The Government stakeholder organizations are Navy Recruiting Command (NRC): Training and Quality Assurance (N7); Strategy, Assessments and Innovation (N5); Information Technology (N6); and Manpower, Personnel, Training, and Education (MPT&E) Research, Modeling, Analysis, and Assessments Branch (OPNAV N1T). The primary end-user groups are recruiters (Onboarders) responsible for onboarding Future Sailors within the Navy's DEP for enlistment and individuals within the Navy's DEP who are under contract to report to the Navy's boot camp at a future date (e.g., Future Sailors). The deliverables include system requirements documentation, and a software prototype of VRT (containing the MC; ongoing maintenance of the mobile application eHelm; and the Content Packaging Application (CPA), an anonymized communications layer, i.e., xAPI, between the mobile application and the MC, and the cloud-based storage). Results from the experimental usability testing of the VRT prototype are published in the Virtual Recruit Tracker (VRT) and Delayed Entry Program (DEP) Management and Training Tool: Phase 1.0 – Interim Report, available at https://apps.dtic.mil/sti/pdfs/AD1067908.pdf.

Figure 1: Graphical Overview of VRT System

It was believed that a decrease in physical interactions with Future Sailors while in DEP would likely increase DEP attrition. NAWCTSD and an industry partner were motivated to enhance existing training content so that it becomes more interactive and engaging for Future Sailors to train on. Knowledge assessments for more feedback on knowledge progress was developed along with specialized training videos, Card App, Resilience Module, and specialty training content provided by NRC. The premise being the more engaging the tool, the more the Future Sailor trains, the more prepared they are for recruit training, the greater likelihood for success at Recruit Training Command (RTC) and ultimately throughout their Navy careers. It is expected that preparation and success at RTC translates into fewer attrites (personnel losses). The primary metric developed to account for engagement is Future Sailor "usage" of the mobile application, via statements detailing the training activity. Individual statements are tracked and aggregated to compute a usage/engagement score based on each activity the Future Sailor (FS) trains on. A statement is comprised of four components: 1) Actor - the individual user that interacts with the training content, i.e., Future Sailor, 2) Verb - the type of interaction the actor performs (read, watched, scored, measured, etc.), 3) Object - the content that was acted upon by the actor, 4) Content/Results - additional details about the interaction such as the date and time when training activity occurred, scores from knowledge challenges, activity completed, etc.

It was further recognized that the COVID-19 pandemic would exacerbate DEP attrition. This presented a prime opportunity to deploy the VRT. On 7 April 2020, NAWCTSD launched its cross-platform (iOS, Android, Windows) VRT Mobile Application (eHelm), which allowed Future Sailors nationwide to download eHelm and access DEP training in a mobile environment. Figure 2 depicts eHelm downloads over time. As of the one year deployment anniversary, the usage average was 42 statements per Future Sailor (i.e., user), where Average Usage is defined and computed as total statements (i.e., 895,163) divided by total eHelm downloads (i.e., 21,510). The prototyped MC transitioned to NRC N6 for implementation, maintenance, and sustainment; however, NRC elected to postpone its implementation. Through analysis and reporting support, NAWCTSD created an interim reporting process in the absence of recruiter capability to track and document the training progress of Future Sailors at the district and Future Sailor level.

This report focuses on the architecture in the transition from Research Development Training & Education (RDT&E), and the new capabilities and functionalities of the mobile app system, before covering sustainment of the app while in the production environment. The complete Onboarder's perspective of analysis and results, usage statistics, and performance comparative analysis at RTC after sharing the science and technology of eHelm, LRS, and the training content will round out the report.

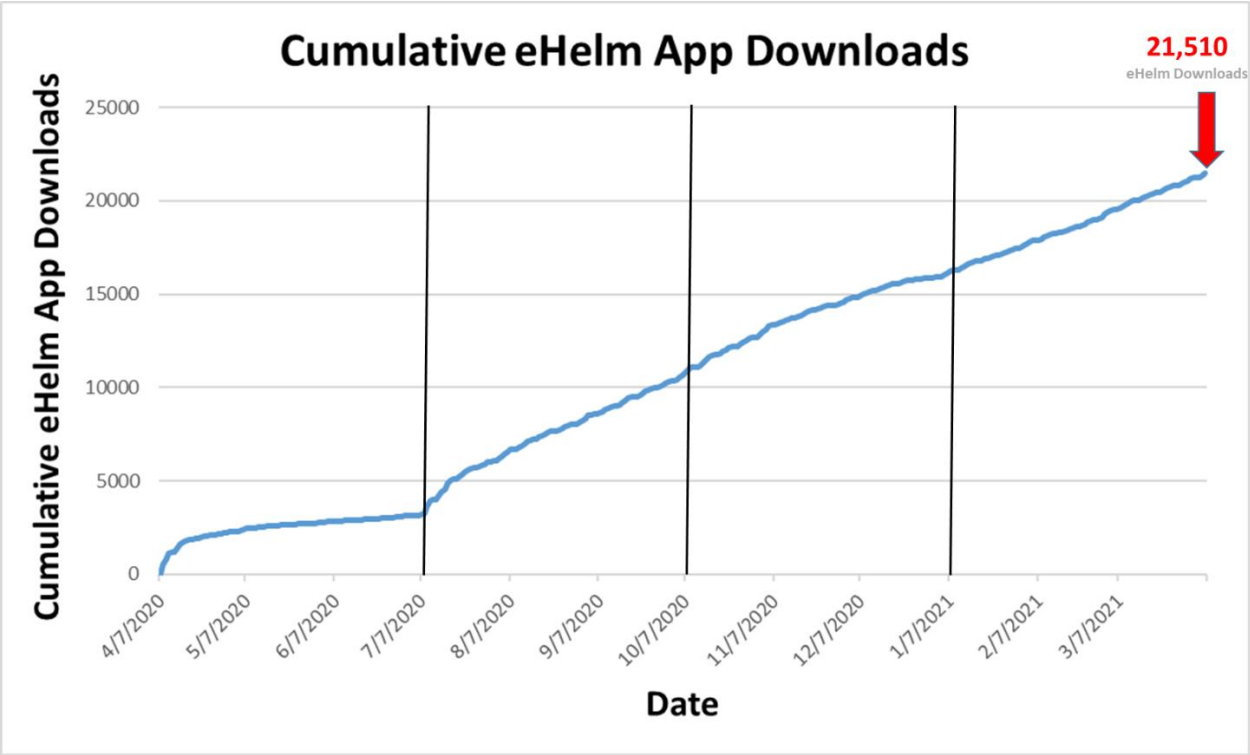


Figure 2: eHelm Download Totals as of Date (7 April 2021)

Virtual Recruit Tracker (VRT) Production Environment

In response to the physical footprint of recruiting stations being reduced nationwide along with the face-to-face interactions of recruiters/ Onboarders with Future Sailors while in the DEP, NAWCTSD successfully developed and tested the virtual recruit tracker prototype system and transitioned the system to Navy Recruiting Command's production environment. This section will discuss the steps employed to transition the VRT system from a Research Development Training and Education (RDT&E) environment to its production environment within Navy Recruiting Command.

Transition from RDT&E

The VRT system was designed to explore the effectiveness of a virtual environment while enhancing active recruiting by providing a tool for recruiters to track learning progress as Future Sailors interact with DEP training materials. Each of the three major components of the system (i.e. MC, LRS, and the Mobile App) carried its respective concern of protecting PII, implementation within a NMCI compatible environment, and network hosting and information technology security considerations. The VRT System Architecture depicts the interactions of the principal stakeholders (Future Sailors and Recruiters), see Figure 3 for a visual representation of the system architecture. Note: this is fully explained in the Virtual Recruit Tracker Phase 1.0 Report (NAWCTSD Millington). Notable dormant functionality are highlighted in red and

indicate capabilities not on the Future Sailor's device or currently not implemented by Navy Recruiting Command. Of significance is the VRT_eHelm_Monthly Report stored in the VRT Database (DB). This is developed by NAWCTSD to support recruiters/Onboarders as they track Future Sailor progress in lieu of the MC not yet being implemented. The VRT_eHelm_Monthly Report will be fully discussed later in the Results and Analysis Section of this report. Reference to the architecture is to emphasize the importance of the Future Sailor and recruiter interaction with the tool and the resultant benefits when securely tracking, storing, and reporting usage activity. From these interactions, NAWCTSD's two major concerns when transitioning from RDT&E were 1) developing an approach to generate and distribute a quick response (QR) code without a significant burden placed on recruiters/Onboarders, and 2) identifying and facilitating the requisite host for all aspects of the system while avoiding the collection and storage of personally identifiable information (PII).

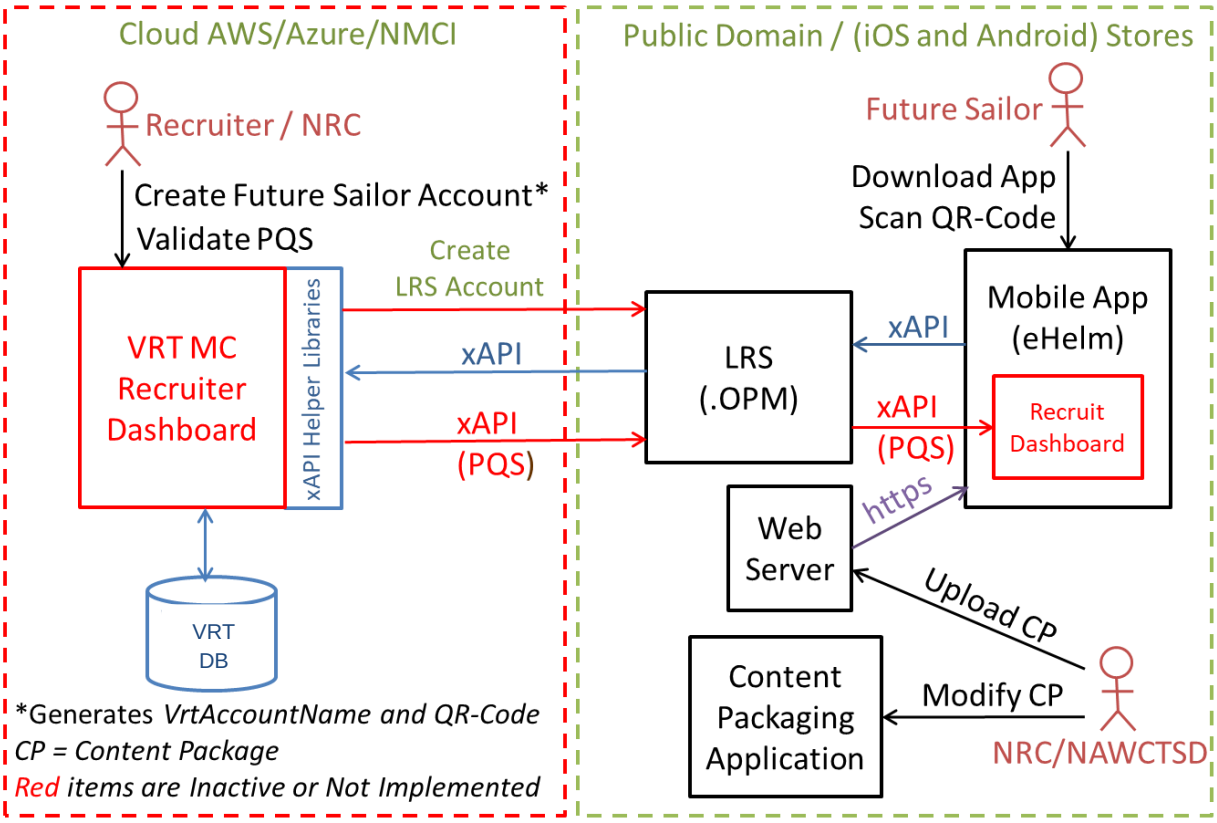


Figure 3: VRT System Architecture

Since it is not yet implemented, the MC is not used to generate the QR code for recruiters to print or email to Future Sailors for them to download eHelm and the VRT DEP training content as prototyped. Given the absence of the MC, recruiter to Future Sailor interaction is key for linking the anonymize number (e.g., eHelmID) to individual Future Sailor records in the Navy's enterprise database (e.g., PRIDEMODII, Personalized Recruiting for Immediate and Delayed Enlistment Modernization II) for analysis. The VRT database (DB) includes training statements from the LRS and Future Sailor records from the Navy's enterprise database linked by crosswalk information provided by recruiters/Onboarders and is maintained by NAWCTSD's database administrator. To generate and distribute the QR code, NAWCTSD partnered

with the NRC N3 Operations Director to draft and release Operation Note 96 (OPNOTE96) contained in Appendix A. Stakeholders followed the instructions and guidance below:

1. Navigate to the NAVAIR (https://appstore.navair.navy.mil) or Public App Store (iOS or Android) to obtain the mobile app eHelm.
2. Once you have downloaded eHelm (which is a blank application shell) you must scan the QR code to initialize the application with the DEP Training Content package – VRT. Unlike the RDT&E environment, the QR code is not unique to each Navy Recruiting District (NRD) or Navy Training Acquisitions Group (NTAG).
3. A random Global Unique Identifier (GUID), called an eHelmID, for each Future Sailor's instance of the DEP Training Content is the mechanism used to track and verify learning progress of each individual Future Sailor. The Future Sailor must provide this GUID/eHelmID to their recruiter/Onboarder for later linking and analysis. Note: the Future Sailor is the **ONLY** person who has this eHelmID until it is provided to the recruiter and it contains no identifiable information within it thus eliminating the storage or exchange of PII on a public network.
4. Future Sailors can now begin training. Since the DEP Training Content package is loaded on the device (i.e., BYOD, Bring Your Own Device), training is being tracked using the eHelmID and can be accomplished online or offline. This is a distinction from, for example, a Web site, where training can only be accomplished while online.
5. Recruiters/Onboarders can now match the eHelmID, provided by the Future Sailor, with Social Security Numbers (SSN) already known and secure by the recruiter/Onboarder through the PRIDEMODII database, to track all training progress given by the LRS and tagged with an eHelmID.
6. Recruiters/Onboarders may provide eHelmIDs to NAWCTSD Analyst for support and reporting like those found in the VRT DB Report.

The Training Content, LRS, and eHelm in Figure 3 required hosting in the public domain as the system transitioned from RDT&E. All files and source code were securely packaged from a single development Web server environment (i.e., .edu) where RAM (random-access memory), hard drive space, and appropriate bandwidth were allocated and distributed for the training content and LRS. The VRT Mobile App (eHelm) also had its code Fortify scanned to ensure it is free of malicious virus or malware before being uploaded into the host environment. The VRT Mobile App (eHelm) transitioned to be hosted onto the iOS, Android, and NAVAIR Public App Stores. NAWCTSD facilitated the hosting of the LRS by the Office of Personnel Management (OPM). Since the division of server resources varies depending on the type of hosting plan chosen, NAWCTSD contracted a hosting agreement with OPM on behalf of NRC that must be renewed annually as part of the sustainment of the LRS. Training Content Web sites are hosted on NRC's N6 servers as a service, as NRC are the managers and owners of this content. In the production environment, where hosting services are distributed between three different entities, keeping the system operational requires critical coordination, especially as changes or updates are needed. The following section will cover sustainment and maintenance of the app while keeping it relevant for end-users.

Sustainment

It is paramount to have the system fully operational at all times. Sustainment of the tool involves enhancements, updates, hardware/software fixes, or other hardware/software maintenance. Figure 4 indicates that analyses are conducted at the end of the process to capture insight. Specifically, what needs an update and when, is often decided through usage analysis. Within VRT, the Training Content, LRS, and

eHelm are primary candidates for change. Usage analysis and monitoring of the app's performance over time provide excellent indicators of where improvements might need to be made in the tool in order for the tool to retain its interest and relevance (Oragui, 2018).

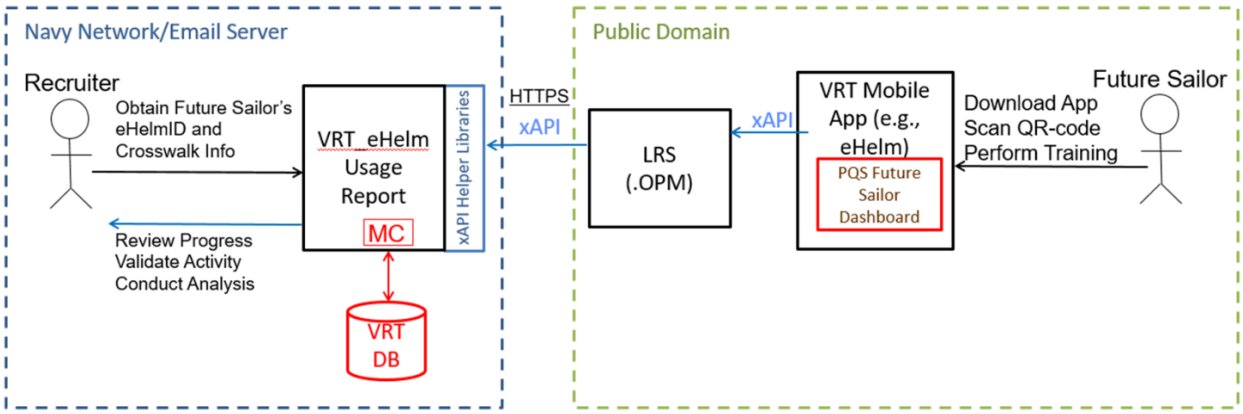


Figure 4: VRT_eHelm Usage Report/LRS/Mobile App

A review of the Frequency of Single Choice in Figure 5 indicates the Personal Qualification Standards (PQS) Future Sailor Dashboard (104) is of interest to a Future Sailor and is in the top four areas opened to obtain information. Figure 5 shows that checking one's training verification status was the single choice of an area to explore, beyond going first to Knowledge Pre-Check (i.e., the first navigation area of the tool) or watching a required video (i.e., Faces of Boot (FOB) Camp and Sexual Assault Prevention and Response Directive (SAPR-D)). The PQS Future Sailor Dashboard module in Figure 4 was designed to track training completion as verified by the Future Sailor's Onboarder/recruiter. Future Sailors train, then Onboarders verify their training (using MC), and a final status is given through this dashboard back to the Future Sailor. The Future Sailor would have automatically received his/her verification status from the PQS Future Sailor Dashboard if MC functionality were implemented, Figure 4 (i.e., red outline represents not implemented functionality). Analysis of how users interact with the app are good reasons for adding new features/sustainment and should motivate those responsible to implement functionality that can support that interaction. Enhancing the app with this functionality will help keep Future Sailors interested, meet the need of the end user, and allow NAWCTSD to maintain a positive brand on eHelm (Oragui, 2018). Understanding popular training activities is also important when making training more effective for Future Sailors because it identifies areas in which to reap a better return on investment (ROI) when refreshing training content.

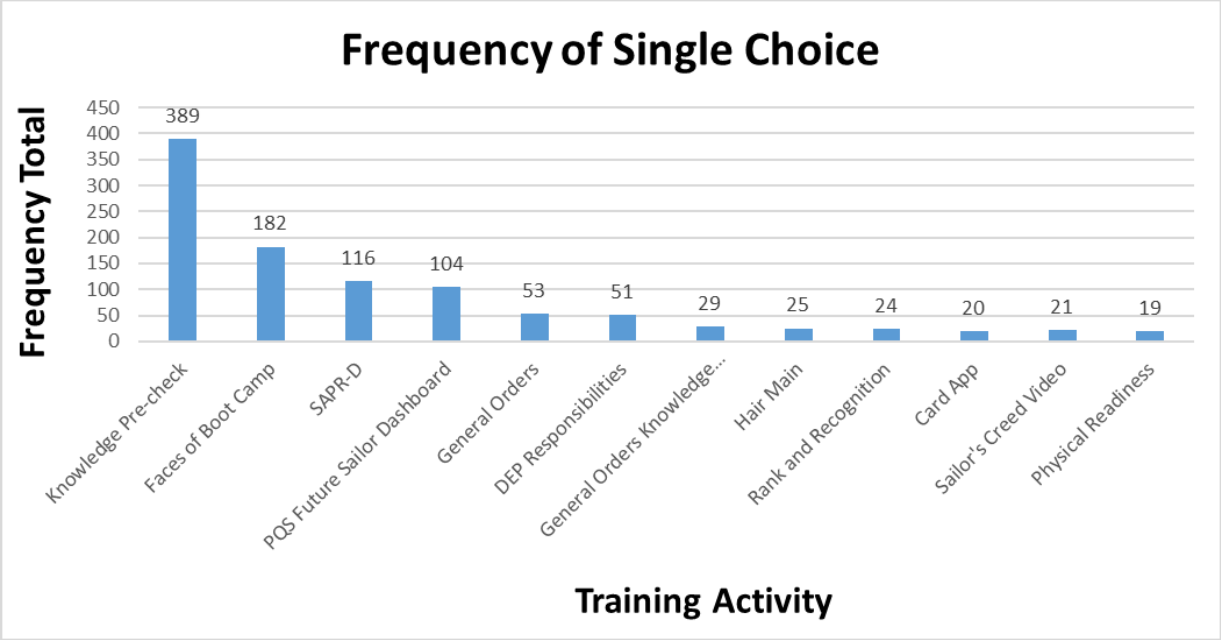


Figure 5: Future Sailor Frequency of Single Choice

Training Content updates are common requests by the curriculum owner, therefore sustainment for this is scheduled for once a year at a minimum. Beyond curriculum owner requests, analysis provides a priority on which popular training activities to update, such as General Orders and Sailor's Creed. VRT Training Content is approved and provided by NRC N7. If the Training Content is new, NRC N7 must also decide where to incorporate it within the tool. After the desired changes are made to the Training Content, the Content Package Application (CPA) must be used to rebuild the changed areas and any Knowledge Challenges or Interactive Quizzes that were modified must be recreated. The CPA can at that point create, "zip", and export the content package for deployment to the directory on CNRC.navy.mil Web site pointed to in the QR Code. The process can take anywhere from one hour to several days depending on the amount and depth of the desired changes and testing results prior to deployment.

With distributed hosting of the Training Content, LRS, and eHelm, coordination is important and will directly impact whether the tool can remain operational during sustainment. OPM monitors the system for uptime and xAPI access, monitors system xAPI endpoints to ensure system availability, checks license(s) for compliance, and plans for environment upgrades to be performed in the next fiscal year. Currently any changes made to the LRS goes through NAWCTSD with the approval of NRC N7 before being implemented by OPM.

In general, hardware/software fixes may have a more urgent timeline than planned hardware/software maintenance, but coordination remains paramount. For the VRT Mobile App (eHelm), changes were scheduled and communicated between the Training Content owner (NRC N7), NAWCTSD's VRT Principal, and Information Technology (NRC N6). The standard operating procedures (SOP) for Training Content updates, steps for xAPI library/ statement changes, and the deployment process are detailed in Appendix B. The sustainment of eHelm is in an ad-hoc status and described below.

An update to eHelm may be required if a severe bug is discovered, the app stores (Apple/Google) require an update, or an operating system (iOS/Android) update impacts the functionality of eHelm. One example of eHelm requiring an update is when Apple no longer supported the UIWebView. eHelm was written with Xamarin Forms, which used the UIWebView in iOS to display Web content such as quizzes and interactive content. Future releases of eHelm will require an update to Xamarin Forms in order to remove the references to the UIWebView. This will likely require updating the eHelm source code to ensure the removal of references to the UIWebView. For more information see:

- ITMS-90809: Deprecated API Usage - App updates that use UIWebView will no longer be accepted as of December 2020. Instead, use WKWebView for improved security and reliability. Learn more (https://developer.apple.com/documentation/uikit/uiwebview).
- https://devblogs.microsoft.com/xamarin/uiwebview-deprecation-xamarin-forms/

Recently eHelm was updated to include functionality for importing QR Codes from the device's internal library. This is not currently implemented in the publicly released App. This update required using a version of the Zxing (Zebra Crossing) barcode scanning library that was compatible with the current version of Xamarin Forms. The device loads the QR Code into a bitmap format and then the Zxing library reads the data from the QR Code. This data contains the URL that eHelm will use to download a content package along with other import meta data.

The biggest challenge to the sustainment of eHelm is ensuring all the numerous libraries utilized are compatible when updating major frameworks as required by the app stores. Apple and Google typically require OS/Framework updates when releasing to the app store. In most cases these OS/Framework updates also require an update to core app framework, Xamarin Forms. Once Xamarin Forms is updated, the other referenced libraries may also require updating. It is possible that libraries used in the past are not compatible with the current version of Xamarin Forms and could require updates to the source(s) such as removing the incompatible library. Getting all the profiles updated throughout may take weeks due to the wide range of interactions. An intermediate step is to release the updated or enhanced version of the App to TestFlight for beta testing. TestFlight is an online service offered to iOS developers only that allows over-the-air installation and testing of mobile applications to collect constructive feedback before releasing the App on the App Store (Apple, 2021). Once all known issues are mitigated then a final version can be moved to the Apple and Google app stores. Consequently coordination with the NAVAIR team is essential to avoid incompatibilities and unforeseen circumstances during sustainment.

Science & Technology

This section contains a description of the implemented components of the physical VRT system as it exists, operates, and is observed from an emerging technology perspective. The learning strategies applied to mobile, learning data stored and reported via Experience API (xAPI), and media application of Instructional System Design (ISD) is shared for the purpose of documenting the complete system and expanding the science and technology in these arenas for future improvements in the tool.

eHelm

The VRT Mobile App/eHelm could be assumed as one component, but there is a distinction with importance. eHelm is a “mobile application shell” that exists to host training content for varying end users. The VRT is one such use case for providing mobile-based training to Future Sailors in the Navy’s DEP. VRT training content is designed specifically for the Future Sailor to receive training while in DEP. The modernized technology implemented within the Training Content will be discussed later and is meant to be synonymous with the VRT Mobile App.

eHelm provides a single user experience to “as-is” training content. In other words, the training is BYOD and not in a classroom setting. eHelm displays legacy and new training content in a user-friendly mobile app without the need for re-development of the content. This content is referred to as a content package. For the VRT, its legacy content package was provided by the functional stakeholders, NRC N7, before being enhanced and implemented in eHelm. eHelm allows xAPI metrics to track content usage as well as provides the ability to send custom statements such as quizzes.

eHelm is currently on the Google and Apple public app stores, as well as the NAVAIR Mobile App Store <https://appstore.navair.navy.mil> and can be downloaded by anyone with an Android or iOS device. eHelm was developed using a cross platform development solution called Xamarin Forms. By using cross platform solutions, the app development is significantly more efficient as large amounts of platform specific code (Android/iOS) is greatly reduced. This allows the developers to use the same code base for the majority of the eHelm app. To use eHelm, a QR code is provided to the user from the content owner (i.e., NRC N7). The user can then scan the QR code from within eHelm, which will allow eHelm to download the content package. The VRT content package is hosted by NRC N6. Once this content package is downloaded, the user can view the curriculum from within the app as depicted in Figure 6. NAWCTSD uses another in-house developed software application, Content Package Application (CPA), to organize the content prior to being loaded into eHelm.

The CPA is a Windows desktop application that provides a simple user interface that does not require specialized software expertise. The CPA allows curriculum managers and owners to interactively import, organize, and package existing or newly developed training content (e.g., PowerPoint presentations, videos, PDF documents, Hypertext Markup Language (HTML) pages) for consumption by the eHelm mobile app. As mentioned, NAWCTSD took existing legacy content, provided by NRC N7, and loaded it into the eHelm mobile application using the CPA. The CPA handles all of the work of “converting” the content so that it can be viewed on mobile devices, thus the "first step" in mobile. However, NAWCTSD tremendously enhanced and developed new VRT Training Content in Phase 2 to be transitioned and employed via the CPA to organize and load it into eHelm.

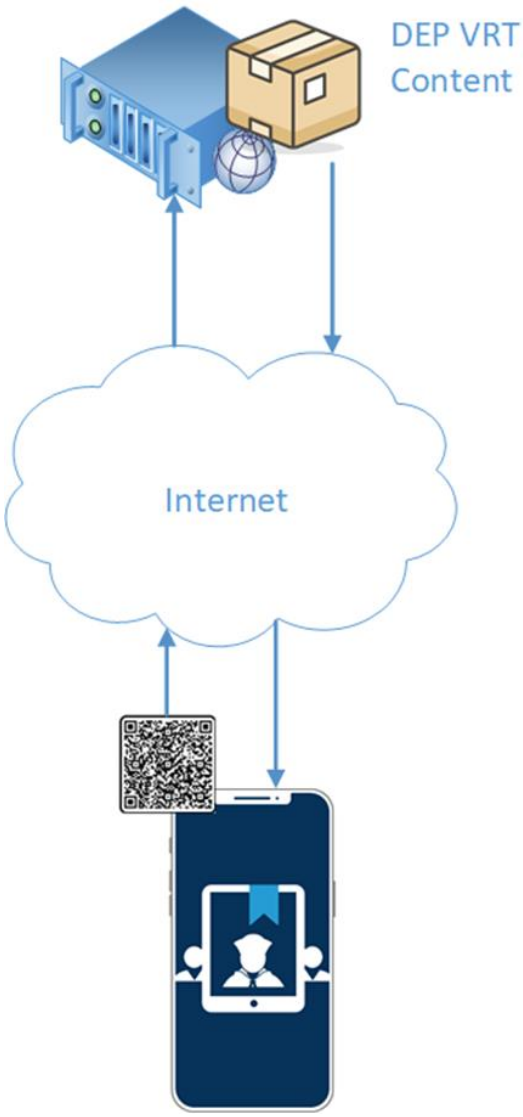


Figure 6: VRT Content Loaded on eHelm

CPA-supported training content is listed below and Appendix C provides the work around(s) to any limitations of this training content.

The CPA supports the following content, which is typically the form for legacy content:

- Microsoft (MS) Excel
- External URLs (Web sites, YouTube, etc.)
- Images
- PDF
- MS PowerPoint
- Video
- Web/HTML5
- MS Word documents

Usage metrics collected while the device is not connected to the internet are saved on the device. This capability allows Future Sailors to train using eHelm without internet connectivity. This is by design and not limited such as training via a Web site where you must be connected to the internet for metrics to be collected. The app also provides features such as interactive note taking, searching, and bookmarking. The eHelm application provides usage metrics back to curriculum managers, giving them insight into how the content is being interacted with. What content items, what parts of the content, how often it is opened, etc., are all data points that eHelm tracks and collects to be provided to managers.

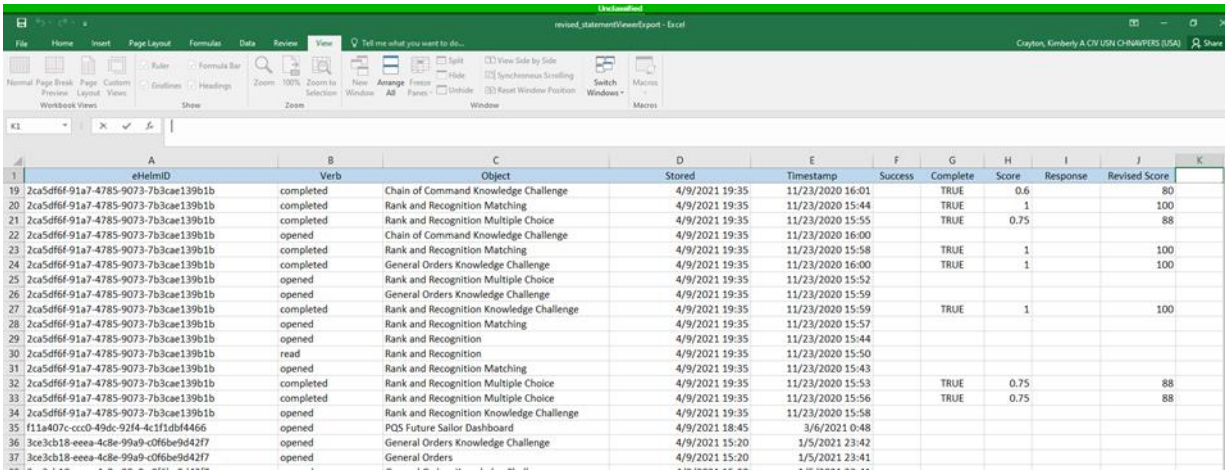
Learning Record Store (LRS)

The data layer is called the Learning Record Store (LRS). The LRS data layer is built on the Experience Application Programming Interface (xAPI) protocol. The LRS is the data layer that allows storage of learning experience and usage metrics to give insight into how training content is being interacted with on eHelm. A LRS is an innovative storage system that uses an xAPI protocol, which is a specification for a learning technology that makes it possible to collect data about what parts of the training content was learned from, how often it was interacted with, and how the learner performed when taking a quiz (What is the Experience API?, 2021).

The LRS continues to be at the heart of all VRT data analysis efforts, and has played a pivotal role in both the engineering and S&T. From the engineering perspective it acts as the location for all xAPI content usage statements. It is the mechanism used to merge the public-facing anonymized data with the protected Navy data. It allows the content usage metrics from the user to be made available to the VRT stakeholders.

NAWCTSD partnered with the OPM, to facilitate the hosting of the LRS for NRC N7. The OPM-hosted LRS acts as the gateway into the S&T analysis efforts. The LRS was upgraded to support various timestamp-based approaches to data collection for analysis. Additionally, there were multiple dashboards created to give a view into data collection that was previously unavailable. Figure 7 shows an example of the learning experiences tracked by eHelm, using xAPI statements from the LRS. The LRS does not store the training content itself or the PII about the individual Future Sailors. Responsible stakeholders are able to access the LRS xAPI statements using a user name and password for analysis and reporting.

For analysis and reporting, statements are tracked to compute a usage/engagement score for each training activity of the Future Sailor. Statements are comprised of, at a minimum, an actor (i.e., eHelmID), verb, object, and a content/result (i.e., timestamp or score) as shown in Figure 7. The timestamp value is the time the training occurred. The stored value is the time the training was stored by the LRS or once the device reconnects to the internet if the device is ever not connected to the internet. Scores and Revised Scores are tracked for every Knowledge Challenge that is completed, as indicated by “TRUE” in column “G”. Revised Scores are displayed test scores on the Future Sailor’s device that range between 0-100. Scores are used in statistical analysis to compare one Knowledge Challenge to another. The object (i.e., Chain of Command Knowledge Challenge, Rank and Recognition Matching) specifically list the Training Contents the Future Sailor trained on within each statement before being recorded by the LRS. The S&T motivating the Training Content is covered in the next section.



	A	B	C	D	E	F	G	H	I	J	K
1	eHelmID	Verb	Object	Stored	Timestamp	Success	Complete	Score	Response	Revised Score	
19	2ca5df6f-91a7-4785-9073-7b3cae139b1b	completed	Chain of Command Knowledge Challenge	4/9/2021 19:35	11/23/2020 16:01		TRUE	0.6		80	
20	2ca5df6f-91a7-4785-9073-7b3cae139b1b	completed	Rank and Recognition Matching	4/9/2021 19:35	11/23/2020 15:44		TRUE	1		100	
21	2ca5df6f-91a7-4785-9073-7b3cae139b1b	completed	Rank and Recognition Multiple Choice	4/9/2021 19:35	11/23/2020 15:55		TRUE	0.75		88	
22	2ca5df6f-91a7-4785-9073-7b3cae139b1b	opened	Chain of Command Knowledge Challenge	4/9/2021 19:35	11/23/2020 16:00						
23	2ca5df6f-91a7-4785-9073-7b3cae139b1b	completed	Rank and Recognition Matching	4/9/2021 19:35	11/23/2020 15:58		TRUE	1		100	
24	2ca5df6f-91a7-4785-9073-7b3cae139b1b	completed	General Orders Knowledge Challenge	4/9/2021 19:35	11/23/2020 16:00		TRUE	1		100	
25	2ca5df6f-91a7-4785-9073-7b3cae139b1b	opened	Rank and Recognition Multiple Choice	4/9/2021 19:35	11/23/2020 15:52						
26	2ca5df6f-91a7-4785-9073-7b3cae139b1b	opened	General Orders Knowledge Challenge	4/9/2021 19:35	11/23/2020 15:59						
27	2ca5df6f-91a7-4785-9073-7b3cae139b1b	completed	Rank and Recognition Knowledge Challenge	4/9/2021 19:35	11/23/2020 15:59		TRUE	1		100	
28	2ca5df6f-91a7-4785-9073-7b3cae139b1b	opened	Rank and Recognition Matching	4/9/2021 19:35	11/23/2020 15:57						
29	2ca5df6f-91a7-4785-9073-7b3cae139b1b	opened	Rank and Recognition	4/9/2021 19:35	11/23/2020 15:44						
30	2ca5df6f-91a7-4785-9073-7b3cae139b1b	read	Rank and Recognition	4/9/2021 19:35	11/23/2020 15:50						
31	2ca5df6f-91a7-4785-9073-7b3cae139b1b	opened	Rank and Recognition Matching	4/9/2021 19:35	11/23/2020 15:43						
32	2ca5df6f-91a7-4785-9073-7b3cae139b1b	completed	Rank and Recognition Multiple Choice	4/9/2021 19:35	11/23/2020 15:53		TRUE	0.75		88	
33	2ca5df6f-91a7-4785-9073-7b3cae139b1b	completed	Rank and Recognition Multiple Choice	4/9/2021 19:35	11/23/2020 15:56		TRUE	0.75		88	
34	2ca5df6f-91a7-4785-9073-7b3cae139b1b	opened	Rank and Recognition Knowledge Challenge	4/9/2021 19:35	11/23/2020 15:58						
35	f11a407c-ccc0-49dc-92f4-4c1f1dbf4466	opened	PQS Future Sailor Dashboard	4/9/2021 18:45	3/6/2021 0:48						
36	3ce3cb18-eeea-4c8e-99a9-c0f6be9d42f7	opened	General Orders Knowledge Challenge	4/9/2021 15:20	1/5/2021 23:42						
37	3ce3cb18-eeea-4c8e-99a9-c0f6be9d42f7	opened	General Orders	4/9/2021 15:20	1/5/2021 23:41						

Figure 7: Anonymized Learning Record Store (LRS) Data, xAPI Statements

Training Content

All training content presented in the VRT mobile application has been reviewed and approved by NRC's Public Affairs Officer (PAO) and approved for unlimited release. The training content has its genesis with the START (Standards-Transition-Acknowledgment-Requirements-Training) Guide, which is a pamphlet given to Future Sailors upon entering DEP. The PQS items are the principal focus of the training content in the START Guide. However, the START Guide also contains other topics that are nice to know, but not applicable to all Future Sailors, such as Childcare, Female Hair Prep, or Accommodations of Religious Practice. The VRT Mobile App aligns with the START Guide in making PQS topics its prime focus, but includes other topics that are applicable to each Future Sailor such as Resiliency and the Enlisted Rating Web page that explains the career track of every rating in the Navy. A Future Sailor's first order is to read, understand, and acknowledge the information provided in the START Guide before shipping to RTC.

In Phase I, the VRT development team unified the branding of the legacy content provided by NRC N7 by refreshing the PowerPoints, PDFs, and hosting the videos on YouTube. The initial training content included entry-level training milestones such as indoctrination videos, physical fitness readiness and self-reporting, and knowledge challenge assessments to measure proficiency. In Phase 2, the VRT team resolved to deliver the PQS training content within a mobile application that is interactive, engaging, and convenient for the ultimate objective of preparing, motivating, assessing, and tracking Future Sailors' progress to increase their likelihood of success throughout DEP and recruit training. To achieve the team's primary purpose, NAWCTSD's ISDs analyzed the training content, employed Merrill's principals, and applied Mayer's multimedia guidelines to develop a strategy for the mobile app's specific delivery method. NAWCTSD partnered with the University of Central Florida's (UCF) Institute for Simulation and Training – METIL, to further enhance the training content. Learning and behavioral science was applied to specifically target motivation, engagement, and resiliency to improve learning outcomes and maximize learning retention. Various enhancements to make the training content interactive, such as gaming theory within the resiliency module, animated multiple choice questions on Quarterdeck Crossing, and compassionate language when providing feedback to the Future Sailor. Below are explanations of the science, investigations, and pilots conducted on the training content before inclusion into the VRT Mobile App.

Card App Content

Flashcards are extremely effective at helping learners retain factual knowledge and improve engagement. Brainscape sites three reasons flashcards are effective: 1) it uses active recall, requiring the learner/Future Sailor to think of the answer before seeing the answer, 2) it uses metacognition, requiring the learner/Future Sailor to self-reflect on how close their answer was to the correct answer, and 3) it uses confidence-based repetition, which allows the user to review the material as often or as little as they need (Brianscape, 2019). This is a proven way to improve memory. The flashcard capability included in the VRT training content carries each of these effectiveness benefits. The below screenshot depicts the answer given on the reverse side of the question, "Recite the 7th General Order of a Sentry." The Card App allows the learner/Future Sailor to rate his/her answers with the "thumbs up/down" on a six-point scale. This self-reflection is also tracked by the app to remind the Future Sailor of how often they should practice applying that knowledge as shown in Figure 8. There are seven topics, as determined by NAWCTSD's ISD that lend themselves nicely to flashcard presentation shown in Figure 9.

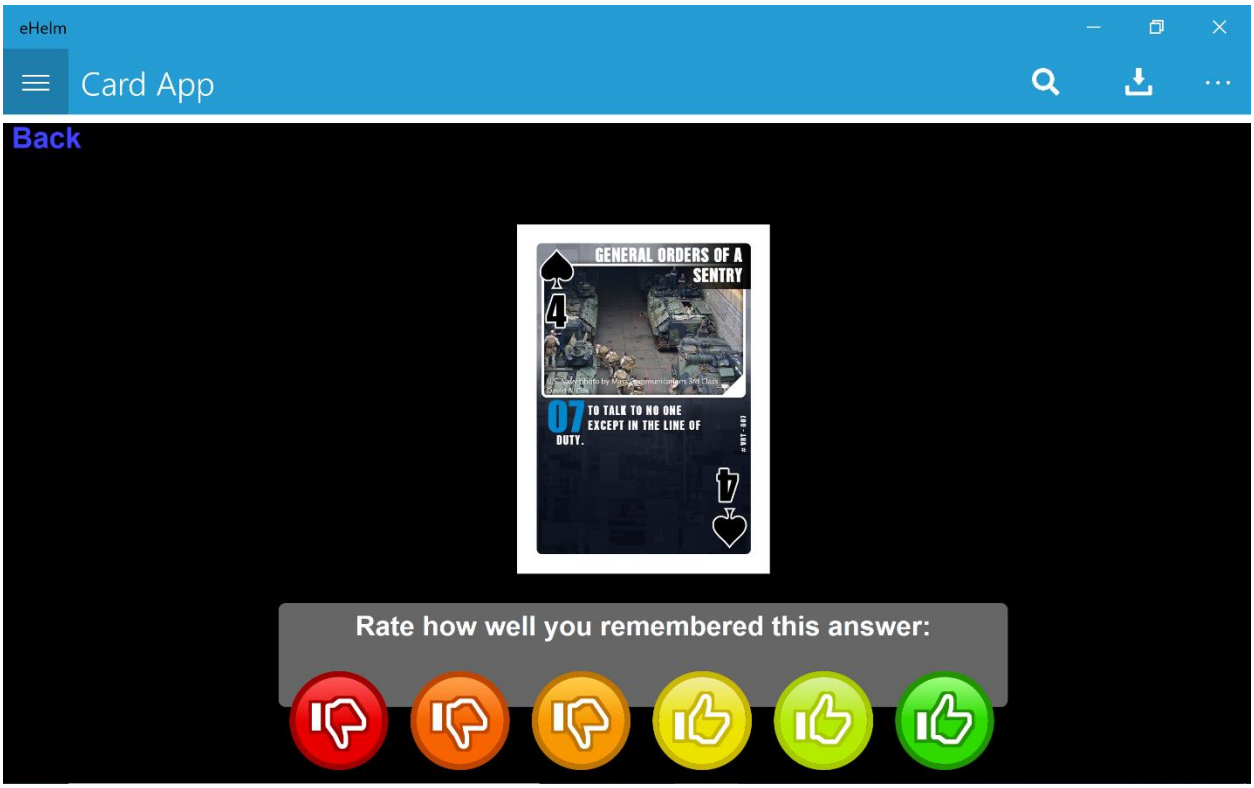


Figure 8: Card App Screenshot – Rate How Well You Remembered This Answer

There are four icons at the bottom of Figure 9. "Learn" presents the seven topics to the Future Sailor on a digital flashcard. "Quiz" allows the Future Sailor to answer questions as described in Figure 8 in flashcard mode and also track the questions the learner/Future Sailor should review today, recently, and from more distant history. "Progress" provides a graph of the Future Sailor's progress in learning the topics in this module relative to the days they have remaining in DEP. Each topic covered by the Future Sailor will have a color code, as evaluated by self-reflection, and a data point to graphically depict their progress. "Settings"

exposes a calendar for the Future Sailor to set the end date for their study program. This date will typically be set close to the Future Sailor's ship date to RTC, but could be set sooner depending on how quickly the Future Sailor wants exposure to the material. Settings also allows all the quiz data to be reset if the date is changed.

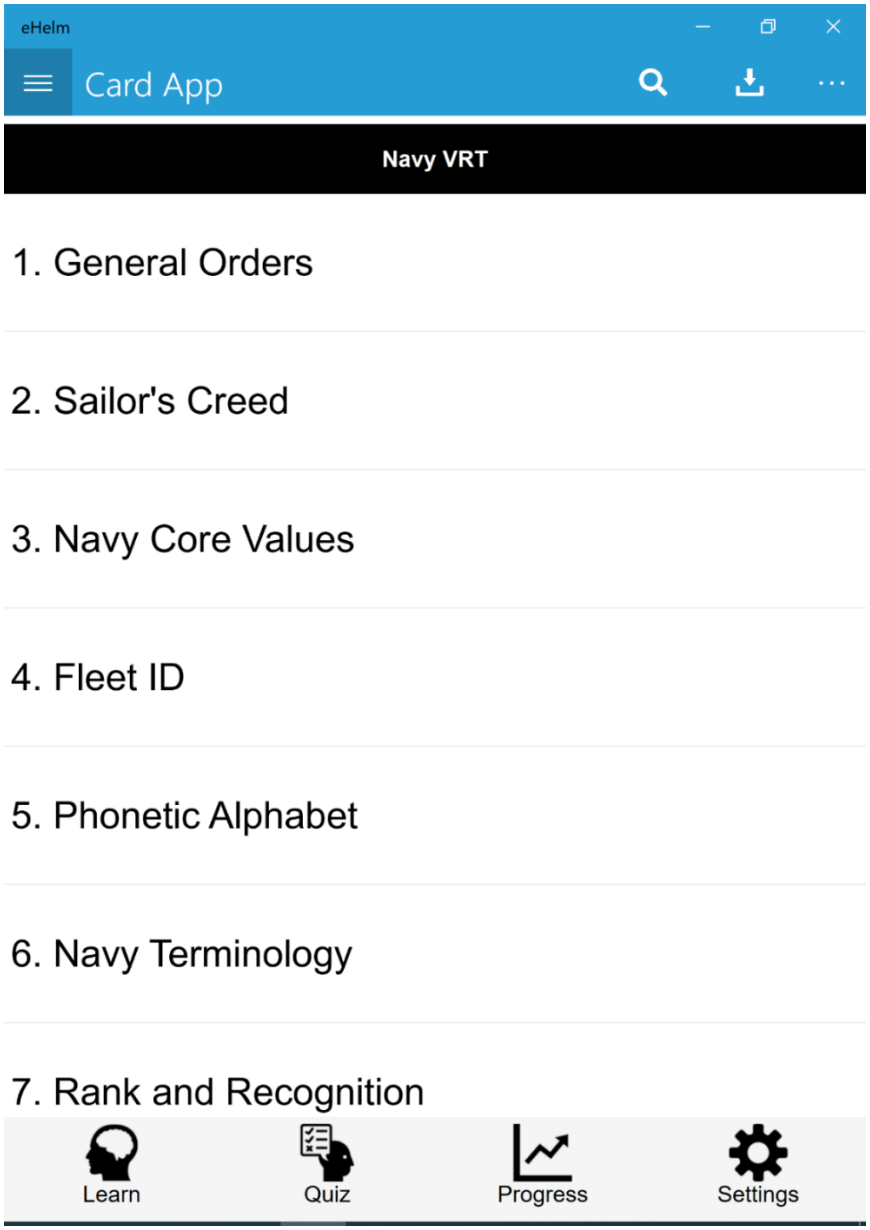


Figure 9: Card App Topics Screenshot

Interactive Content

Any learning environment that seeks to have an impact must deal with a learner's attention span. For the Future Sailor cohort, the attention span has been measured to be eight (8) seconds (Pokornyik, 2019), leading to the imperativeness to have "create and deploy" interactive content. Interactive content requires

and encourages users to actively engage rather than passively consume, and increases user engagement. More than just a passive viewer, the individual becomes an integral part of a dynamic, two-way experience (Ceros, 2021). VRT has employed gamification, speech recognition, a body mass index (BMI) calculator, touch screen, timed multiple choice quizzes, and scenario-based multiple choice quizzes as the S&T incorporated to create interactive content.

Gamification refers to using game elements in non-game settings, thus increasing user engagement by turning a dull routine into a fun experience (Khomych, 2021). SuperBetter, which is VRT's Resiliency module augmented for Future Sailors, is one of the best gamification apps in 2020 to improve your life (Scott, 2021). The Sailor's Creed Practice allows Future Sailors to test their memory of reciting the Sailor's Creed and provides an accuracy score from this speech recognition interactive content. The Fitness Input Form calculates a Future Sailor's BMI and body fat percentage after the Future Sailor inputs their height, weight, and gender. Figure 10 provides an example of a Rank and Recognition timed multiple choice quiz. This interactive content fosters situational awareness using an avatar with a hatch opening for a short period of time to reveal Naval enlisted and officer personnel with an ability to rapidly assess rank and salute/don't salute with multiple uniforms.

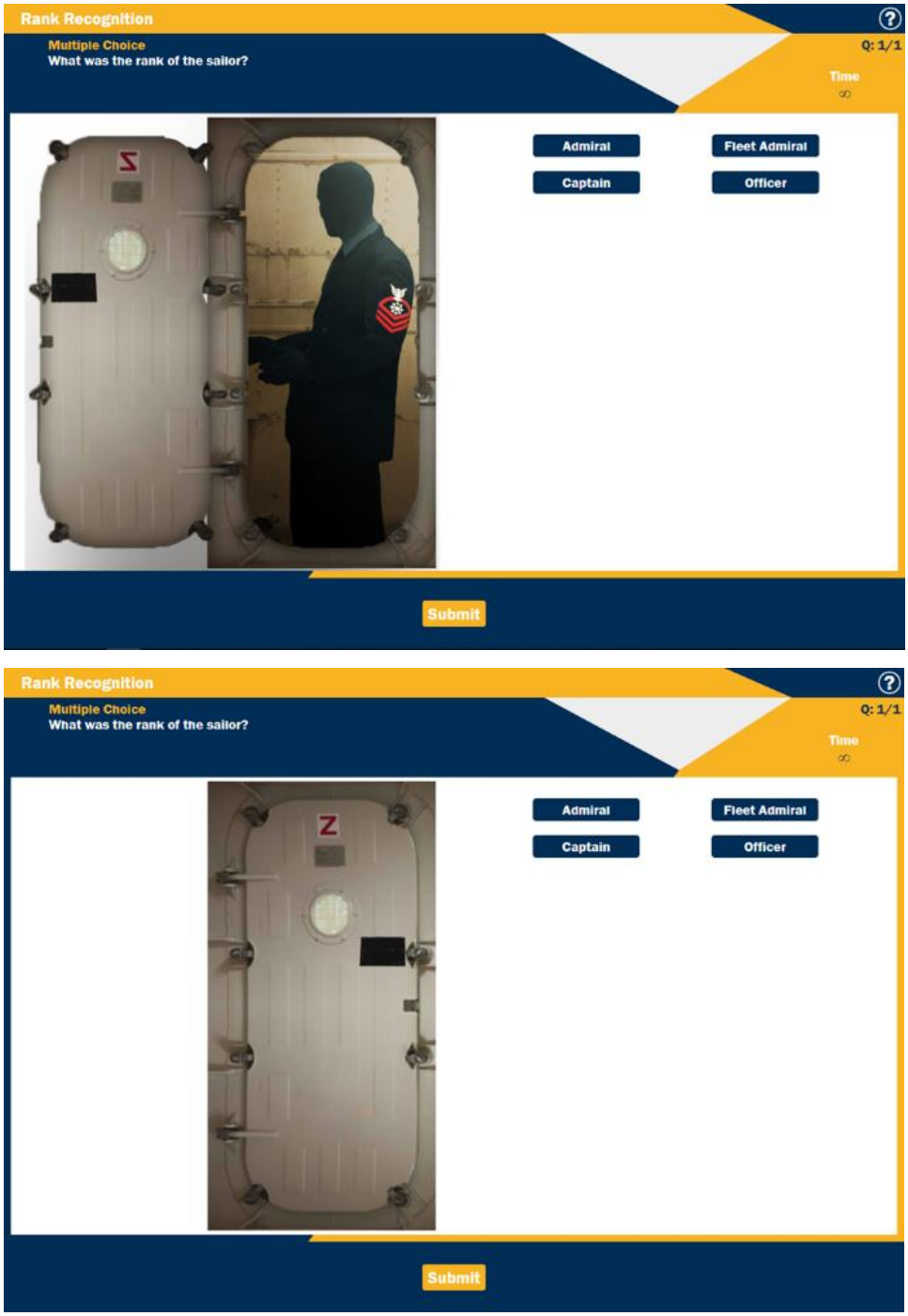


Figure 10: Rank Recognition Situational Awareness Interactive Content

Speed and accuracy quizzes using matching techniques are a form of interactive content that allows the user to determine if their interaction will be “timed” or “standard” adding an element of competition to the engagement. Figure 11 shows the Rank and Recognition Matching that gives the Future Sailor 15 seconds to complete in a “timed” setting or unlimited time in a “standard” setting.

Figure 11: Rank and Recognition Matching Speed and Accuracy Interactive Content

The Quarterdeck Crossing interactive content in Figure 12 is a scenario-base multiple choice quiz. It uses several technologies to make this content interactive (i.e., audio, visual, quizzes, and timing). Where the Future Sailor observes the scene (i.e., five-second animation), then answers a multiple choice question about the Sailor's actions in the clip. The appropriate Sailor's actions are what the Future Sailor is expected to imitate when crossing a Quarterdeck, after it is recognized here. Several different, but realistic Quarterdeck scenarios are presented for the Future Sailor to learn what is/is not appropriate through interactive-based feedback.

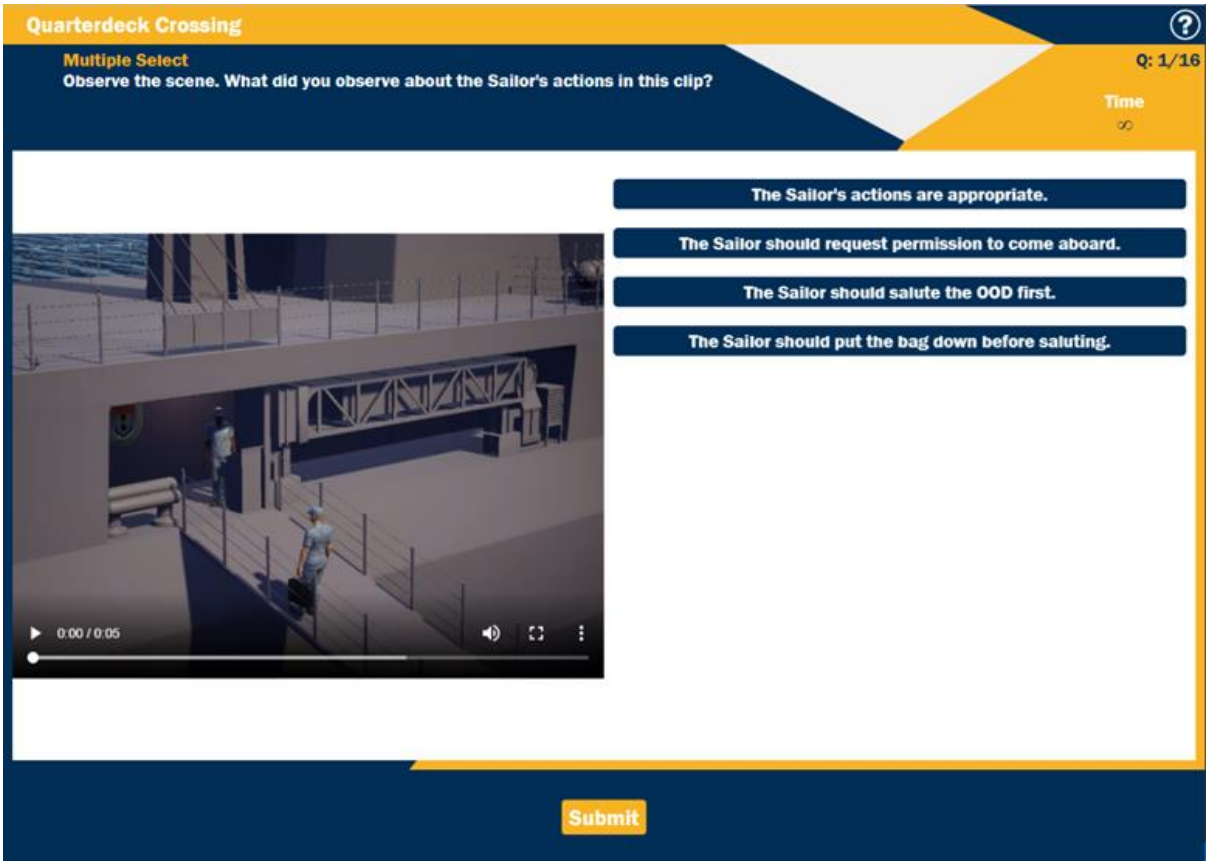


Figure 12: Quarterdeck Crossing Scenario-Base Multiple Quiz Interactive Content

Video Content

A 2015 study conducted by software company Kaltura concluded that 93% of teachers believe that the use of educational videos improves the learning experience (Bevan, 2020). In speaking with Future Sailors during the Usability Pilot Test, they also stated they preferred to have more videos within the training content. For example, the Sailor's Creed Video shows Future Sailors an example of the intentional cadence at which the Creed should be recited: with confidence, unrushed, and not with the tone as if to ask a question with each statement. VRT videos were included using YouTube links and hosted on the NRC PAO's YouTube account in the production environment. Hosting the videos on YouTube allows the storage footprint of the training content to be minimized. Training content contains two indoctrination videos that are training milestones for the Future Sailor, Faces of Boot Camp (FOB) and SAPR-D. These videos should be viewed within 72 hours of contracting with the Navy. Verification that the video has been viewed is the responsibility of an Onboarder or recruiting professional, and will ultimately be tracked and reported via the MC. This is a known gap in reporting until the MC is implemented. The other 14 videos, as referenced by Appendix D, must be viewed while the mobile device is connected to the internet.

Videos work everywhere to enhance engagement, increase retention, and save time (Georgiou, 2017). Videos were used to define and demonstrate terms related to Navy Core Values like Integrity, Accountability, Initiative and Toughness as produced by the Full Speed Ahead Task Force, which also

promotes resiliency and toughness throughout the Navy (Force, 2019). The videos are in a scenario-based format followed by a written definition, and short discussions of what the terms mean in a Navy context by Fleet members of various ranks as shown in Figure 13 and Figure 14.

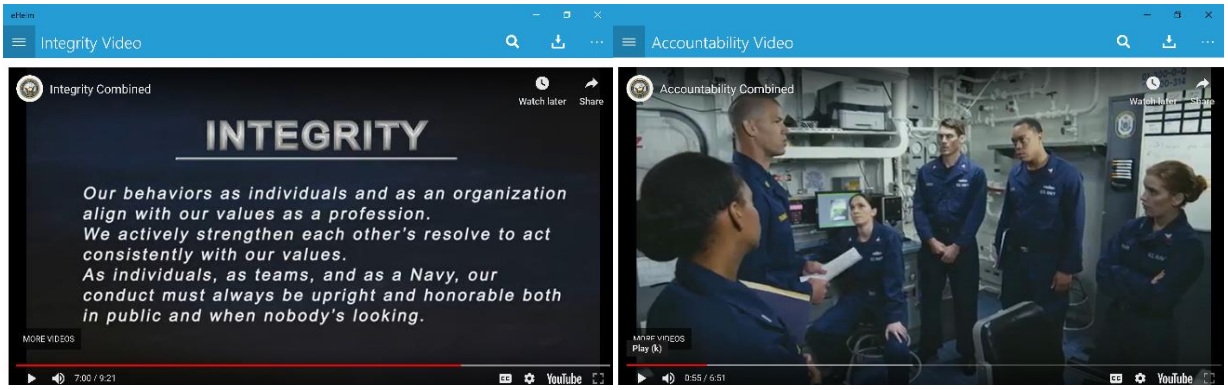


Figure 13: Integrity and Accountability Video Screenshot

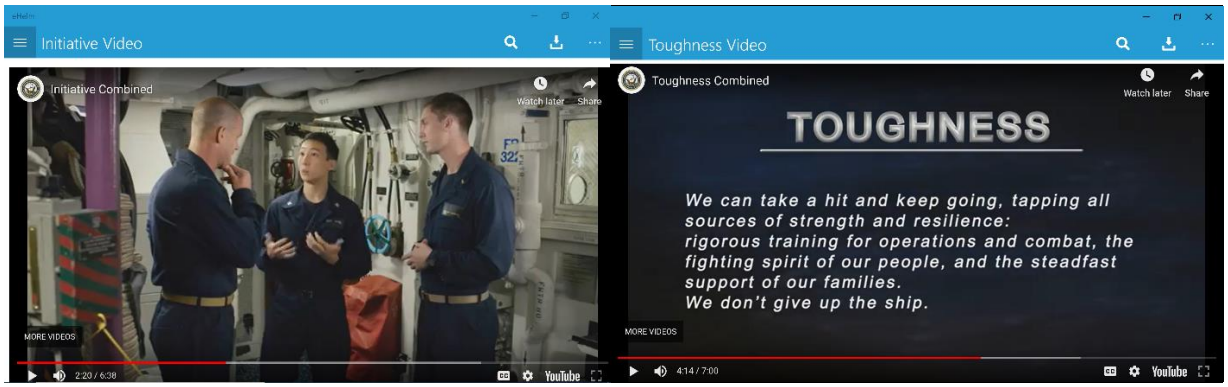


Figure 14: Initiative and Toughness Video Screenshot

The START Guide pamphlet has a section on Female Specific Items that provides notes on hair. NAWCTSD asked the PAO Office to produce videos that demonstrate hair prep within military standards. There are three videos on the most popular styles: a single French braid, two corn rows, and the bun. This training content includes an interactive viewer that facilitates 360-degree rotation of more than 20 short and long hair styles within Navy regulations, along with a voice recording of additional information on length, appropriate hair accessories that must match original hair color, and the appropriate fit of head gear, as shown in Figure 15. The left-hand side of Figure 15 shows that by sliding your finger left and right, it rotates the image 360 degrees while an oral presentation of the hair regulation is stated.

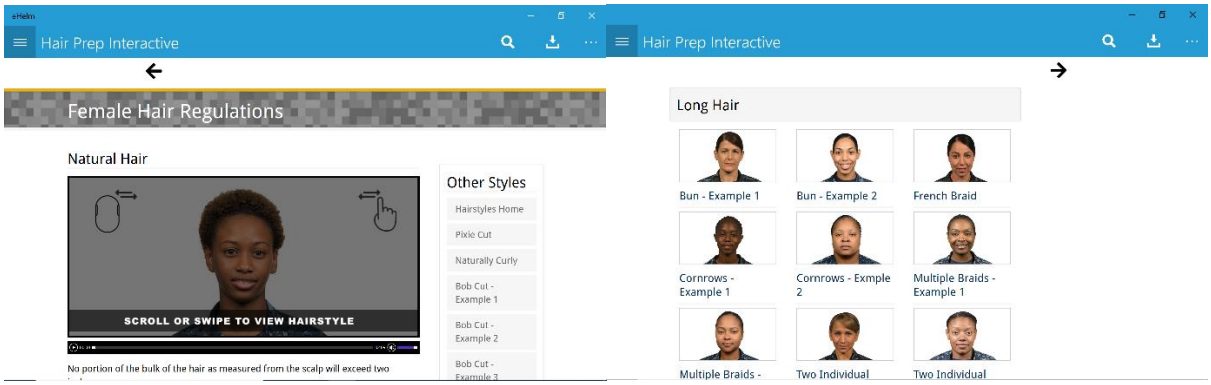


Figure 15: Hair Prep Interactive (Female Hair Regulations and Long Hair) Video Screenshot

Video content is not necessarily one of the 11 PQS items specifically tested, but it improves the learning experience and engagement, and thus, student achievement (Mateer, 2019).

Knowledge Challenge Content

Practice testing is an effective learning technique as assessments determine an understanding of the training material. Assessing the Future Sailor when they first enter a program can establish a firm benchmark against which to measure growth or value-added. Pre and Post Assessments form a mechanism for quantitatively measuring growth overtime (Von Allmen, 2019). Analysis and comparative scores are expected to continue throughout DEP, shipping to RTC, and graduation from RTC. "Testing effect" is a cognitive psychology term that refers to the finding that taking practice tests on studied material promotes greater subsequent learning and retention on a final test as compared to relying on more common study strategies (Adesope, Trevisan, & Sundararajan, 2017). Further, practice testing plus feedback is more beneficial than practice testing alone as cited by research findings in A Meta-Analysis of Practice Testing (Waddell, 2017).

The Virtual Recruit Tracker Navigation Topics, Appendix D, opens with a Knowledge Pre-Test and ends with a Knowledge Post-Test, which contain the same questions covering all 11 PQS topics randomly presented with randomized answer choices. There are a minimum of eight of 11 PQS Knowledge Challenges in a variety of testing formats affording the Future Sailor ample practice with strategic approaches when testing and arriving at answers. The testing formats are multiple choice, matching, fill-in-the-blank, sorting, and True/False. Knowledge Challenges are different from Interactive Assessments, discussed previously, both in the number of questions and the manner in which feedback/review are accomplished. Figure 16 and Figure 17 show immediate feedback on the correct/incorrect answer as indicated with green and red highlights respectively.

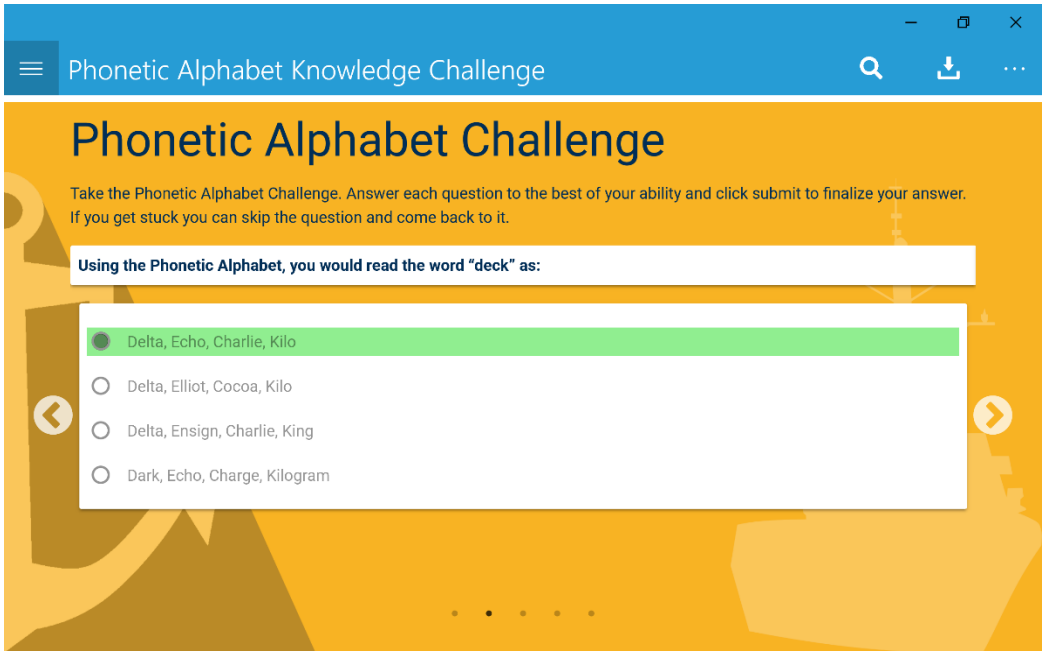


Figure 16: Phonetic Alphabet Knowledge Challenge - Correct Answer Screenshot

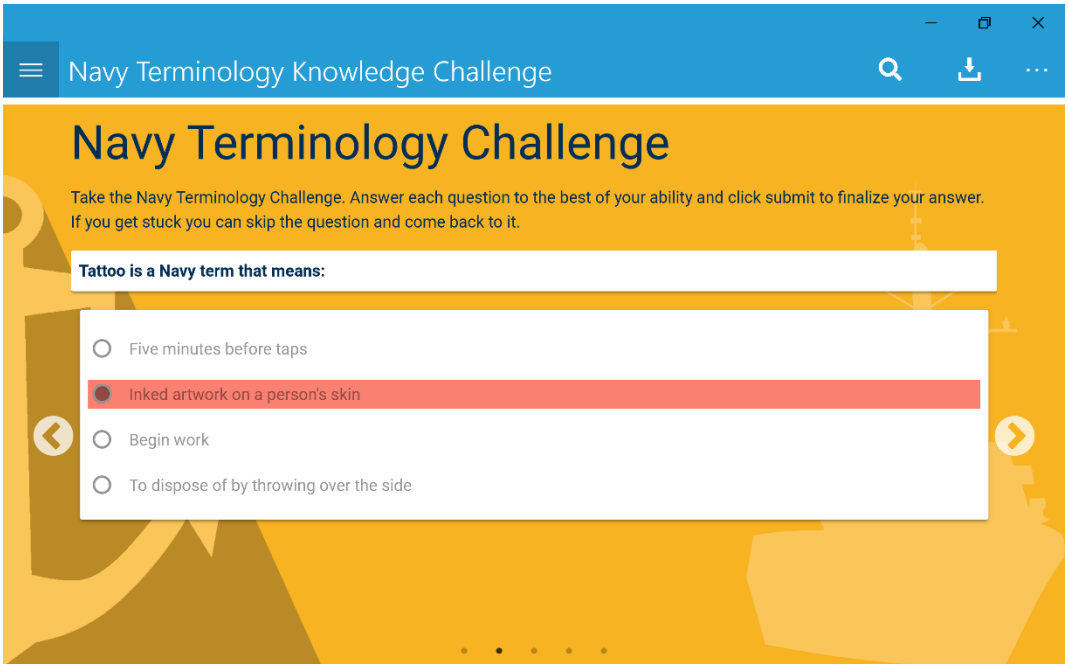


Figure 17: Navy Terminology Knowledge Challenge – Incorrect Answer Screenshot

As cited and proposed by UCF, a technique that has proven effective in increasing retention and lowering attrition rates at American Public Universities, which has 70% military personnel, is the use of compassionate language for instruction and feedback in any assessment (Compassionate Assessment, 2017) (Jazaieri, 2018). As seen in Figure 18, after the Future Sailor's score is calculated, the Knowledge Challenge

questions are drawn from a substantial bank of questions where, with each new attempt of the assessment, the Future Sailor encounters randomized questions with randomized answer choices.

Figure 18: Navy Terminology Knowledge Challenge – Compassion Language Screenshot

Training Content Updates

The VRT mobile application system currently operates in a production environment. Planned maintenance, such as training content updates or other hardware/software updates, are scheduled and communicated between all responsible maintainers such as the Training Content Managers (NRC N7), NAWCTSD VRT Principal with eHelm, and NRC N6 Information Technology managers. It was also recommended for NRC N6 to maintain a test environment in support of VRT. The test environment has all the necessary hardware/software components to fully test versions prior to deployment within the production environment. The production environment must remain dedicated to end-users with only one active version available (e.g., in production) to end-users.

There are four categories of Training Content updates: (1) expanding existing static content (i.e., adding .pdf or .ppt to existing content), (2) expanding existing video content, (3) expanding interactive training content, and (4) creation of new training content. Each has a very specific update process and timeline. The static content update process is articulated here:

- Additional content must be approved by NAWCTSD VRT Principal, and the Training Content Manager (NRC N7)
- Additional content packaged, i.e., merged within existing training content by NAWCTSD team
- Create an .xAPI statement for tracking usage, by NAWCTSD team
- Provide test version to NRC for hosting within testing environment
- System testing, by NAWCTSD team
- Provide updated content package to NRC for hosting within production environment

- Final testing by NAWCTSD team
- Notification of "Update Complete" to Training Content Managers, NRC N7

Caveats to the above process for the other categories of updates are 1) a video would be provided to NRC PAO for YouTube hosting, and the YouTube link provided by NRC PAO to NAWCTSD Principal before merging; 2) the interactive content described with outcomes and scoring to the NAWCTSD team, designed, developed, and accepted by the Training Content Manager, before being merged with the current content; and 3) new content must be described with outcomes and scoring to the NAWCTSD team, designed, developed, reviewed, and finalized before being merged with current content.

One of the most critical steps that must follow any training content update is the creation of a xAPI statement for usage tracking. This serves to avoid service interruptions and minimize manual actions from the recruiters/Onboarders and Future Sailors. This is accomplished with an update to the xAPI Statement Library, which is a public reference library for the xAPI statements. Cross-referencing the statements with the Uniform Resource Identifiers (URI) will provide a human-readable page that explains what it is. The benefits when doing analysis on the VRT xAPI data will be seen. There are also benefits for anyone who wants to re-use the library.

On 7 April 2020, the VRT Mobile App deployed to public app stores for all Future Sailors to access. Since then, the application has had only two static updates to the training content requested by NRC. The training content updates of Bystander Intervention Principles and Destructive Behaviors Involving Alcohol located in the Navy Core Values Module and 2) content by special request from RADM Velez, RTC Pre-Arrival Physical Training Plan in the Physical Readiness module. Since each of the content updates were static, it followed the process outlined above and was implemented within a week without productivity loss or service interruption. The Knowledge Challenge questions were also developed and reviewed by an ISD professional before inclusion in the content.

Results & Analysis

Although not implemented in the current production environment, the MC is a prototype aggregate district and Navy Recruiting Station/Talent Acquisition Onboarding Center (NRS/TAOC)-level tool intended to provide recruiters with the capability to continuously monitor Future Sailor usage of the VRT mobile application and track their learning activities. For a full description of the management component, see https://apps.dtic.mil/sti/pdfs/AD1067908.pdf. MC capabilities such as these currently represent a gap in reporting and analysis; however, NAWCTSD has developed a work-around to conduct analysis and develop reports to support recruiters/Onboarders in monitoring the training progress of Future Sailors while in DEP. Those usage analysis and reports will be shared here. It is the ultimate goal of every recruiter/Onboarder to support and mentor each Future Sailor with his/her endeavor to ship to RTC; likewise, it is VRT's goal in assisting Future Sailors in their quest. Performance metrics at RTC will be compared with those that did not have an opportunity to use VRT before shipping to RTC. Usage analysis to improve upon the design and implementation of the tool will also be uncovered; however, until MC is fully implemented, gaps in reporting and analysis should be expected to linger.

The data sources for the results and analysis sections are 1) xAPI statements from the LRS, 2) PRIDEMODII data for validation and calculated fields, and 3) RTC data specified for an end-to-end comparison on usage and performance.

VRT General-Users (GU), VRT Prime-Users (PU), VRT Non-Users (NU)

There are three cohort groups referred to throughout the analysis and reporting: the General-User (GU), Prime-User (PU), and Non-User (NU). The sources of data are xAPI statements drawn from the LRS (7Apr2020-7Apr2021) totaling 895163 statements, PRIDEMODII data with a variable Shipdate of (7Apr 2020 - 7 Apr 2022), and RTC Enrollment date (Oct2019 – Sep2020) drawn on 28Oct2020 with 39054 DoDIDs (i.e., unique Department of Defense Identification number assigned to all personnel with a Common Access Card (CAC)). Characteristics of the data are used to formally define and describe each cohort below:

1) The General-VRT User (GU) – the number of users that have downloaded the tool as of 7 April 2021 (first anniversary launch date), and have used the tool at least once, and are not a PU or NU. This population:
    - Have a unique eHelmIDs
    - Training activity is tracked via xAPI statements from (7April2020 – 7 April 2021),
    - There is no means to associate this population with Navy data records in the PRIDEMODII system, i.e., no crosswalk

2) The Prime-VRT User (PU) – is taken from the General VRT Users using a crosswalk provided by the recruiter/Onboarder and verified using PRIDEMODII data. This population has shipped to RTC (as verified by RTC data/DoDIDs). This population:
    - Have eHelmIDs linked to Future Sailor SSNs, i.e., crosswalk provided by Onboarders,
    - Have shipped to RTC (between 7April 2020 and 8Feb 2021)
    - Have VRT eHelm xAPI statements linked to RTC enrollment data (via DoDID)

3) The Non-VRT User (NU) – those enrolled at RTC between 1 October 2019 – 31 March 2020, six months prior to VRT launch.
    - No VRT usage associated with this population

Table 1. VRT User Cohort Totals

	General-VRT User (GU)	Prime-VRT User (PU)	Non-VRT User (NU)
Total	**19392**	**2256**	**18878**
Male	**N/A**	**1682**	**14592**
Female	**N/A**	**574**	**4286**

As usage analyses are conducted, reporting with respect to analysis goes from aggregate to specific. No PII is reported.

Aggregate Usage Analysis

The prototype MC included functionality to generate the Future Sailor's GUID, also called eHelmID. It linked the anonymized data in the public domain that is sent and received from the mobile application to a secure, firewall-protected record. NAWCTSD, using all the capabilities of eHelm, is able to track the usage activity and learning progress of Future Sailors, without violating PII. NAWCTSD developed an approach to generate and distribute the QR code without a significant burden placed on recruiters/Onboarders to identify Future Sailors (see Appendix A, OPNOTE96). Initially, participating recruiters/Onboarders would provide NAWCTSD analysts with the eHelmID/SSN crosswalk to facilitate monthly granular report development (i.e., each Future Sailor's training activity, scores, and when they last trained) in lieu of MC reporting. Not all Navy Recruiting Districts (NRD) participated, but those that did received a monthly PowerPoint Usage Report. A walk through of the typical analysis presented in the PowerPoint format is shown before transitioning to the targeted analysis presented in the VRT_eHelm_Monthly Report.

Download statistics, which were the number of Future Sailors that have downloaded VRT/eHelm Mobile App since its launch on 7 April 2020 (i.e., 21,510 as of 7 April 2021), are reported via email to NRC N6 staff daily. This statistic was also broken out by iOS and Android device users in Figure 19. The total downloads, total statements (i.e., 895,163), and other reporting statistics are consistently updated and displayed in the LRS interface. The LRS is not only a cloud storage device, it doubles as a reporting tool. The Bottom Line Up Front (BLUF), Figure 19, was more importantly used to show the Onboarders the number of Districts and Future Sailors individual reporting.

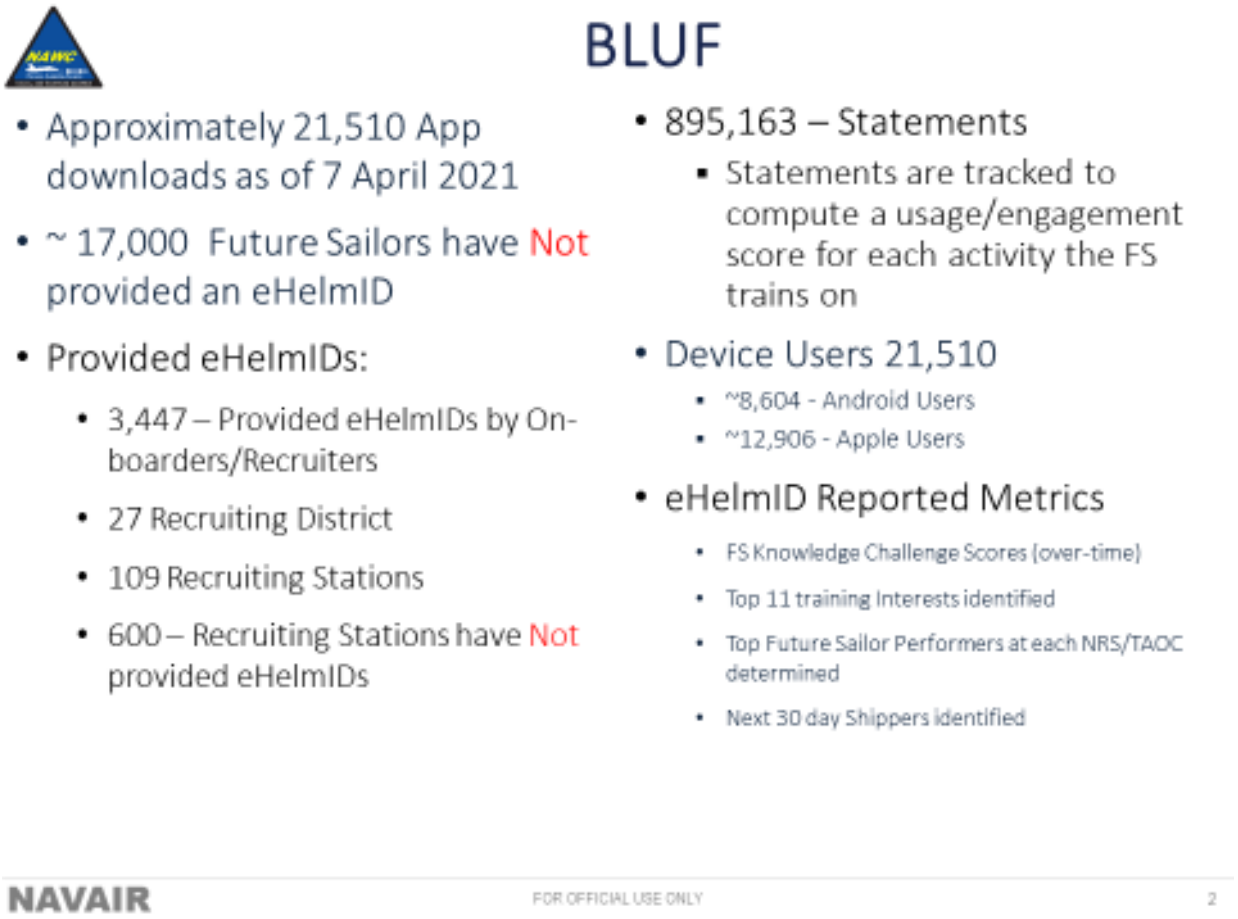


Figure 19: Bottom Line Up Front (BLUF) of Downloads and Total Statements

The overall training activity categories used in reporting is as follows:

- 6 – Training Verbs (read, watch, test, measure, etc.)
- 89 – Training Activity Objects
- 11 – Fitness Activities
- 20 – Assessments/Knowledge Challenges
- 16 – Videos (5 are Navy Core Values)
- 23 – Resiliency Activities
- 22 – PQS Training Activities
- 10 – Interactives and Practices

The VRT Mobile App/eHelm is BYOD and self-paced while Future Sailors are in DEP. A snapshot of the most popular training activities Future Sailors preferred to train on is represented in Figure 20. General Orders is by far the most popular training activity for Future Sailors. This informs recruiters of the virtual training activities, and when interacting with Future Sailors during mentoring sessions it opens up dialogue on questions related to training topics. It also identifies less popular training activities, such as Physical Fitness. Physical Fitness did not make the top 11 PQS Activities and is a leading cause for failure at RTC (Behnke, 2017). PQS training activities topics such as General Orders, Sailor's Creed, Mission of the Navy, and Rank and Recognition are topics Future Sailors are held accountable for knowing at monthly DEP

meetings. DEP meetings are opportune times for Onboarders to require Future Sailors to recite the Sailor's Creed or state what General Order number 5 is while also having them recognize the difference between the recruiting station's Chief and Master Chief.

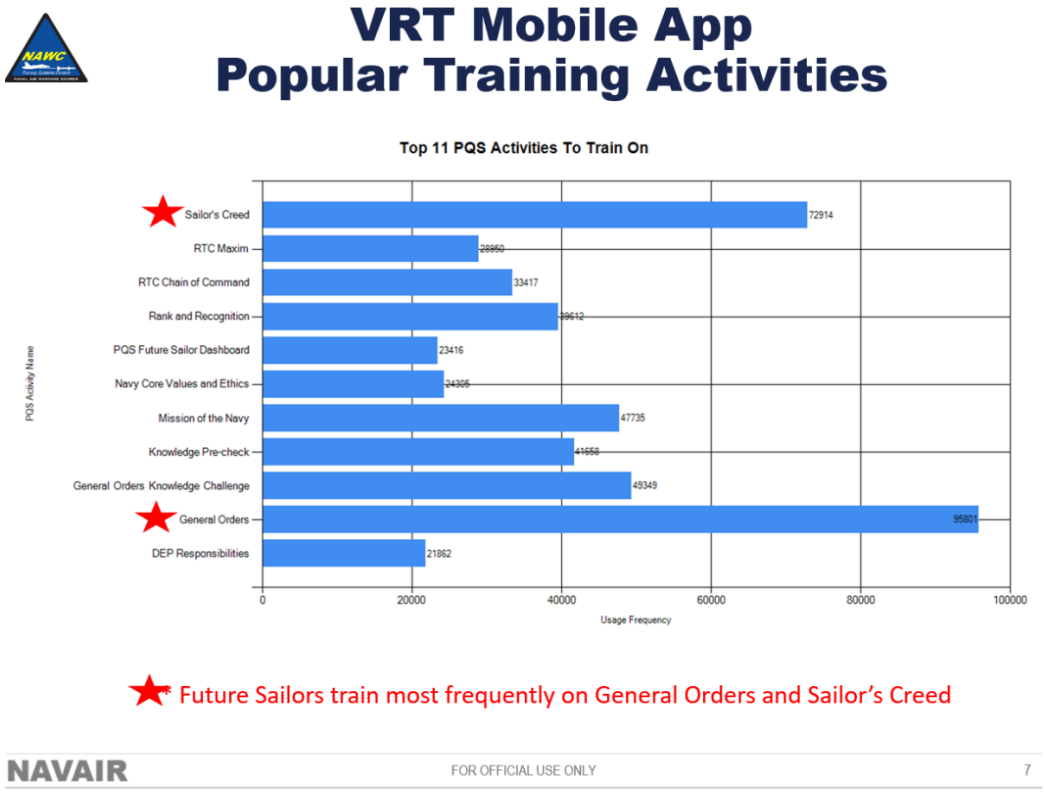


Figure 20: VRT Mobile App Popular Training Activities

District-specific information for VRT Prime-Users (PU) is specified so Onboarders have a relative comparison for how training is overall for their NRD/NRS/TAOC, see Appendix E. Later in the analysis when examining the top performers in the PU cohort, make note of which districts they represent. It is important to eventually understand the training at the Future Sailor level for effective mentoring.

Figure 21 and Figure 22 give the age and gender breakout of the Prime-User (PU) and Non-User (NU) cohort. All Physical Fitness standards are specified relative to age and gender. The general makeup of the cohorts are similar, with there being roughly 25% PU and 23 % NU females. The lion's share of the accession age is also comparable at 17-20 years for both PU and NU cohorts. Like the NU cohort, VRT had PUs up through age 41. Using a mobile app for training did not cause this more mature age group to lose representation.

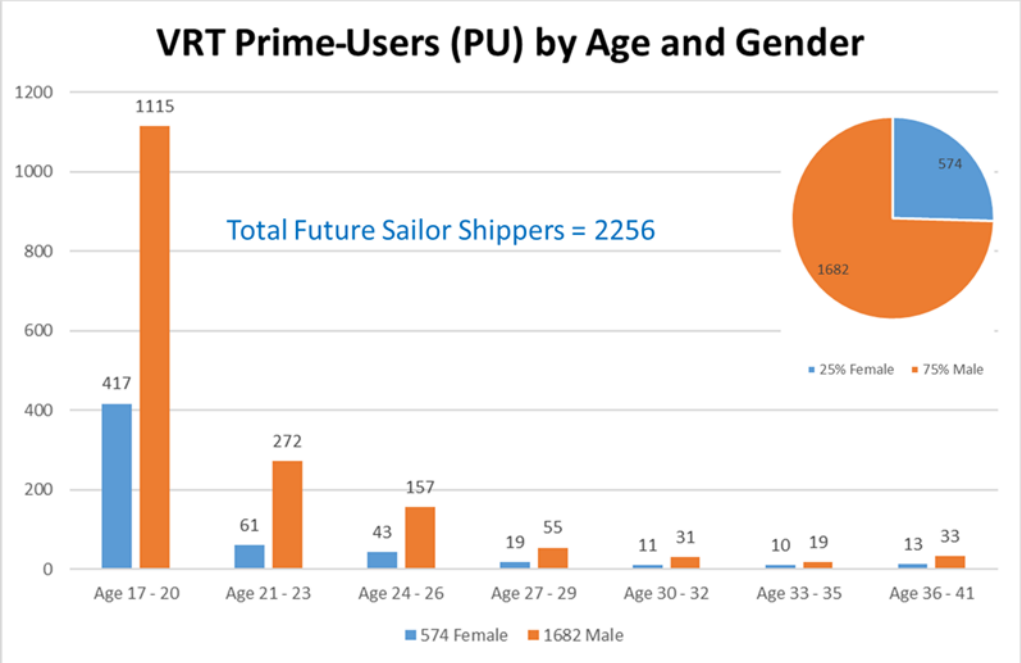


Figure 21: VRT Prime-Users (PU) by Age and Gender

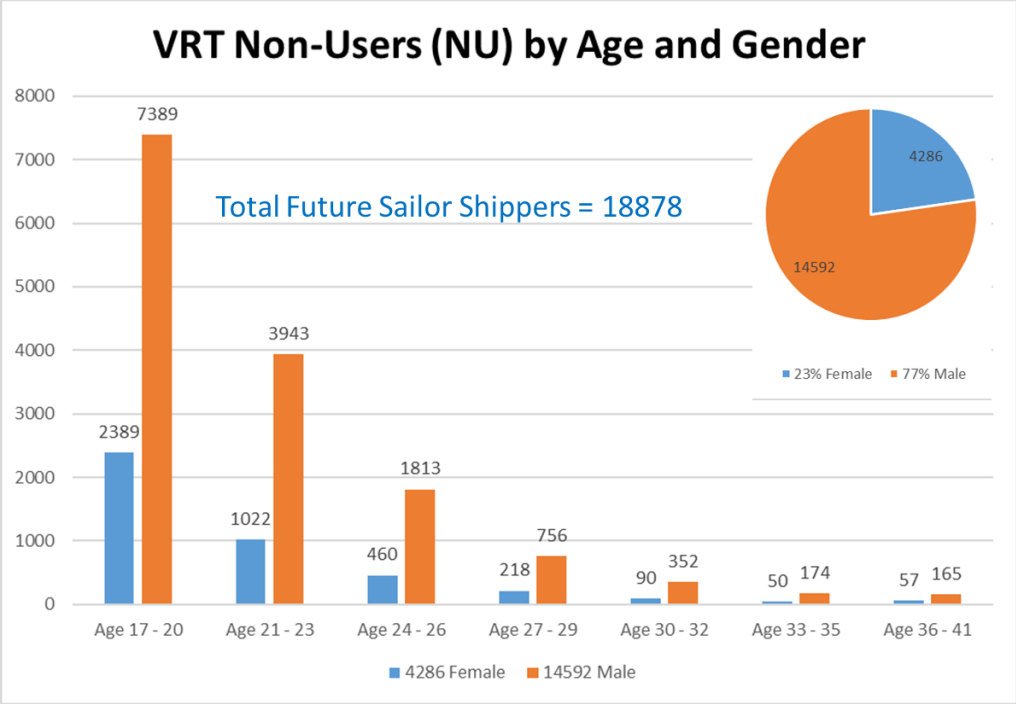


Figure 22: VRT Non-Users (NU) by Age and Gender

The average usage for females is 7.96% more than males as shown in Figure 23. Even with males writing nearly twice as many total usage statements as females, males need to train more since their average usage is less than both the PU cohort and 42 (i.e., the average usage overall). The average usage for both males

and females improves after removing from the average individuals that did not take advantage of the opportunity to train using VRT (see Figure 23, bottom pie chart). This reveals that 40% of males and 35% of females needed somber mentoring and encouragement in the Prime-User (PU) cohort because they were not training (i.e., zero statements written to be totaled).

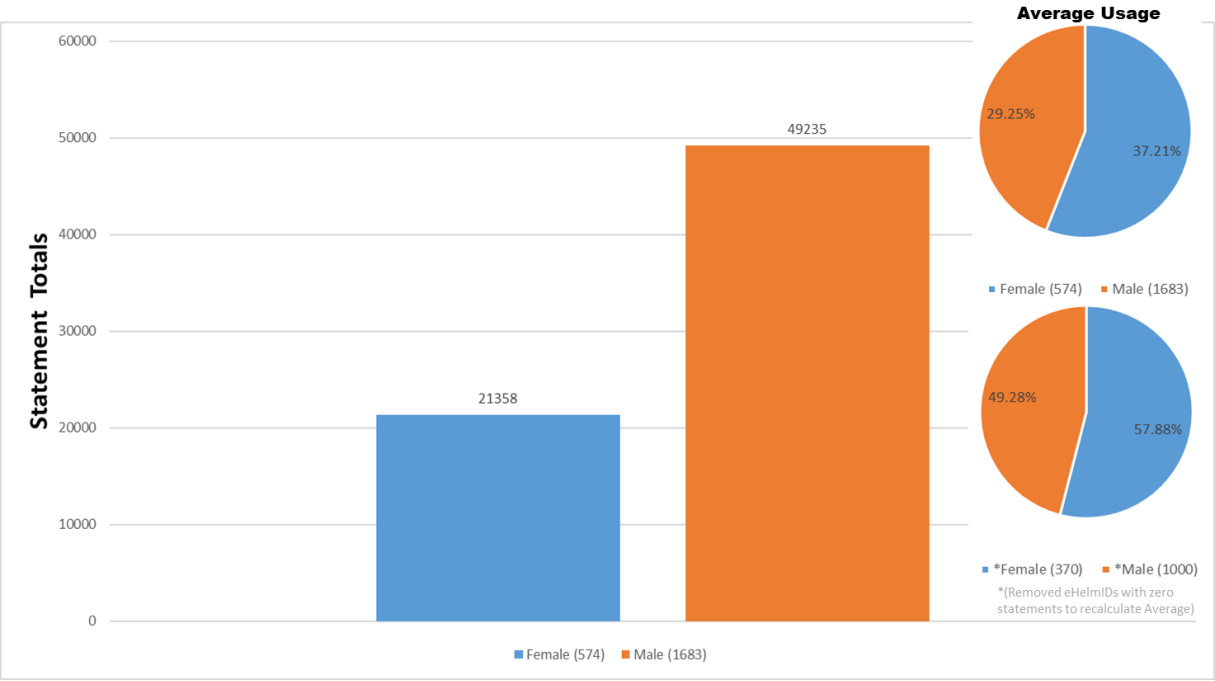


Figure 23: VRT PU Total Statements and Average Usage by Gender

The PQS completion is an additional characteristic obtained through crosswalk information. Where a "Y" value indicates completion of PQS while in DEP; "N" value indicates unbegun PQS while in DEP; and an "I" value indicates incomplete PQS while in DEP. Figure 24 PQS Analysis shows Onboarders, in the PRIDEMODII data, have verified "Yes" to 31% of PU's PQS completion. Meaning, once Future Sailors are at RTC and have passed both DEP test and Physical Fitness test, they have earned an early advancement (i.e., promotion from E1 to E2 or from E2 to E3) with a corresponding increase in pay. The numbers in parentheses are the counts in each respective group. Figure 24 indicates that Onboarders have verified "No" to nearly 62% of PU's PQS completion and another 7% have incomplete PQS training.

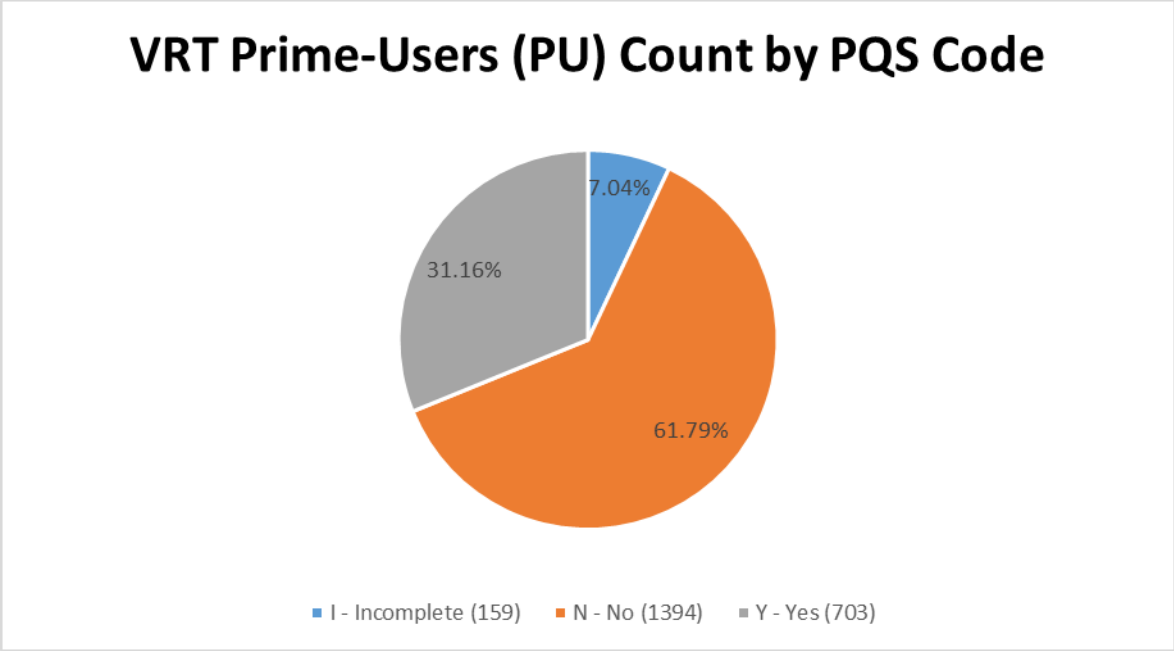


Figure 24: VRT Prime-Users (PU) Count by PQS Code

These results coincide with Figure 25, which depicts the E1 to E4 distribution of PU cohort. For PUs, 62% are E1s; thus with targeted mentoring and Future Sailor training there was a 69% opportunity to decrease the "Nos" and "Incompletes" for the PQS Code count, see Figure 24. Estimates for the PQS Code and Enlisting Paygrade Code are determined for the NU cohort and included in Appendix E, see Figures 44 thru 46. This level of information, which is only known about the PU cohort from a crosswalk, helps the recruiter/Onboarder manage the DEP pool in the aggregate. Usage analysis should be conducted at the Future Sailor level for more operative mentoring.

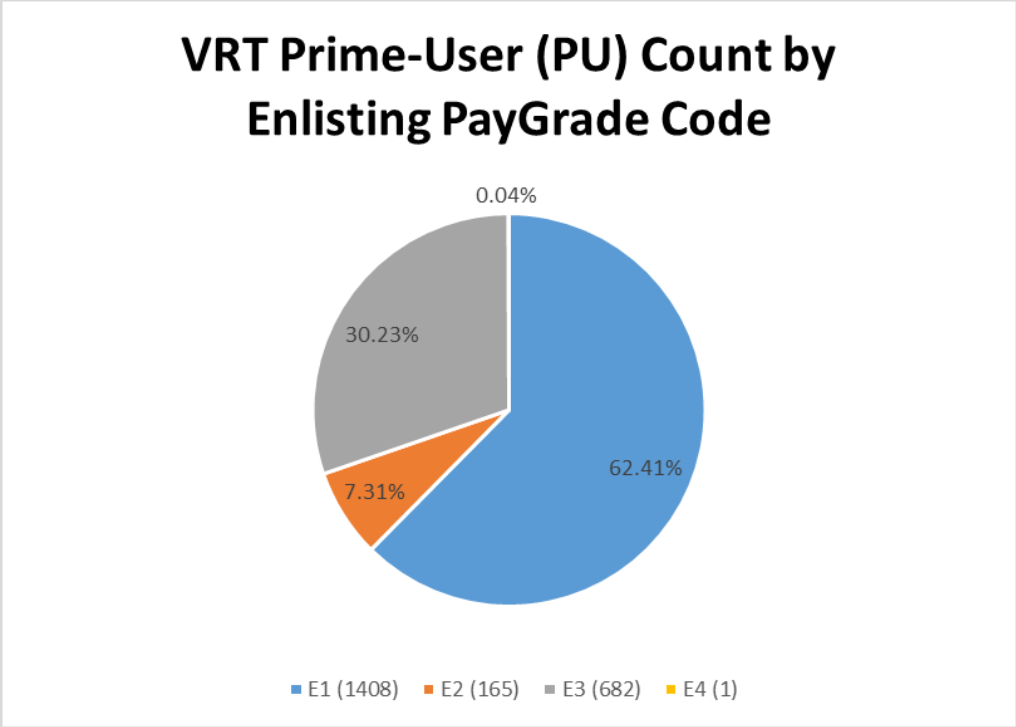


Figure 25: VRT Prime-User Count by Enlisting Paygrade Code

Granular Usage Analysis

Mentoring can be effective within a group or one-on-one, once the following questions are answered: What was their training focus? How did they score on their PQS Activity Type Knowledge Challenges within the tool? Given the goal of recruiters/Onboarders to support and mentor Future Sailors, the usage analysis is continued at a granular level. For continued anonymity, the reporting uses the eHelmID of the Future Sailor, which contains no PII; within the text, the last 4 digits of the eHelmID will be used for clarity. The accomplishments of the top performers from both the PU and GU cohorts will be examined then their training focus before showing how the PUs fared at RTC compared to the NUs. Recruiters/Onboarders can use knowledge of who the top performers are (i.e., a leader board) to create friendly competition between Future Sailors during training as a motivation for them to engage more, train more, and better prepare for recruit training.

The most outstanding Future Sailor in the PU cohort has trained approximately three times more than the next highest top performer, see Figure 26. The graphic represents the top performers for the PU cohort and the district they represent. The top performers in the GU cohort, represented in Figure 27, appear to actively train more (i.e., all have total statements above 600) and are comparatively closely grouped (i.e., only a few hundred statements at most separate Future Sailors). For the PU cohort, the recruiter/Onboarder at district 165 can use the performance of Future Sailors in his districts to generate competition. This is not the case for the GU cohort. There is currently no means to know to what district GUs are assigned.

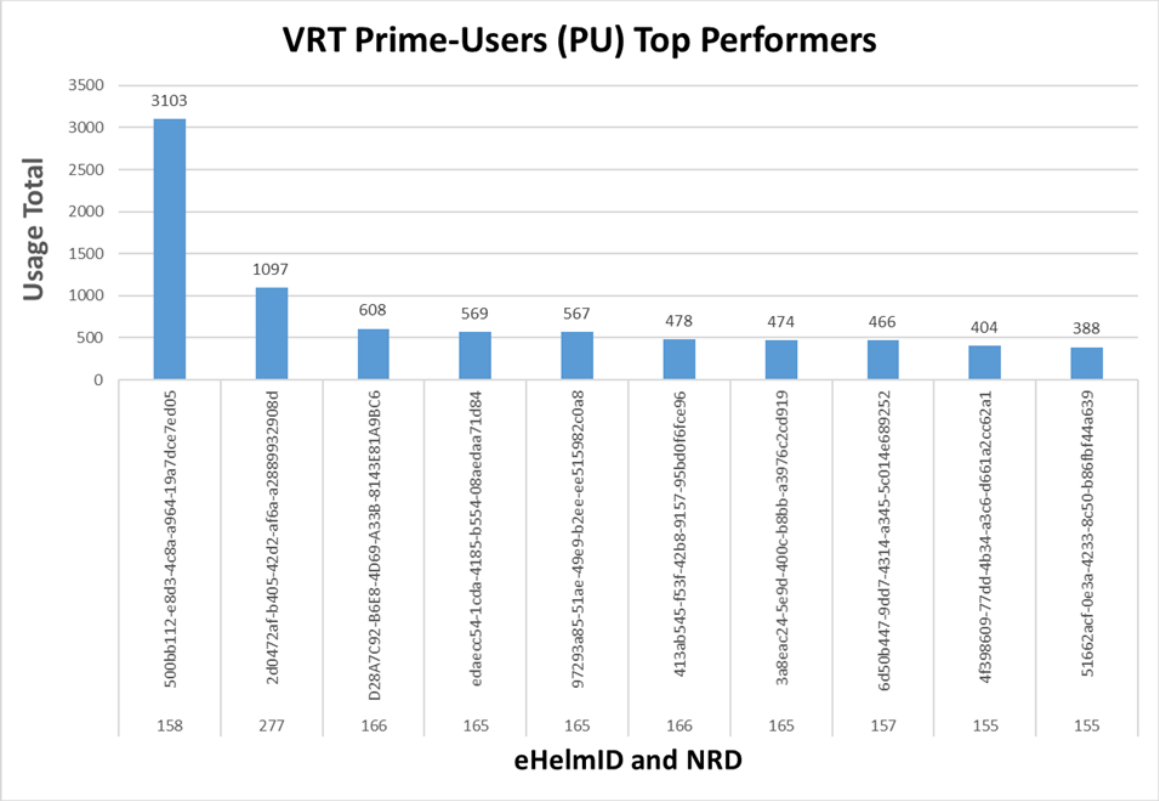


Figure 26: VRT Prime-Users (PU) Top Performers

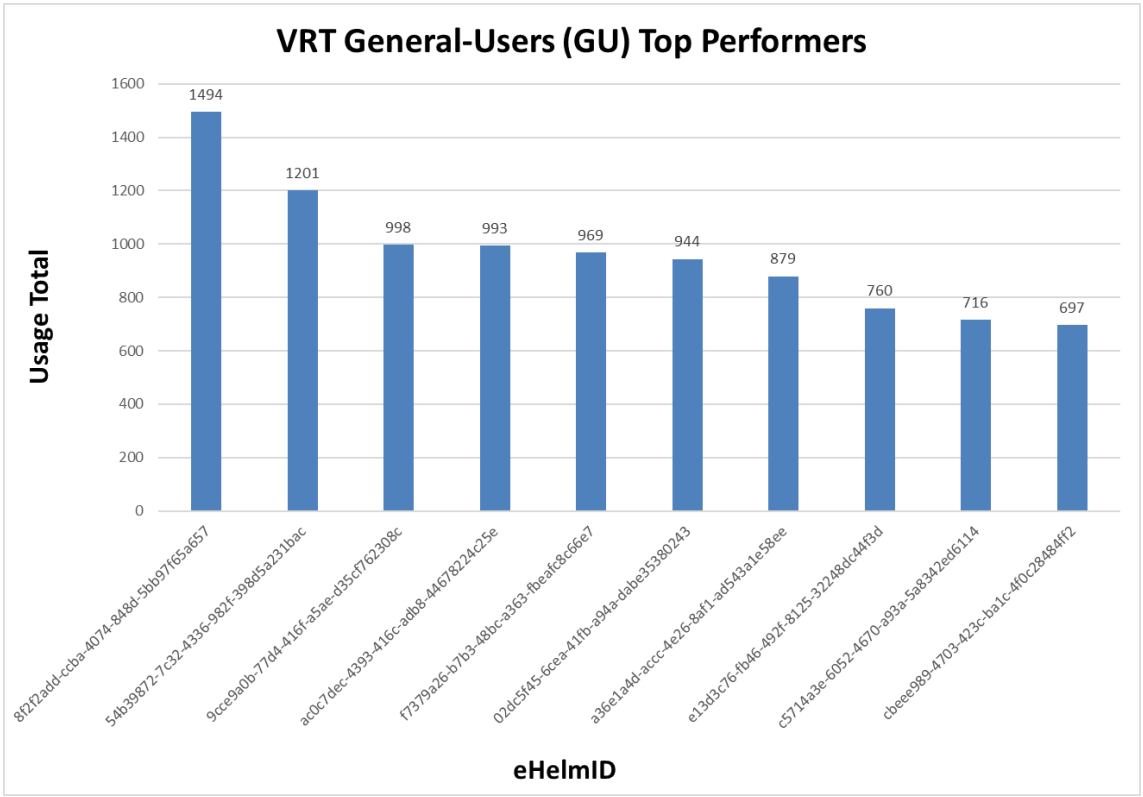


Figure 27: VRT General-Users (GU) Top Performers

Figure 28 provides examples of the training focus analysis drawn from the LRS on PU-ed05 from NRD 158 (i.e., using the last 4 digits of the eHelmID). PU-ed05 is a 20-year-old male that attentively trained on several topics, but mostly on Aircrafts and Ships evidenced by taking the Knowledge Challenges 788 times. There was attention given to Resiliency (4) training to prepare for setbacks or overall adversity and even Personal Financial Management (5) and understanding the Leave and Earning Statement (LES) (5). Most importantly, Physical Fitness training was tracked and accomplished by watching Curl-ups and Push-up videos (4), before using the Fitness Input Form (4) to submit fitness information. For the most part, PU-ed05 is solidly focused on PQS training activity even with Mission of the Navy being further down in the rankings.

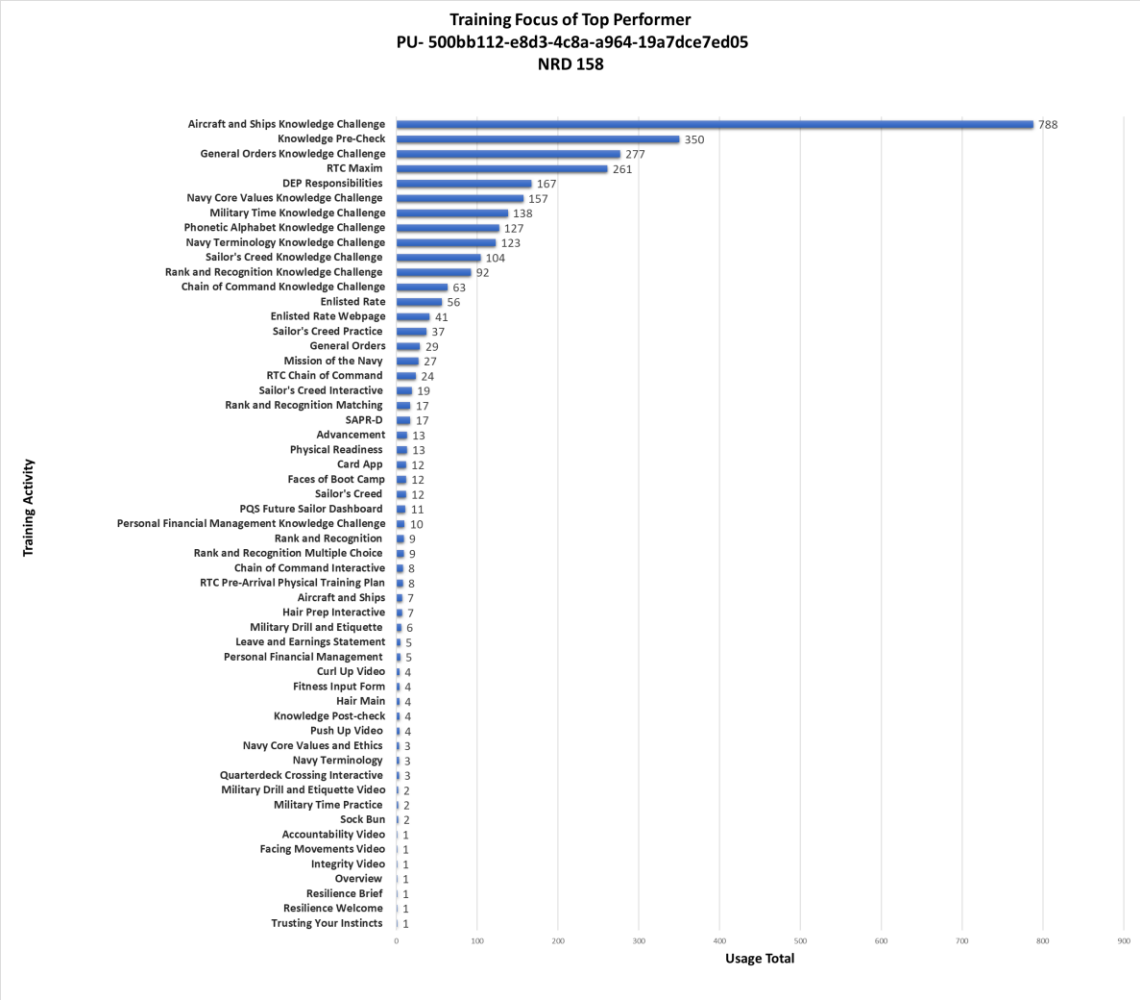


Figure 28: Training Focus of PU-ed05, NRD 158

PU-ed05 took hundreds of Knowledge Challenges as a form of training. Figures 28 shows that PU-ed05 took the Rank and Recognition Matching 17 times. PU-ed05's scores (e.g., Future Sailor's numerical grade on a test from 0 to 100) are provided in Figure 29 from 1 October 2020 to 30 November 2020. Figure 30 gives the numerous Rank and Recognition Knowledge Challenge Scores from 12 October 2020 to 7 February 2021. From the consistently poor result (i.e., scores below 60 in the October/November timeframe respectively), PU-ed05 could have used some additional/targeted mentoring on this PQS Activity. This is

exactly the type of information MC was prototyped to automatically capture for the recruiter/Onboarder. Known from the crosswalk information is PU-ed05 ShipDate = February 8, 2021. PU-ed05 trained until he shipped, but did not master this training activity since he scored a 40 on February 1, 2021.

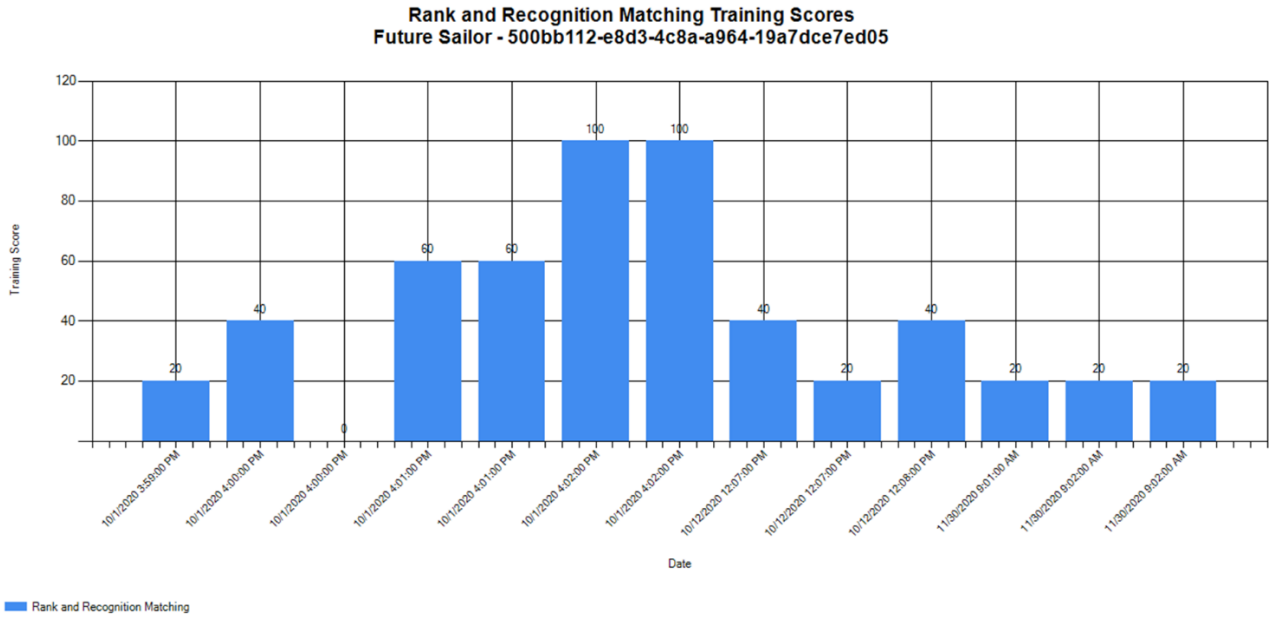


Figure 29: Rank and Recognition Matching Training Scores Future Sailor – PU-ed05

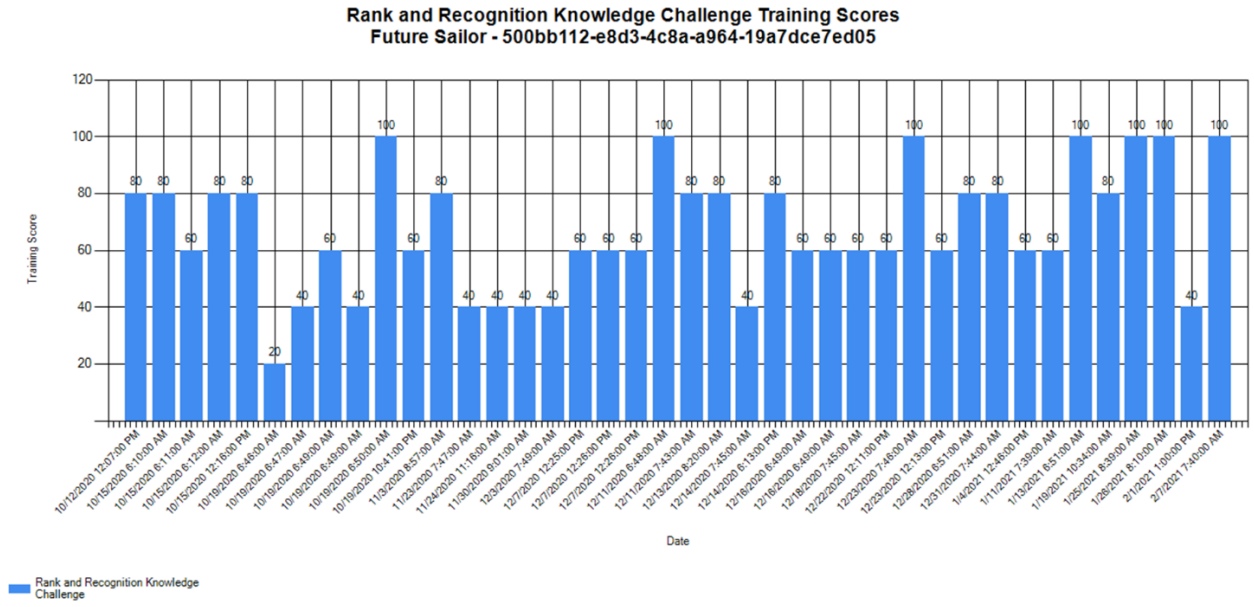


Figure 30: Rank and Recognition Knowledge Challenge Training Scores Future Sailor – PU-ed05

Figures 31 provides the Chain of Command Knowledge Challenge Scores, another training activity PU-ed05 struggled with over time. From Figure 28, it is understood PU-ed05 spent more time assessing his

knowledge of the material (i.e., Chain of Command Knowledge Challenge, 63) than training on the material (i.e., RTC Chain of Command, 24) while in DEP. Mentoring could have a positive effect on this behavior.

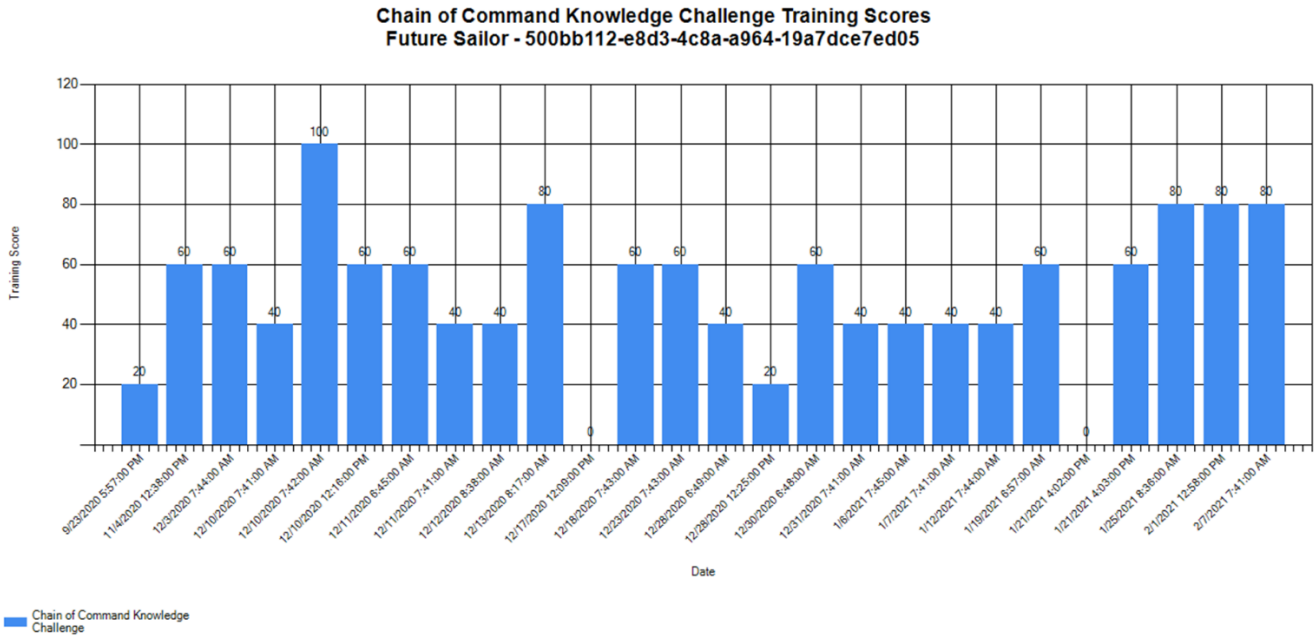


Figure 31: Chain of Command Knowledge Challenge Training Scores Future Sailor – PU-ed05

Figure 32 reveals PU-ed05 trained and took Knowledge Challenges up until 5:20 a.m. the morning he shipped to RTC and scored 60 on the Military Time Knowledge Challenge Training even though he scored 100 just the day before. Recall that each Knowledge Challenge randomizes the questions presented and the multiple choice answers to keep Future Sailors from gaming the environment by guessing a pattern of answers through repeat testing. The details provided in Figure 28 confirm more attention should be given to training activity Navy Terminology (3) or Military Time Practice (2) to understand Military Time vs. Military Time Knowledge Challenges (138). From these results the apparent benefits of granular usage analysis are understood.

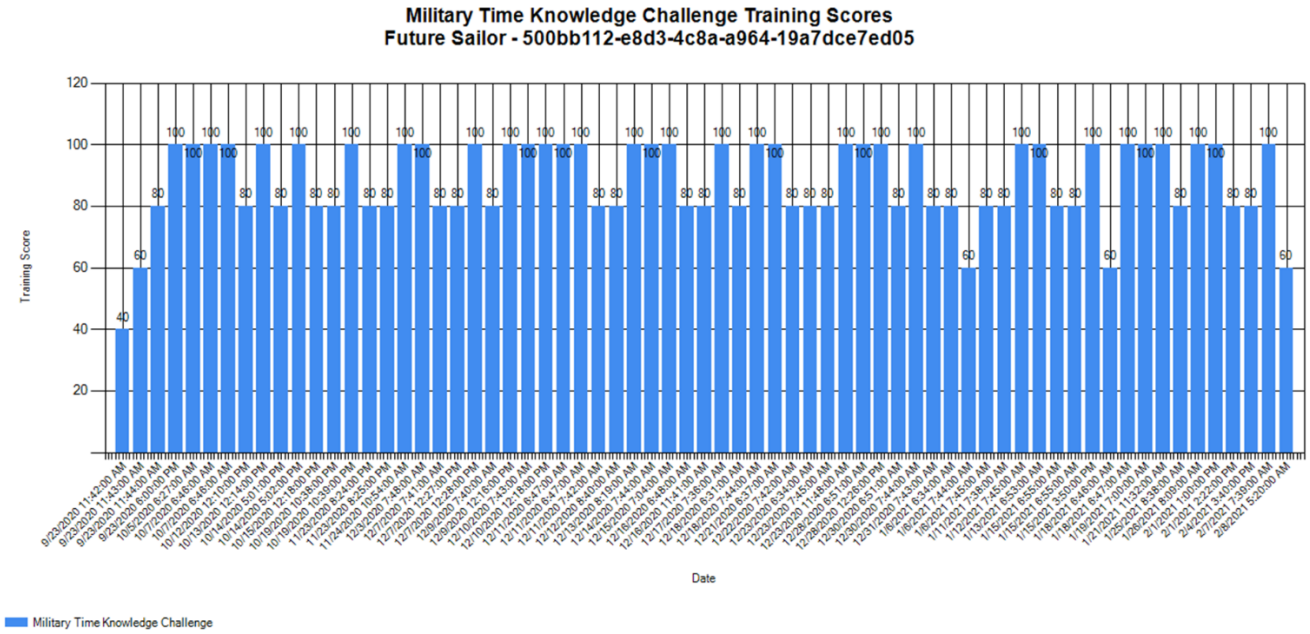


Figure 32: Military Time Knowledge Challenge Training Scores Future Sailor – PU-ed05

Ultimately analysis will be shown on how PU-ed05 performed at RTC, but now the training focus of the GU top performers are compared. Figure 33 shows the training focus of GU-a657. Similarly, GU-a657 took a number of General Orders, Sailor's Creeds, and Aircraft and Ships Knowledge Challenges. Not surprisingly their top ten training focus is heavily PQS activity topics. The only videos watched were SAPR-D, Faces of Boot Camp (FOB), and Hair Main. GU-a657 recorded no training activity for Physical Fitness and only submitted their fitness information on the Fitness Input Form once. At a minimum, GU-a657 needs mentoring with respect to fitness. Granular training is tracked, however, without crosswalk information, so there is no means to identify this individual relative to his mobile application usage for mentoring.

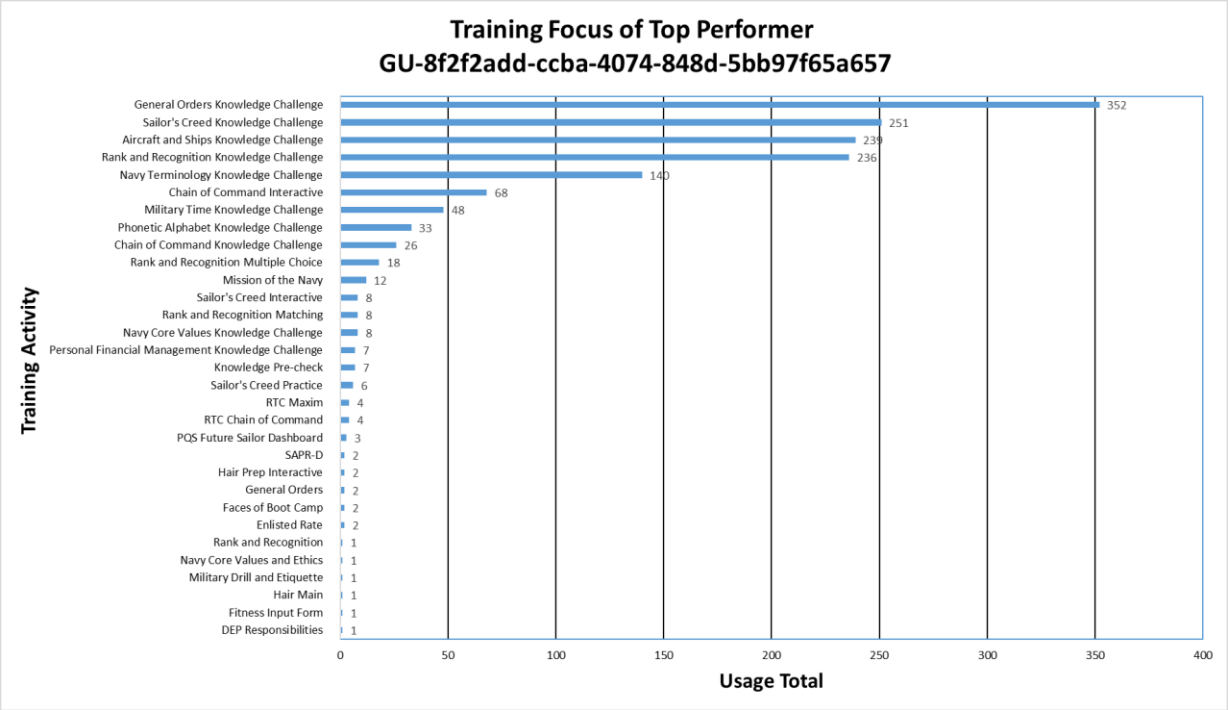


Figure 33: Training Focus of GU-a657

Figure 34 provides the assessment scores for GU-a657 on Chain of Command Knowledge Challenge over time, which show their struggle with the material and the need for mentoring similar to PU-ed05. The assessment scores on Rank and Recognition Knowledge Challenge in Figure 35 reveals this subject seems to be well understood by GU-a657 since their assessment scores are consistently 100. This is different from the usage activity of PU-ed05. Unlike PU-ed05, this Future Sailor's NRD is unknown and all other amplifying information (ship date, gender, age, accession rate, PQS completion code, etc.) that could facilitate effective mentoring is also not known. As shown, eHelm tracks both cohorts with precise detail. Without the benefits of crosswalk information and granular usage analysis or MC implemented by NRC N6, effective mentoring is grossly hampered.

The follow-on analysis, conducted at RTC outcome in the next section, are not possible with the GU cohort. However, the eHelmID is known on both PU and GU cohort and was used to develop the VRT_eHelm_Usage_Monthly Report sent to all participating NRD/NRS/TAOCs. This report does not automatically generate the training focus and individual training scores graphs, among other metrics, as you have seen and as was prototyped within the MC. The VRT_eHelm_Usage_Monthly Report provides the total statement count of each eHelmID and the date of the most recent training activity was recorded, see Figure 36. Appendix G represents the email message that distributes the report sent to each NRC N7 POC and the screenshots of each of the tabs in the monthly report so the recruiters/Onboarders have the data (see Figure 58) needed for mentoring.

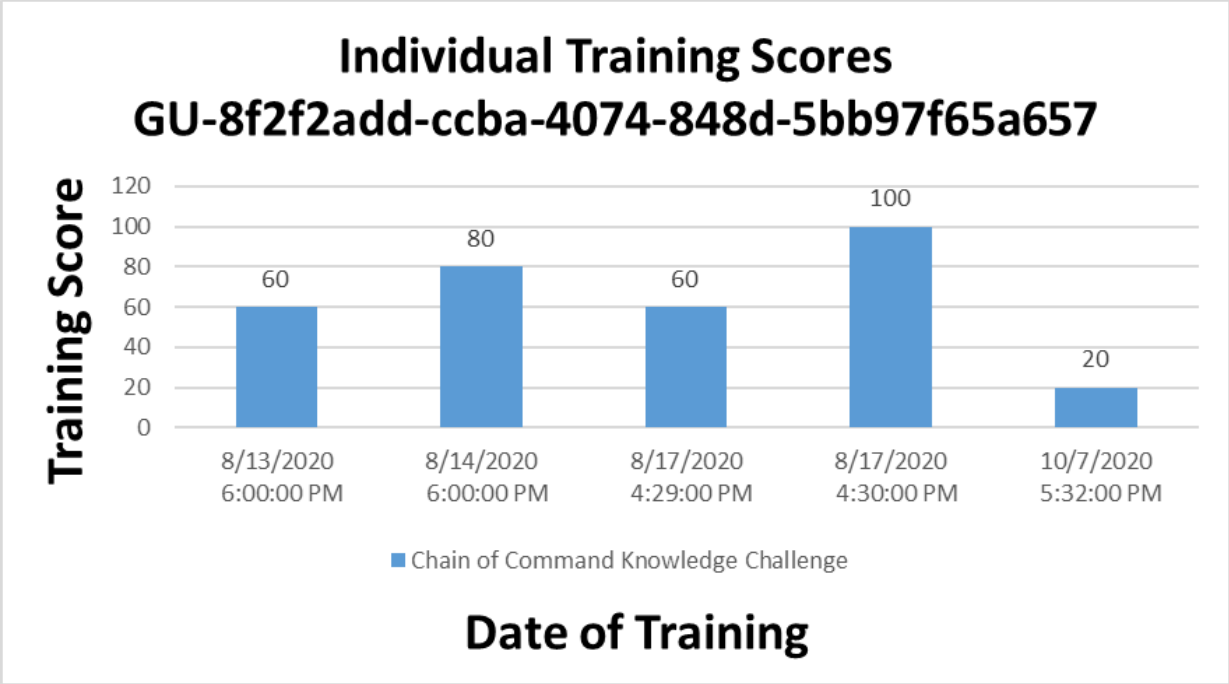


Figure 34: Chain of Command Knowledge Challenge Individual Training Scores GU-a657

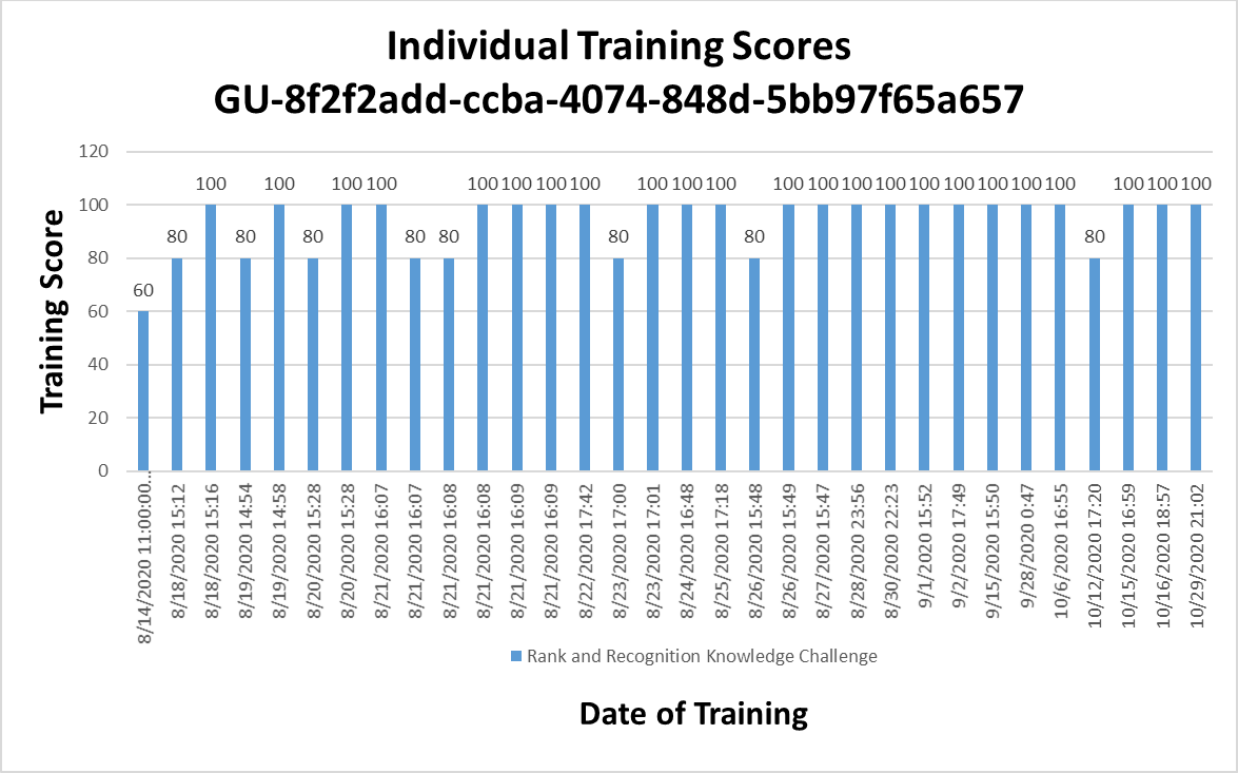
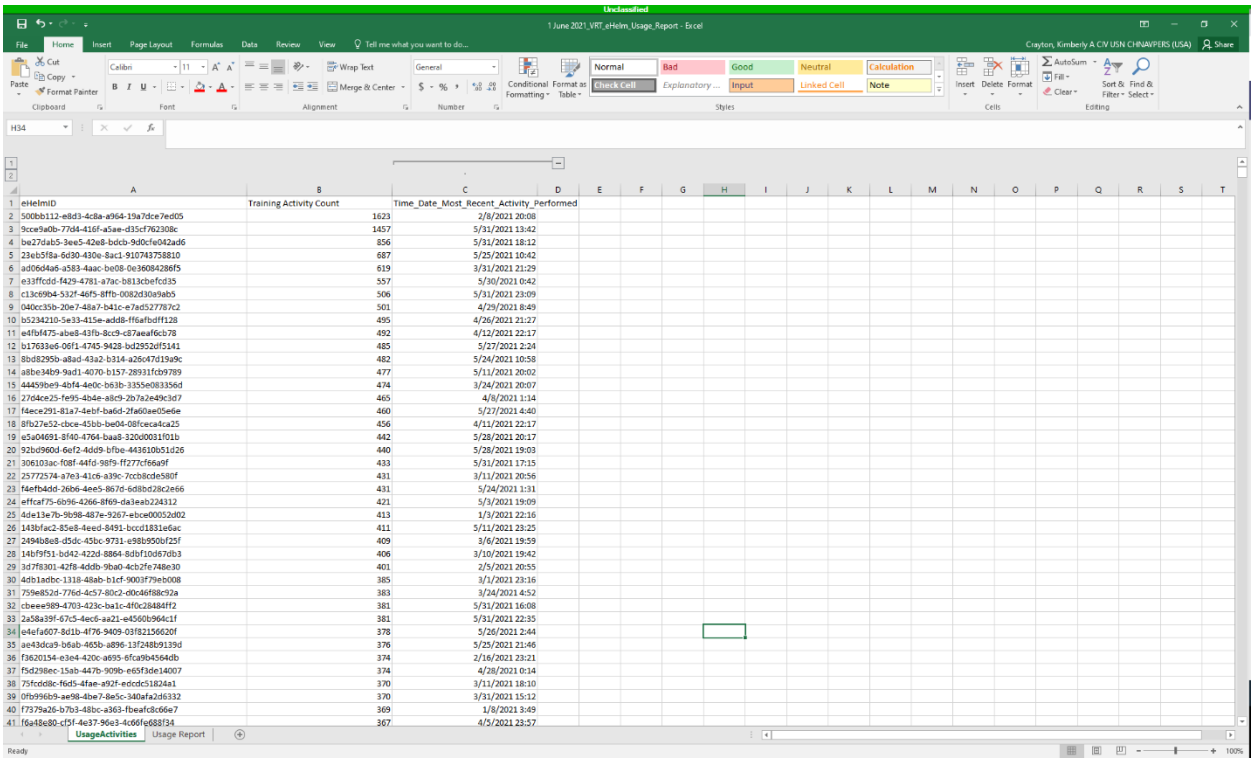


Figure 35: Rank and Recognition Knowledge Challenge Individual Training Scores GU-a657



eHelmID	Training Activity Count	Time_Date_Most_Recent_Activity_Performed
500bb112-e8d3-4c8a-a964-19a7dce7ed05	1623	2/8/2021 20:08
9cce9a0b-77d4-416f-a5ae-d35cf762308c	1457	5/31/2021 13:42
be27dab5-3ee5-42e8-bdcb-9d0cfe042ad6	856	5/31/2021 18:12
23eb5f8a-6d30-430e-8ac1-910743758810	687	5/25/2021 10:42
ad06d4a6-a583-4aac-be08-0e36084286f5	619	3/31/2021 21:29
e33ffcdd-f429-4781-a7ac-b813cbefcd35	557	5/30/2021 0:42
c13c69b4-532f-46f5-8ffb-0082d30a9ab5	506	5/31/2021 23:09
040cc35b-20e7-48a7-b41c-e7ad527787c2	501	4/29/2021 8:49
b5234210-5e33-415e-add8-ff6afbdff128	495	4/26/2021 21:27
e4fbf475-abe8-43fb-8cc9-c87aeaf6cb78	492	4/12/2021 22:17
b17633e6-06f1-4745-9428-bd2952df5141	485	5/27/2021 2:24
8bd8295b-a8ad-43a2-b314-a26c47d19a9c	482	5/24/2021 10:58
a8be34b9-9ad1-4070-b157-28931fcb9789	477	5/11/2021 20:02
44459be9-4bf4-4e0c-b63b-3355e083356d	474	3/24/2021 20:07
27d4ce25-fe95-4b4e-a8c9-2b7a2e49c3d7	465	4/8/2021 1:14
f4ece291-81a7-4ebf-ba6d-2fa60ae05e6e	460	5/27/2021 4:40
8fb27e52-cbce-45bb-be04-08fceca4ca25	456	4/11/2021 22:17
e5a04691-8f40-4764-baa8-320d0031f01b	442	5/28/2021 20:17
92bd960d-6ef2-4dd9-bfbe-443610b51d26	440	5/28/2021 19:03
306103ac-f08f-44fd-98f9-ff277cf66a9f	433	5/31/2021 17:15
25772574-a7e3-41c6-a39c-7ccb8cde580f	431	3/11/2021 20:56
f4efb4dd-26b6-4ee5-867d-6d8bd28c2e66	431	5/24/2021 1:31
effcaf75-6b96-4266-8f69-da3eab224312	421	5/3/2021 19:09
4de13e7b-9b98-487e-9267-ebce00052d02	413	1/3/2021 22:16
143bfac2-85e8-4eed-8491-bccd1831e6ac	411	5/11/2021 23:25
2494b8e8-d5dc-45bc-9731-e98b950bf25f	409	3/6/2021 19:59
14bf9f51-bd42-422d-8864-8db910d67db3	406	3/10/2021 19:42
3d7f8301-42f8-4ddb-9ba0-4cb2fe748e30	401	2/5/2021 20:55
4db1adbc-1318-48ab-b1cf-9003f79eb008	385	3/1/2021 23:16
759e852d-776d-4c57-80c2-d0c46f88c92a	383	3/24/2021 4:52
cbeee989-4703-423c-ba1c-4f0c28484ff2	381	5/31/2021 16:08
2a58a39f-67c5-4ec6-aa21-e4560b964c1f	381	5/31/2021 22:35
e4efa607-8d1b-4f76-9409-03f82156620f	378	5/26/2021 2:44
ae43dca9-b6ab-465b-a896-13f248b9139d	376	5/25/2021 21:46
f3620154-e3e4-420c-a695-6fca9b4564db	374	2/16/2021 23:21
f5d298ec-15ab-447b-909b-e65f3de14007	374	4/28/2021 0:14
75fcdd8c-f6d5-4fae-a92f-edcdc51824a1	370	3/11/2021 18:10
0fb996b9-ae98-4be7-8e5c-340afa2d6332	370	3/31/2021 15:12
f7379a26-b7b3-48bc-a363-fbeafc8c66e7	369	1/8/2021 3:49
f6a48e80-f5f4-4e37-96e3-4c66fe688f34	367	4/5/2021 23:57

Figure 36: Screen Shot of "UsageActivity" Tab from 1June2021_VRT_eHelm_Usage_ Report

Developing the VRT_eHelm_Usage_Monthly Report was also necessary since less than 20% of the Future Sailors that downloaded the VRT Mobile App provided their eHelmIDs for granular reporting. Coupled with the continuous shipping of this same cohort to RTC made the original reporting mechanism unsustainable. Moving to the VRT_eHelm_Usage_Monthly Report was inevitable without the implementation of MC. Now that usage analysis has been done at both an aggregate and granular level for reporting, analysis now shifts to outcomes at RTC to compare the performance of those that have shipped to RTC without the benefit of using VRT.

Usage Analysis and Recruit Training Command (RTC) Outcomes

The variables used to determine a Future Sailor's performance at RTC are specified in Table 2. There are three DEP Tests (DEP Test, Test 1, and Test 2), three Physical Training tests (PT0, PT1, and PT2), the Enrollment/Graduation category, Enlisting Paygrade Code, and the Future Sailor/Recruit's Rate. The DEP Test is administered upon the Future Sailor/Recruit's arrival at RTC during the recruit's processing days prior to any instruction. What a recruit trained on while in DEP is what is being measured with this assessment. A minimum score of 0 and a maximum score of 5 is possible. A passing score is 3.2 and a score of 4 is required to qualify for early advancement. Recruits also take three physical training tests. PT2 is the final official fitness test. The physical training standard is determined by the age and gender of each recruit. The physical test includes the curl-up, push-up (plank hold is a new substitute), two-mile run, and swim. Within the table, the values for PT0, the first entry indicate the status/outcome, so there is information such as pass, fail, Did Not Participate (DNP), Absent (ABS), or Incomplete (INC). The next value indicates amplifying information on the outcome such as failed PT, on Watch for PT2, and Completed PTR, where

PTR (Physical Training Remediation) group, such as FIT (Fitness Improvement Training), is an alternative method of testing when a recruit was assigned to a remediation group for their fitness. Appendix H provides a complete set of RTC variables definitions used throughout this report and for analysis.

Table 2: VRT Prime-User (PU) Top Performers Recruit Training Camp (RTC) Result

eHelm ID	PU Total VRT Usage	DEP TEST	TEST1	TEST2	PT0	PT1	PT2	EN_GR_NGR _CATEGORY	Enlisting PayGrade Code	Rate
500bb112-e8d3-4c8a-a964-19a7dce7ed05	3103	3.67	3.6	3.8	PASS COMPL	PASS COMPL	PASS COMPL	GR	E2	MR
2d0472af-b405-42d2-af6a-a2889932908d	1097	4.17	4.67	4.6	PASS COMPL	PASS COMPL	PASS COMPL	GR	E3	EM
D28A7C92-B6E8-4D69-A33B-8143E81A9BC6	608	4.17	4.73	4.47	FAIL FAIL PT	PASS COMPL	PASS COMPL	GR	E1	SECF
edaecc54-1cda-4185-b554-08aedaa71d84	569	4.83	4.93	4.67	PASS COMPL	PASS COMPL	PASS COMPL	GR	E1	AV
97293a85-51ae-49e9-b2ee-ee515982c0a8	567	4	4.67	4.87	PASS COMPL	PASS COMPL	PASS COMPL	GR	E1	MMS
413ab545-f53f-42b8-9157-95bd0f6fce96	478	4.33	4.8	4.73	PASS COMPL	PASS COMPL	PASS COMPL	GR	E1	AIRR
3a8eac24-5e9d-400c-b8bb-a3976c2cd919	474	3.67	4.73	4.13	PASS COMPL	PASS COMPL	PASS COMPL	GR	E1	ABH
6d50b447-9dd7-4314-a345-5c014e689252	466	3.33	4.47	4.33	FAIL FAIL PT	PASS COMPL	PASS COMPL	GR	E3	IT
4f398609-77dd-4b34-a3c6-d661a2cc62a1	404	4.5	4.8	4.6	PASS COMPL	PASS COMPL	PASS COMPL	GR	E3	SN
51662acf-0e3a-4233-8c50-b86fbf44a639	388	4	4	3.27	PASS COMPL	PASS COMPL	PASS COMPL	GR	E1	AO

PU-ed05 passed the DEP Test with a 3.67, passed all three physical training tests, advanced to E2, before graduating (GR) from RTC and entering the Navy as a Machinery Repairman (MR). A summary of RTC outcomes for the other PU top performers of VRT are as follows:

- 70% scored 4 or higher on DEP Test
- 90% scored 4 or higher of Test1
- 80% scored 4 or higher on Test2
- 80% passed PT0
- 100% passed PT1
- 100% passed PT2
- 100% Graduated from RTC
- 40% had early advancement in paygrade

These variables are excellent indicators of Future Sailor success at RTC. Additional variables that could be examined are the amount of time spent at RTC. Just as each Future Sailor has a DEP length, there are mandays defined at RTC that are of particular significance such as the under instruction (UI) mandays and awaiting instruction (AI) mandays. The other mandays may or may not be a factor depending on the additional circumstances. Before COVID-19, RTC did not have an AI code in Corporate Enterprise and Training Activity Resource System (CeTARS) for Restriction of Movement time (ROM) of 14 days. The official time for completing the training portion of basic training is 59 days for UI. Setbacks are in denominations of two weeks (14 days) and occur for various disciplinary reasons, but means you will not graduate with your initial training group, and have been set back two weeks and will graduate with another training group. PU-ed05 had 61 days UI and 14 days AI, but no setbacks, see Table 3. He did not have his PQS completed (N) before shipping to RTC. Additional time at RTC equates to a time delay reaching the Fleet. As a comparison to those that used VRT to those that did not, the analysis considered the time spent at RTC by examining UI mandays variable, AI, and number of setbacks. The summary of mandays for PU top performers is as follows:

- 60% of top performers completed RTC in less than 59 days

- 53.9 is the average UI mandays for PU top performers
- 100% of top performers had minimum 12 days of AI (note: ROM was mandatory during COVID-19 pandemic)
- 14.7 is the average AI mandays for PU top performers
- 90% of top performers had no setbacks during their instruction
- 10% or just one of the top performers completed PQS training before entering RTC
- 73.6 is the average Total mandays for PU top performers

Table 3: VRT Prime-User (PU) Top Performers Recruit Training Camp (RTC) Mandays and Setbacks

eHelm ID	PU Total VRT Usage	PQS Code	AI MANDAYS	AT MANDAYS	HL MANDAYS	HM MANDAYS	II MANDAYS	UI MANDAYS	TOTAL MANDAYS	Total Setbacks
500bb112-e8d3-4c8a-a964-19a7dce7ed05	3103	N	14	#NULL!	#NULL!	#NULL!	#NULL!	61	75	0
2d0472af-b405-42d2-af6a-a2889932908d	1097	N	14	#NULL!	#NULL!	#NULL!	1	44	59	0
D28A7C92-B6E8-4D69-A33B-8143E81A9BC6	608	N	13	18	#NULL!	#NULL!	#NULL!	47	78	0
edaecc54-1cda-4185-b554-08aedaa71d84	569	Y	15	#NULL!	#NULL!	#NULL!	#NULL!	64	79	0
97293a85-51ae-49e9-b2ee-ee515982c0a8	567	N	13	11	#NULL!	#NULL!	1	52	77	0
413ab545-f53f-42b8-9157-95bd0f6fce96	478	N	14	#NULL!	#NULL!	#NULL!	#NULL!	60	74	0
3a8eac24-5e9d-400c-b8bb-a3976c2cd919	474	N	24	#NULL!	#NULL!	#NULL!	2	62	88	1
6d50b447-9dd7-4314-a345-5c014e689252	466	N	15	#NULL!	#NULL!	#NULL!	#NULL!	46	61	0
4f398609-77dd-4b34-a3c6-d661a2cc62a1	404	N	12	4	#NULL!	#NULL!	#NULL!	45	61	0
51662acf-0e3a-4233-8c50-b86fbf44a639	388	N	13	2	#NULL!	10	1	58	84	0

The PU top performers cohort performed well at RTC. The Performance at Recruit Training Command (RTC) analysis will compare the larger body of PUs cohort to the Non-Users by revisiting these variables to know how the larger population performed.

Performance at Recruit Training Command (RTC)

Performance metrics for PU at RTC, see Table 4, were compared with the NU cohort. The NU cohort has 18,878 shippers to RTC and, as recorded in previous sections, has an age and gender makeup that is comparable to the PU cohort. This is notable since age and gender are determinants in the physical fitness standards for each recruit, which is a primary performance metric both before and after arriving at RTC. The PT0, PT1, and PT2 are the variables examined to understand performance at RTC as defined in Table 4. A complete table of RTC variables are defined in Appendix H. Within the VRT Mobile App there are 11 Fitness Activities available. All of the Fitness Activities pertain to curl-ups, push-ups, 2-mile run, or the swim being completed within time limits. Figure 37 provides the comparison outcome of PU vs. NU for the initial Physical Fitness test. The PU cohort Pass Completed value is 35.48% vs. 29.12% for NU cohort. Likewise the Fail Fail PT value is 57.69% vs. 58.59% for NU cohort. Overall the initial physical fitness test is brutal for both cohorts, yet the PU cohort Passed at a higher rate and failed at a lower rate than the NU cohort. This is a significant finding since fewer (6.36%) of the PU cohort are at risk of being sent home if they fail a second time; Figures 38 and 39 represent those results. The tables for these analyses that reflect the differences in the values are found in Appendix I. The second Physical Fitness test, administered 48 hours later, yields better results for both cohorts; however, the PU cohort has 64.15% vs. 57.27% for NU for the Pass Completed value. The Fail Fail PT value also shows improvement, yet again the PU cohort is slightly lower with 24.56% vs. 24.82% for NU cohort. The final Physical Fitness test, similar to others, reveals the PU cohort Pass Completed value as 79.09 vs. 76.36 for NU. The Fail Fail PT PT2 value is .026 vs. .51 for PU and NU respectively. Even though the differences in the two groups have tightened as they both have improved, the trend is the same; for each positive outcome, the PU cohort outperforms the NU

cohort, and for each negative outcome, its results are smaller. These findings indicate that the use of VRT positively impacts a Future Sailor's preparedness for and performance at RTC for the Physical Training Tests by (6.88%). In some ways, the preparedness has a career impact since the run time the Navy requires for an active duty Sailor age 50 and over to meet during their semi-annual physical fitness test is the same standard being measured prior to boot camp (Behnke, 2017). The DEP Test is also administered within the processing days upon arrival at RTC.

Table 4: Table of Variables for Analysis and Comparison

Variable Name	Variable Definition and Example
Total Usage	Total xAPI statements /engagement score computed for each training activity the Future Sailor trains on (e.g., 1 point given for each training activity)
NRD	Navy Recruiting District the Future Sailor accessed from
PQS Code	Personnel Qualification Standard Code, (values = Y-Yes, N-No, I-Incomplete)
ENROLL_DATE	Similar to shipping date; the day Future Sailors cross the threshold in Boot Camp and become recruits. This can also be compared to the active duty ship date (ADSD)
EN_GR_NGR_CATEGORY	Enroll, Graduate, Non-Graduate/Non-Academic-Non-Graduate (attires) category. Used to determine who has graduated or still going through Boot Camp.
AI_MANDAYS	Time after enrollment at RTC but before instruction period begins (i.e.; waiting for training); (Restriction of Movement (ROM) time is 14 days during COVID-19)
AT_MANDAYS	Awaiting Transfer Mandays
HL_MANDAYS	Hold Legal Mandays
HM_MANDAYS	Hold Medical Mandays
II_MANDAYS	Interruption of Instruction Mandays
UI_MANDAYS	Complete time for the instruction period at RTC; (59 days for Under Instruction Mandays)
TOTAL_MANDAYS	Sum of all Mandays; Total time spent at RTC; also verified by (Enroll_Date - EVNT_DT)
Program_MANDAYS	Official time to complete the training portion of basic training (i.e., 59 days for UI).
Total Setbacks	Number multiple (i.e., number multiplied by two weeks where the student does not graduate with their initial accession group, two weeks or longer for each setback)
DEPTEST	Academic test only (initial test); does not include the physical fitness portion
TEST1	Academic test only (second test); does not include the physical fitness portion
TEST2	Academic test only (third test); does not include the physical fitness portion
Gender	Sex of Student
Attrition Category	If reason for attrite is based on Psychological or No-Psychological issues
Age at Final Event Date	Calculated field for Age (Personal Event - Birth Date);
PT0	Physical fitness test only (initial test)
PT1	Physical fitness test only (second test)
PT2	Physical fitness test only (third and Final Test/Official)

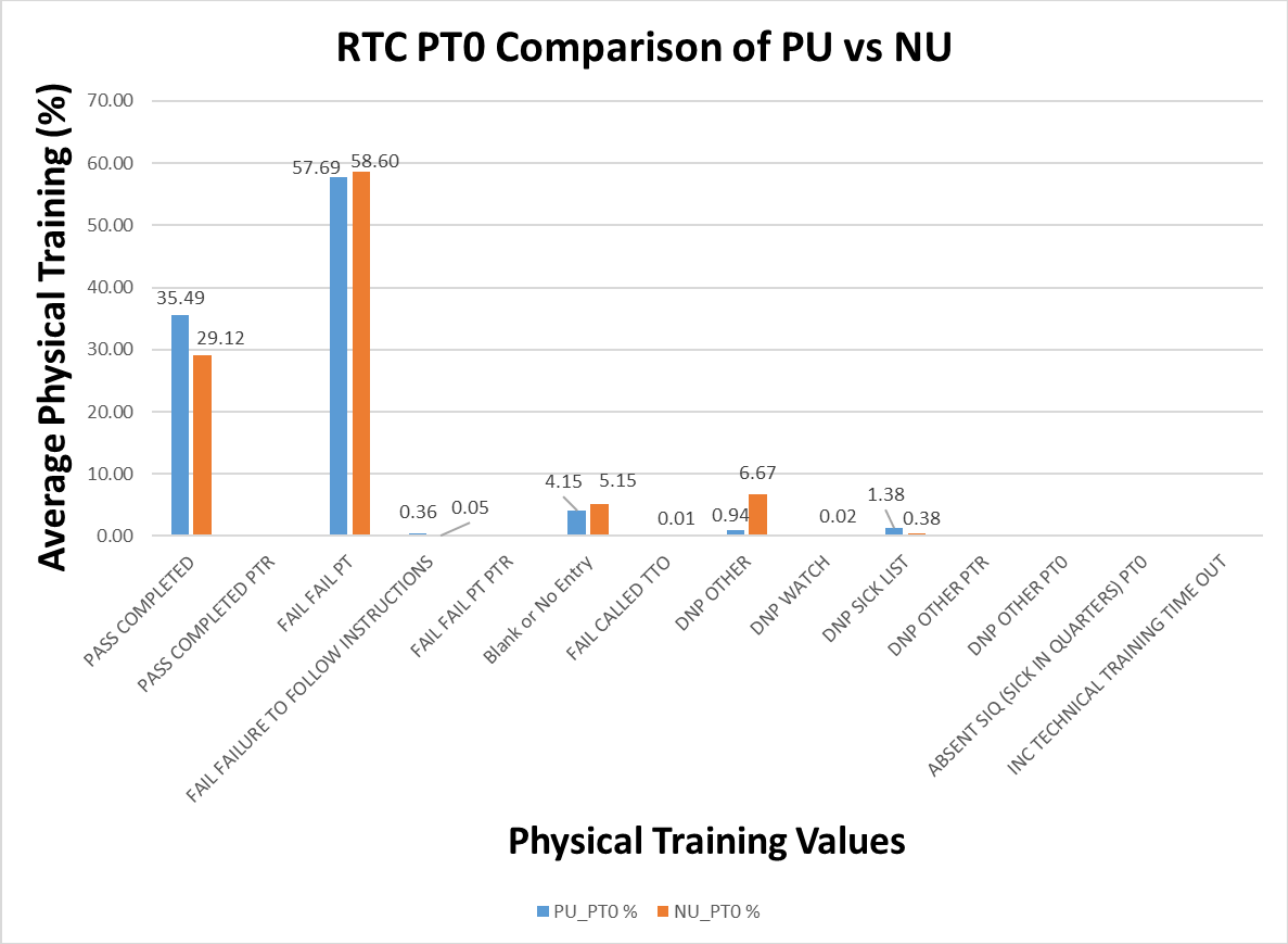


Figure 37: RTC PTO Comparison of PU vs. NU

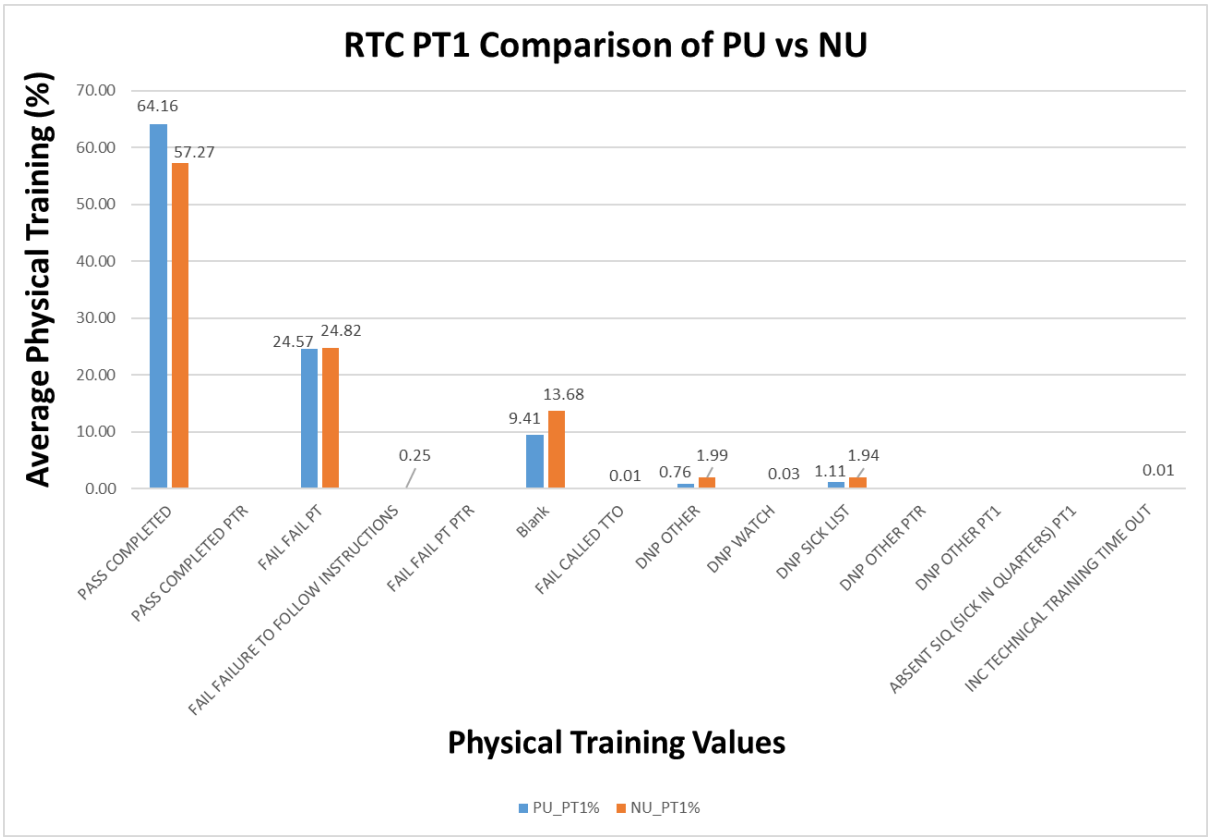


Figure 38: RTC PT1 Comparison of PU vs. NU

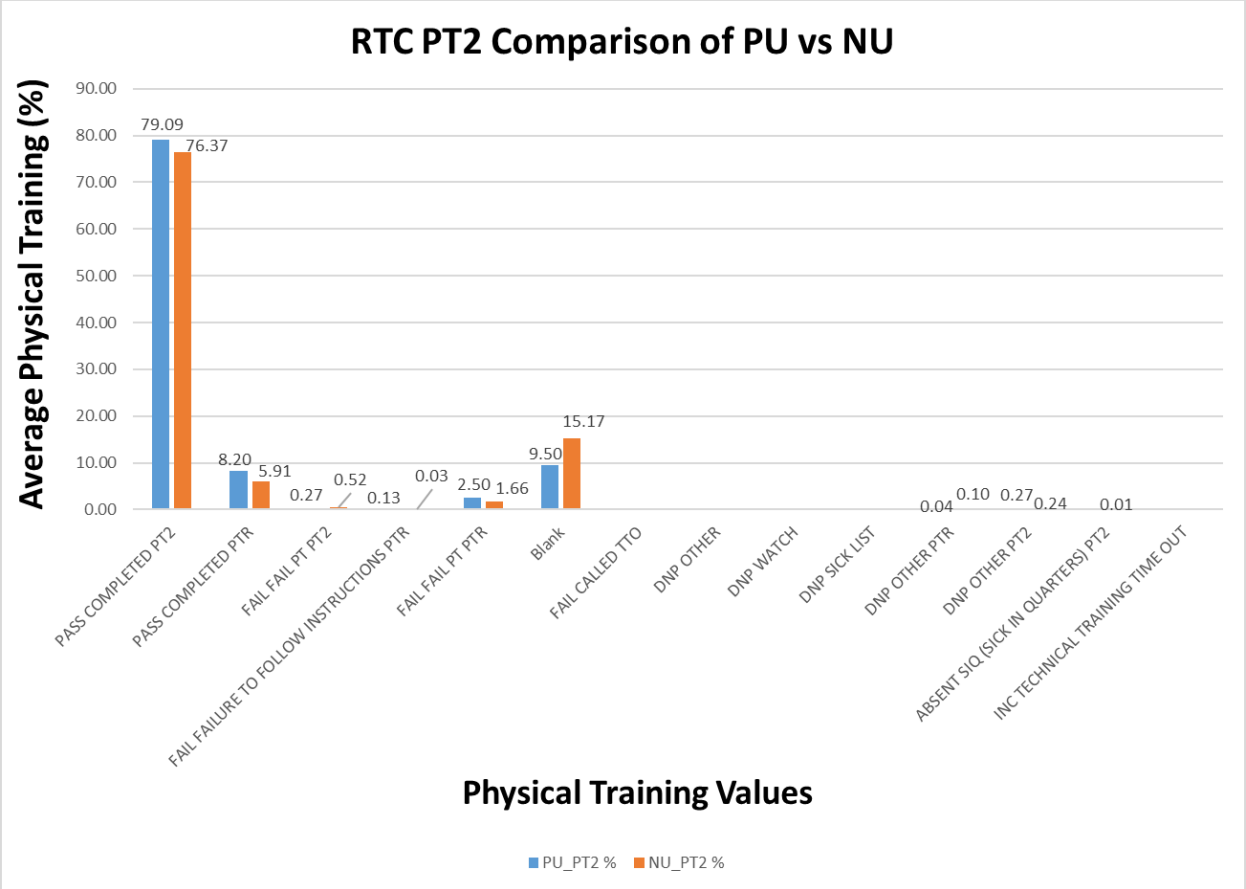


Figure 39: RTC PT2 Comparison of PU vs. NU

The DEP Test has a maximum score of 5 and a qualifying score of 4 for early advancement (coupled with other requirements). Figure 40 represents a comparison of the three tests for PU vs. NU. The PU cohort average score was 3.66 vs. 3.10 for NU cohort (i.e.; on average, the NU did not attain the minimum passing score of 3.2). For Test1 the PU cohort attained an average score a little higher than 4 vs. 3.75 for NU cohort. Similarly, the PU cohort outperformed the NU cohort on the final Test2 with 3.86 vs. 3.66 from NU cohort. As expected, under instruction, both cohorts improve; however, the PU cohorts consistently outperform the NU cohort with an average score higher than the minimum passing on each assessment while positioning themselves for advancement on Test2. A case could be made that if the Future Sailors received the necessary mentoring in DEP, Future Sailors would see a similar improvement and outcome at the Initial test (DEPTest) rather than at Test1. Nevertheless, it is only necessary to pass the test once so both cohorts demonstrated a lull, yet PU cohorts outperform NU cohorts on each of the assessments.

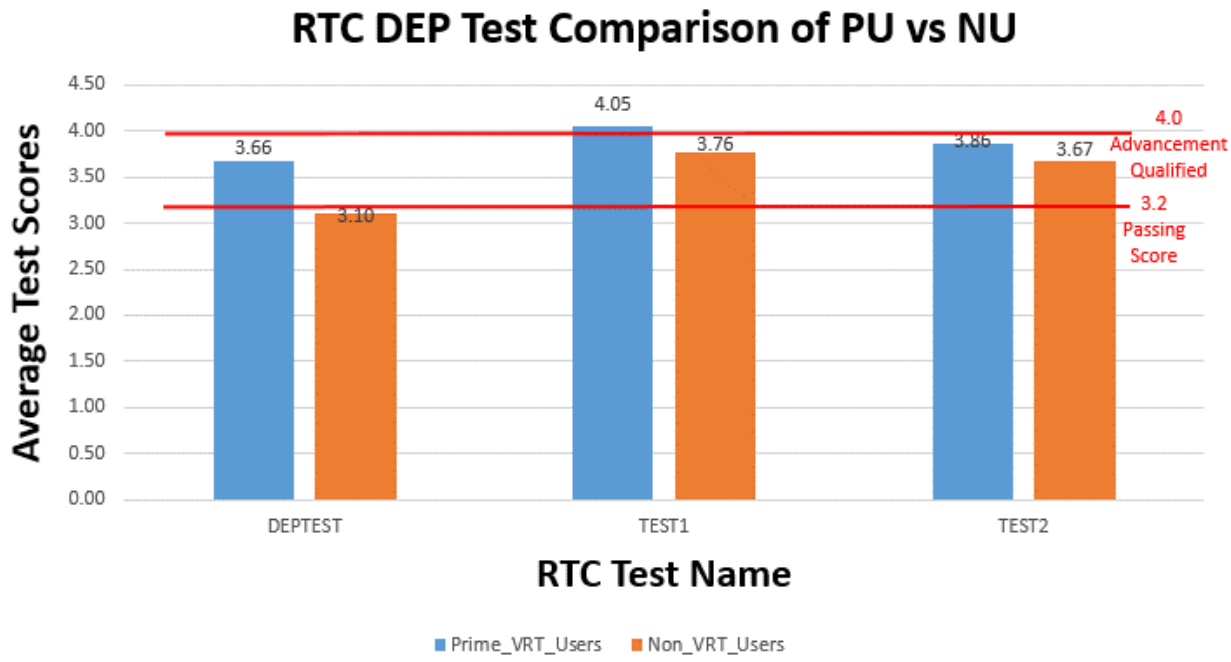


Figure 40: RTC DEP Test Comparison of PU vs. NU

The VRT Mobile App includes a number of training modules that prepare a recruit for their entire experience at RTC to be successful. This includes intangibles like Hair Prep or Resiliency/Toughness training so the recruit learns how to bounce back from challenges, separation, or failures. One of the ultimate performance variables is the EN_GR_NGR_CATEGORY defined in Table 4. Using this variable compare the graduation average of the PU to the NU in Figure 41. The graduation average for the PU is 86.94% vs. 84 % for NU. The attrites are lower for the PUs at 11.32% vs. 16% for the NU cohort. To put the impact of reducing RTC attrites into perspective, a modest annual fiscal year budget for NRC of $962,000,000 is approximated. A fiscal year accessions goal distributed over 26 Navy Recruiting Districts is roughly 36,000 active recruits (mostly Enlisted). This provides an average annual cost per recruit of $26,722. If the use of VRT could reduce RTC attrition by 4.68% points, this would potentially provide an approximate savings of over $45,000,000 to NRC's annual budget. This is roughly a 2000% ROI.

Finally a look at the RTC performance outcomes related to time with respect to setbacks and mandays, since less time spent at RTC means the more cost saving to training and Readiness for the Fleet. Figure 42 provides the comparison of PU to NU for setbacks, with each number of setbacks being a multiple of a 14-day period. For zero (0) setbacks, the PU cohort has 76% vs. 85% for NU cohort. For Set_Back1, the PU has more with 17% compared to 12%. This trend follows in each setback with PU being slightly more than the NU cohort.

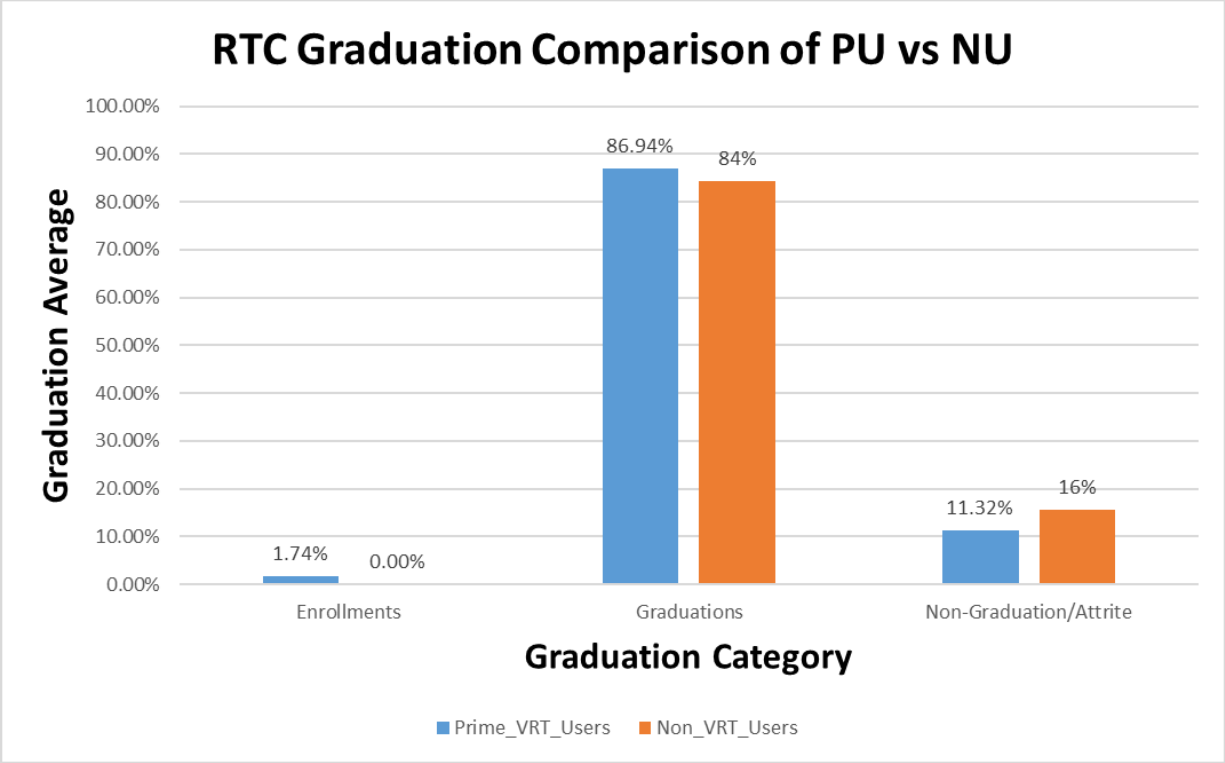


Figure 41: RTC Graduation Comparison of PU vs. NU

In comparing the mandays, the effects of COVID-19 are obvious. The NU cohort shipped to RTC six months before the launch of the VRT Mobile App. The VRT Mobile App was launched 7 April 2020, near the official declaration of the pandemic when ROM was mandated at RTC as 14 days. Figure 43 shows AI Mandays average of PU to be 14.48 vs. 0 days for the NU cohort. However, when the analysis compares the UI Mandays, the PU cohort is 48.72 vs. 54.31 days for NU cohort, much further below the 59 day Program Mandays. The PU cohort again outperforms the NU cohort by allowing them to cover the material in fewer days. Since Total Mandays are a sum of all the mandays, the immediate impact of COVID-19 is seen, with an outcome of 75.56 vs. 64.04 for the PU and NU respectively. Nevertheless, across the board and even during a pandemic, the PU cohort outperformed the NU cohort for every positive result, where the benefits of using VRT yield the effects of improving performance at RTC or reducing attrition.

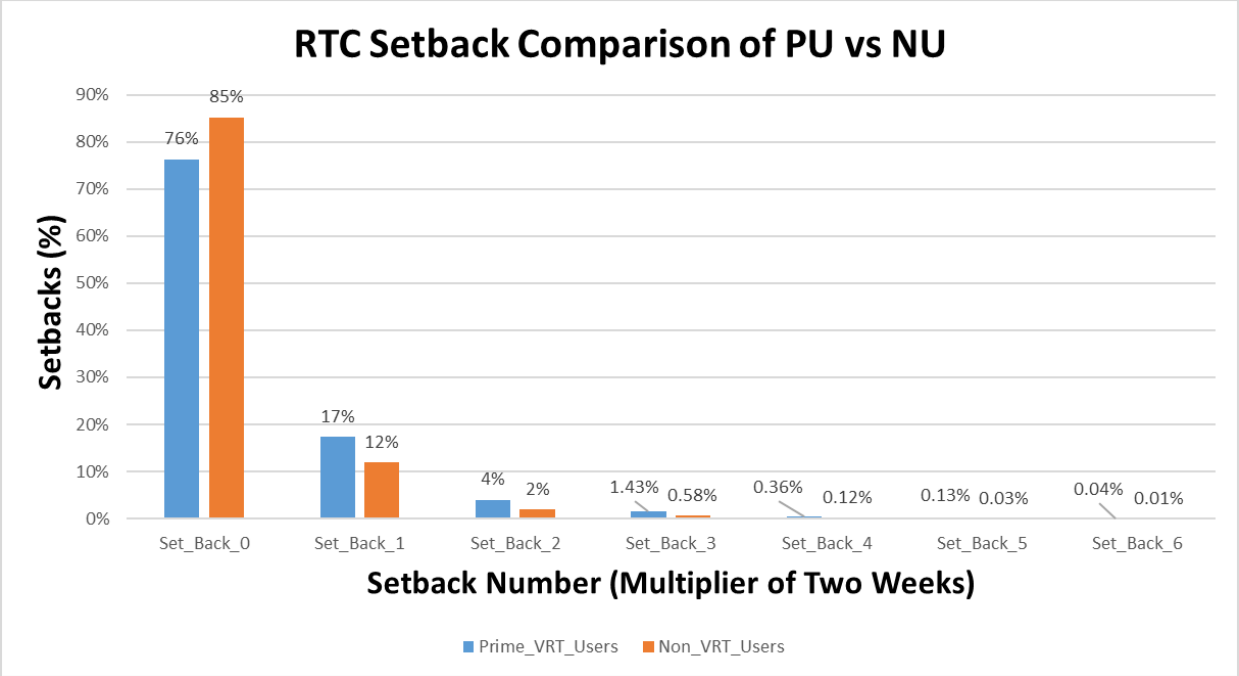


Figure 42: RTC Setback Comparison of PU vs. NU

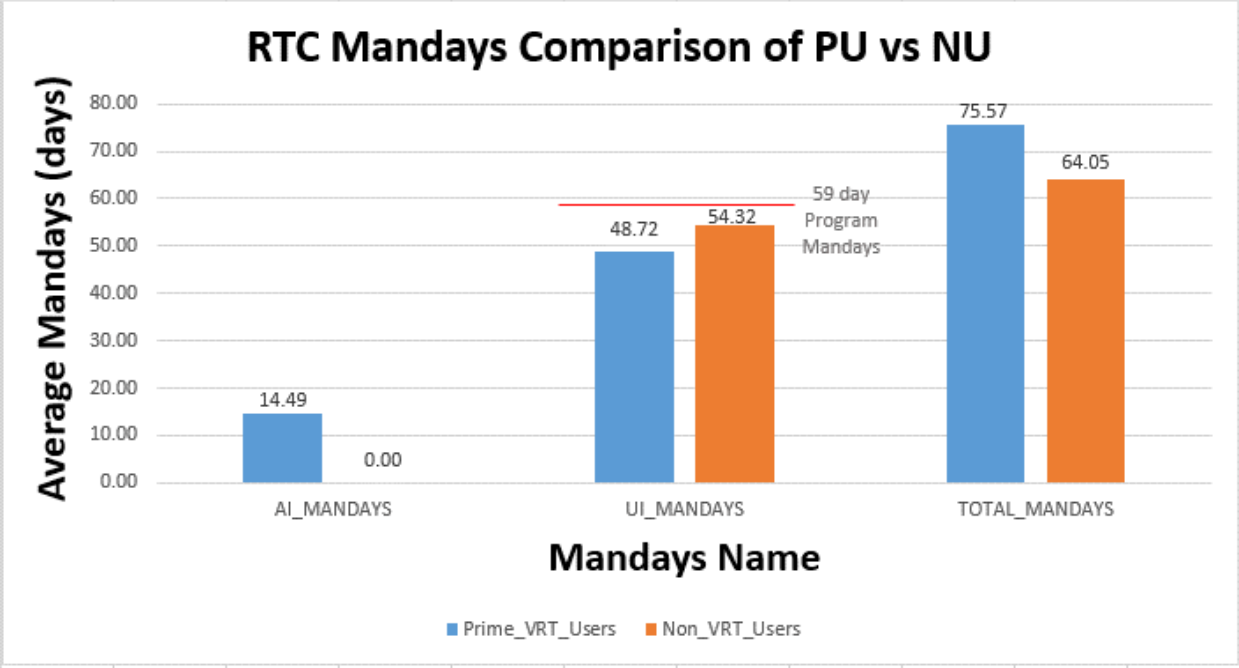


Figure 43: RTC Mandays Comparison of PU vs. NU

Conclusions and Recommendations

NAWCTSD has successfully transitioned from the RDT&E environment the entire VRT prototype to NRC N6 for production, maintenance, and use by recruiters and Future Sailors to manage DEP training. The VRT Mobile App/eHelm recorded 21,510 downloads by the first anniversary date with no service interruptions. Future Sailors have used the App to write 895169 xAPI statements to the LRS. Since the LRS, Training Content, and eHelm have distributed hosting, coordination is important so the tool can remain operational during sustainment. Most often usage analysis was used to determine the priority of what to update or enhance in the tool for it to remain relevant to its primary users. Sustainment procedures along with explanations of the motivating science and technologies are well documented for follow-on work in the respective arenas. Usage analyses were conducted to show how engaging the tool is for Future Sailors, how effective it is at preparing them for RTC, and for making recommendations for improvements for the tool's continued success. The premise being that, the more engaging the tool, the more the Future Sailor trains, the more prepared they are for RTC, the better their chance of success. As it was shown, preparation and success at RTC with more graduation from the PU cohort than the NU cohort translates into fewer attrites.

NAWCTSD offers the following recommendations as supported throughout the document: 1) NRC N6 Information Technology should immediately implement MC; 2) Update eHelm to include updating the eHelm source to ensure the removal of references to the UIWebView. Also update eHelm to support importing QR Codes from the device's internal library; 3) Update the Training Content (TC) to include the Future Sailor's Dashboard and General Orders TC and Knowledge Challenge; and, 4) Update the LRS to include a Leader Board shown for each NRS/TAOC with incentives (i.e., top Future Sailor leads physical fitness at DEP meeting, gets a star, receives a gift card) to encourage competition and promote more engagement in the tool and training.

Appendix A: OPNOTE 96 (OPERATIONS NOTICE 96)

N3

OPNOTE 96

7 Apr 20 N3 OPERATIONS NOTICE 96

From: Director, N3 Operations, Navy Recruiting Command

Subj: VIRTUAL RECRUIT TRACKER (VRT) DEPLOYMENT AND DEP TRAINING GUIDANCE

Ref: (a) COMNAVCRUITCOM 1130.8 (series)
(b) Standards Transition Acknowledgement Requirements Training (START) Guide
(c) Virtual Recruit Tracker Mobile Application Tutorial Video

Encl: (1) eHelm Quick Reference (QR) Code Link
(2) Obtain eHelm ID Instructions

1. Purpose. To announce the availability for download of the Virtual Recruit Tracker (VRT) Mobile App on the NAVAIR Mobile App Store and Public App Stores. The VRT Mobile App provides training guidance information to Recruiters/Onboarders on its capabilities, contents, and use as a DEP Training Management tool to be used by all Future Sailors (FS) while in the Delayed Entry Program (DEP).

2. Discussion. Attrition, fitness, and preparedness of our FS at Recruit Training Command (RTC) and while in DEP continues to be the focus of all stakeholders in the supply chain. As a result, NRC has developed the VRT Mobile App to provide FS with the necessary training documentation and information required in DEP in accordance with reference (b). This Mobile App tracks FS receipt and interaction with training information; build resilience/toughness with proven interventions; track physical fitness goals; and validate continuous learning while in DEP. Resilience intervention techniques will improve FS Resilience thereby making them stronger, healthier, and able to exhibit posttraumatic growth to overcome training setbacks to become successful at RTC and positively contribute to Fleet readiness. The Fitness Input Form located within the application provides a mechanism for the FS to be directly accountable to the Recruiter/Onboarder towards their fitness goals relative to the standards at RTC. Training the trainer with a video on the deployment, contents, and capabilities of this tool was determined to be the most effective means to facilitate its use in the production environment and to have an improved impact at all Navy Recruiting Districts (NRDs) and Navy Talent Acquisition Groups (NTAGs).

3. Action. Reference (c) is the VRT Mobile Application Tutorial Video located at <https://mpte.navy.deps.mil/sites/nrc/n3/SitePages/Home.aspx> , provides guidance on how to download and navigate the contents and capabilities of VRT, shall

be viewed by enlisted recruiting personnel at the Navy Recruiting Orientation Unit schoolhouse before completion of their course. Field Recruiters, Onboarders, and command DEP Coordinators shall view the VRT Mobile Application Tutorial Video in preparation for its required use. As announced by this OPNOTE and currently located in the Apple, Google app stores or the NAVAIR Mobile App Store <https://appstore.navair.navy.mil>, the mobile application (known as eHelm) will be fully deployed and ready for download by FS (the download of eHelm includes the blank application shell that does not include the VRT DEP training content). The QR code, enclosure (1), contains the information necessary to initialize the application with the DEP content package. The QR code is not unique to each NRD or NTAG.

a. At their earliest opportunity, Recruiters/Onboarders will announce to FS the existence of the mobile app.

b. FS shall be encouraged to download the mobile app to their personal Apple or Android mobile devices (Note: given internet connectivity and strength – FS should be encouraged to download the mobile app at DEP meetings. This is not a requirement, as the mobile app can be downloaded at any time).

c. Recruiters/Onboarders will present the QR code to be scanned by the mobile app. Upon scanning the QR code, the DEP training content will automatically download to the eHelm mobile app, and produce a random Global Unique Identifier called an eHelm ID for each FS's instance of the DEP training content. The eHelm ID is the mechanism used to track and verify learning progress of each individual FS.

d. Recruiters/Onboarders will encourage FS to immediately provide their eHelm ID to Recruiters/Onboarders once the DEP training contents download is complete. Enclosure (2) provides instructions on getting the eHelm ID.

e. Recruiters/Onboarders will match the eHelm ID with the SSN for each Future Sailor. This information is PII and should be protected as such. Station LCPO/LPO will email (encrypted) the current eHelm ID and SSN List to Kimberly.crayton@navy.mil, and Rodney.myers@navy.mil. A Future Sailor usage summary will be processed and provided to each participating Navy Recruiting Station.

4. VRT Deployment. Recruiters/Onboarders shall download the eHelm application and DEP content immediately upon receipt of this OPNOTE.

5. VRT Training. The VRT Mobile Application Tutorial Video is intended to guide the necessary training for downloading the App and DEP training content, and accessing the various interactive DEP training modules, i.e., Knowledge Checks, Interactive Assessments and Reviews, Videos, and Webpage Links. Once the mobile app and contents are on the devices, an overview of the contents symbols are explained before a number of demonstrations on the contents and capabilities are offered.

6. Feedback. NRC is intent on ensuring, through subsequent analysis, the improved impact on attrition, fitness, and preparedness of Future Sailors for RTC. The metrics and data collection are

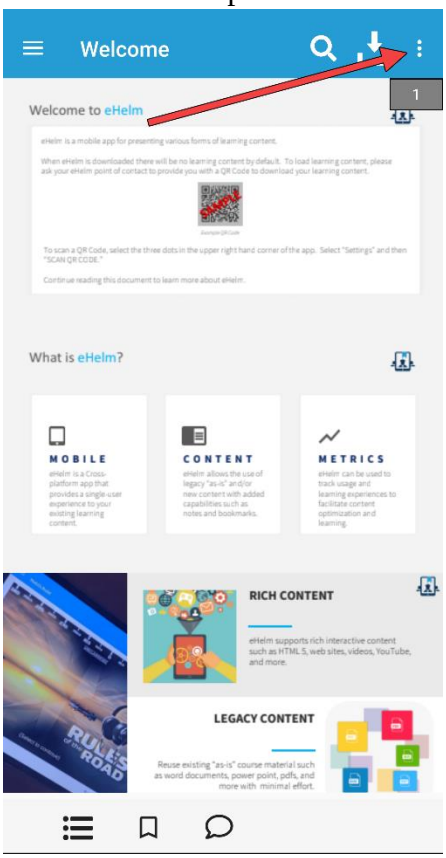
required to inform stakeholders of the outcomes while continued improvements are designed and planned from the variables captured. It is imperative that Recruiters/Onboarders and FS participate and allow NAWCTSD/NRC Analysts to perform analysis of the system's transition.

K. Y. GREEN

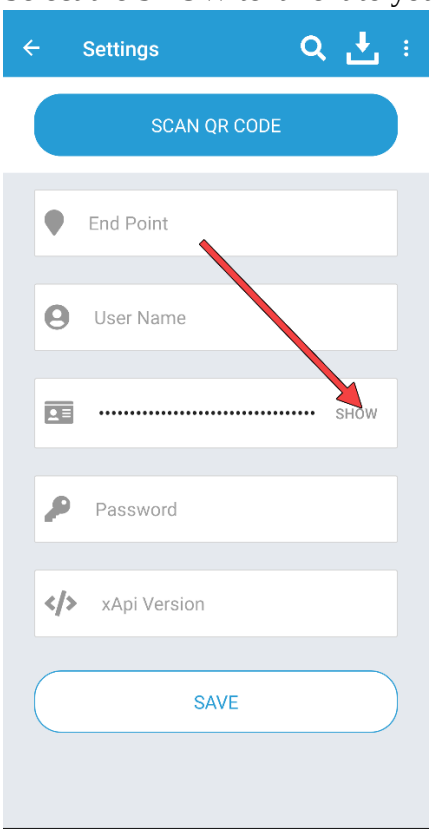
Enclosure (1)

Obtain eHelm ID Instructions

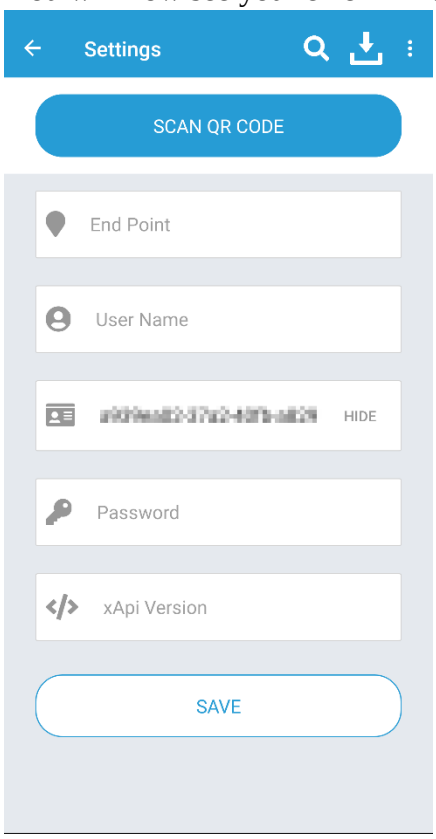
1. Launch the eHelm app from your device.
2. Select the 3-dot option menu from the top right.



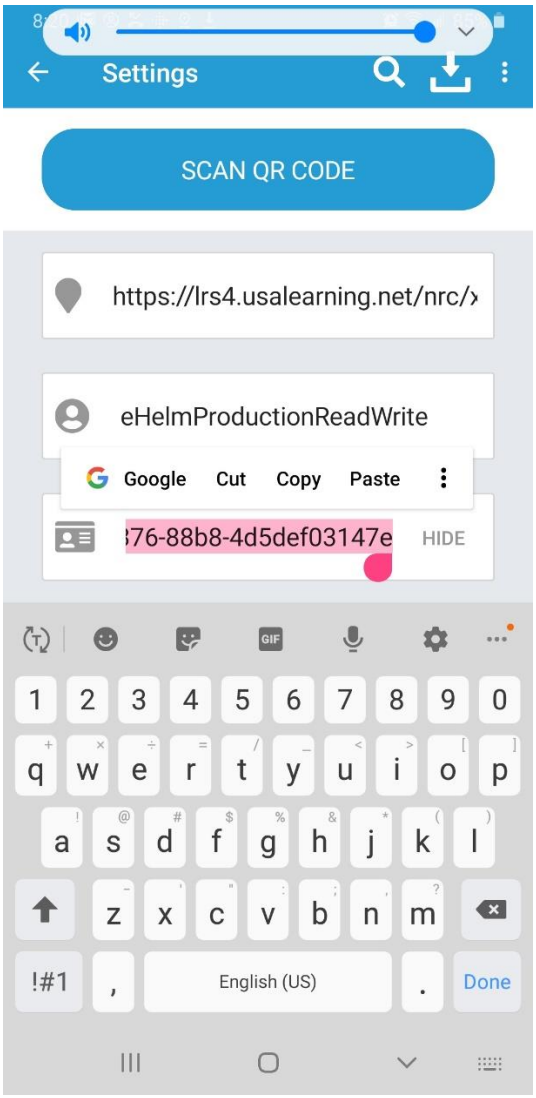
3. Select the SHOW text next to your eHelm ID field.



4. You will now see your eHelm ID.



5. Copy and paste the eHelm ID to the Future Sailor List with SSN (Note: The accuracy of the eHelm ID is critical, therefore it should only be copied and pasted.)
    a. Instruct FS to: Hold finger on eHelm ID; Copy function will appear; Select copy; Paste eHelm ID in text to Recruiter/Onboarder.
    b. Recruiter /Onboarder will copy and paste eHelm ID to FS list with SSN.



6. Station LCPO/LPO will provide Future Sailor List to NAWCTSD (Kimberly.Crayton@navy.mil and Rodney.Myers@navy.mil).

Enclosure (2)

Appendix B: Standard Operating Procedures (SOP) for Training Content Updates

Executive Summary

The Virtual Recruit Tracker (VRT) mobile application system is operating in a production environment. It is paramount to have the system fully operational at all times. Planned maintenance, such as training content updates or other hardware/software updating will be scheduled and communicated between the Training Content Managers (NRC N7), NAWCTSD VRT Principal, and NRC N6.

In support of VRT, NRC will host and maintain a test environment, and a production environment. The test environment will have all the necessary hardware/software components to fully test versions prior to deployment within the production environment. The production environment must remain dedicated to end-users with only one active version available to end-users.

There are four categories of Training Content updates: (1) expanding existing static content, (2) expanding existing video content, (3) expanding interactive training content, and (4) creation of new training content. Each has a very specific update process and timeline articulated below.

Any changes to the training content must be approved by the Training Content Manager (NRC N7) and the NAWCTSD VRT Principal before any further actions are taken. The overall goal is to avoid service interruptions and minimize manual actions from Recruiters, Onboarders, and Future Sailors, i.e., end-users. Each process may require multiple iterations before end-user release within the production environment.

Step-by-step technical updating processes are being documented for: NAWCTSD eHelm and Content Packaging Application (CPA) developer, NAWCTSD Content Packaging Application (CPA) manager, xAPI manager, and NRC web host. Once completed, each will be appended to this SOP.

(A.) Content Update Process for Expanding Existing Static Content, 1 week

Expanding existing static content, i.e., adding an additional .pdf, .ppt to existing training content

- Additional content must be approved by NAWCTSD VRT Principal, and the Training Content Manager (NRC N7)
- Additional content packaged, i.e., merged within existing training content, by NAWCTSD team
- Create an .xAPI statement for tracking usage, by NAWCTSD team
- Provide test version to NRC for hosting within testing environment
- System testing, by NAWCTSD team
- Provide updated content package to NRC for hosting within production environment
- Final testing by NAWCTSD team
- Notification of "Update Complete" to Training Content Managers, NRC N7

Note: Each scan of the official QR code will download the newest version of training content.

(B.) Content Update Process for Expanding Existing Video Content, "X" weeks

Expanding existing video content, i.e., adding a new video or replacing an existing video

- Additional content must be approved by NAWCTSD VRT Principal, and the Training Content Manager (NRC N7)
- Additional/updated Video provided to NRC PAO for YouTube hosting
- YouTube link provided by NRC PAO to NAWCTSD Principal
- Additional video link packaged, i.e., merged within existing training content, by NAWCTSD team
- Create an .xAPI statement for tracking usage, by NAWCTSD team
- Provide test version to NRC for hosting within testing environment
- System testing, by NAWCTSD team
- Provide updated content package to NRC for hosting within production environment
- Final testing by NAWCTSD team
- Notification of "Update Complete" to Training Content Managers, NRC N7
-

Note: Each scan of the official QR code will download the newest version of training content

(C.) Content Update Process for Expanding Existing Interactive Content, "X" month

Expanding existing interactive content, i.e., adding a new interactive or replacing an existing interactive content module

- Additional content must be approved by NAWCTSD VRT Principal, and the Training Content Manager (NRC N7)
- The interactive content must be described in explicit detail (by the individuals making the request), including each interaction, outcomes, and scoring and provided to NAWCTSD team
- Draft design/re-design of interactive content, by NAWCTSD team
- Draft design/re-design of interactive content presented to Training Content Manager for acceptance
- Develop, review, and finalize interactive content

- Interactive content packaged, i.e., merged within VRT training content menu, by NAWCTSD team
- Create an .xAPI statement for tracking usage, by NAWCTSD team
- Provide test version to NRC for hosting within testing environment
- System testing, by NAWCTSD team
- Provide updated content package to NRC for hosting within production environment
- Final testing by NAWCTSD team
- Notification of "Update Complete" to Training Content Managers, NRC N7

Note: Each scan of the official QR code will download the newest version of training content.

(D.) Content Update Process for creation of new Training Content, "X" months

Creation of new training content, i.e., creating new training content that has not existed

- Additional content must be approved by NAWCTSD VRT Principal, and the Training Content Manager (NRC N7)
- The new content must be described in explicit detail (by the individuals making the request), including each interaction, outcomes, and scoring and provided to NAWCTSD team
- Draft design of new content, by NAWCTSD team
- Draft design of new content presented to Training Content Manager for acceptance
- Develop, review, and finalize new content
- Interactive content packaged, i.e., merged within VRT training content menu, by NAWCTSD team
- Create an .xAPI statement for tracking usage, by NAWCTSD team
- Provide test version to NRC for hosting within testing environment
- System testing, by NAWCTSD team
- Provide updated content package to NRC for hosting within production environment
- Final testing by NAWCTSD team
- Notification of "Update Complete" to Training Content Managers, NRC N7

Note: Each scan of the official QR code will download the newest version of training content.

VRT xAPI Update Process

Summary
Any changes to the xAPI library/statements will be approved by the Training Content Manager (NRC N7) and the NAWCTSD VRT Principal before any of the below steps are executed. The overall goal is to avoid service interruptions and minimize manual actions from Recruiters, Onboarders, and Future Sailors, i.e., end-users.

The below includes the three step process. \

Note: These files are the public reference library for our xAPI statements. If anyone looks at the statements and follows the URIs, then they get a human-readable page that explains what it is. It is helpful for anyone doing analysis on the VRT xAPI data, or anyone who wants to re-use our library.

Step 1: the updated "xAPI_date.zip" will be sent to Kim/CNRC via email or DoD Safe

Step 2: upon receipt of "xAPI_date.zip" unzip and upload as individual files with the directory structure preserved. The directories on the webserver should be:

https://www.cnrc.navy.mil/vrt/ (134 files, 5 directories)
https://www.cnrc.navy.mil/vrt/activity-types/ (16 files)
https://www.cnrc.navy.mil/vrt/content/ (0 files - put the content package here, if possible)
https://www.cnrc.navy.mil/vrt/extensions/ (1 file)
https://www.cnrc.navy.mil/vrt/structured-messages/ (4 files)
https://www.cnrc.navy.mil/vrt/verbs/ (15 files)

When the files are uploaded to the Amazon webserver, the "Content-Type" needs to be manually set to "text/html" per the steps below. The steps are a little outdated so the exact interface and sequence might be a little different.

Step 3:

(in bucket) choose actions → upload
click "add files"
select the file to upload, in the dialog box
click "set details" and check any applicable boxes
click "set permissions" and check "make everything public" (if applicable)
click "set metadata"
click "add more metadata"
in the "Key" drop-down list, choose "Content-Type" and then type "text/html" in the "Value" box -- it's not a choice that's offered, but this is only a list of common types and doesn't limit what you can put in the box.
click "start upload"

Reference: https://stackoverflow.com/questions/20226430/multiple-pages-on-a-static-website-aws-s3

VRT Content Deployment Process

Summary

Any changes to the training content will be approved by the Training Content Manager (NRC N7) and the NAWCTSD VRT Principal before any of the below steps are executed. The overall goal is to avoid service interruptions and minimize manual actions from Recruiters, Onboarders, and Future Sailors, i.e., end-users. Each process may require multiple iterations before end-user release within the production environment.

The below includes two steps, and a process to "rollback" to the current production version in the event of error(s).

VRT **Test** Content Deployment Process: STEP 1:

1. NAWCTSD will provide the "test" content package i.e. (DEP_CONTENT_V2.0.1.content.zip) via the DoD SAFE site to the NRC IT contact. It will be
2. zipped up in a folder named (DEP_Content.zip)
3. NRC will receive a DoD SAFE system generated email with link and credentials to download the (DEP_Content.zip) once it has been fully uploaded.
4. Unzip the file (DEP_Content.zip) to a location of your choice. (DO NOT unzip the content package itself)
5. Remove existing content package in the "https://www.cnrc.navy.mil/vrt/test_content/" directory if one exist and upload to the AWS Cloud.
6. Copy provided "test" content package i.e. (DEP_CONTENT_V2.0.1.content.zip) to the following directory: "https://www.cnrc.navy.mil/vrt/test_content/" and upload to the AWS Cloud.
7. Notify NAWCTSD stakeholders below via group text message that the package has been deployed to the "https://www.cnrc.navy.mil/vrt/test_content/" directory in the AWS Cloud.
    a. Kimberly Crayton – XXXXXXXXXX cell
    b. Vinny Cate – XXXXXXXXXX cell
    c. Bryan Swan – XXXXXXXXXX cell
    d. Rodney Myers – XXXXXXXXXX cell
8. NAWCTSD stakeholders will test the download of the "Test" package and confirm updated content is available and is operating properly, i.e., functions as expected and generates LRS statements.
9. Upon successful test results the NRC IT contact will be notified that the "Test" package can now be deployed to the Production environment. See VRT **Production** Content Deployment Process: STEP 2 below

VRT **Production** Content Deployment Process: STEP 2

1. Rename existing content package in the “https://www.cnrc.navy.mil/vrt/content/” directory to example (DEP_CONTENT_V2.0.1.542020.content.zip) “05042020” being the current Date and upload to the AWS Cloud.
2. Move renamed content package in the “https://www.cnrc.navy.mil/vrt/content/” directory to “https://www.cnrc.navy.mil/vrt/archive/” directory and upload to the AWS Cloud.
3. Copy the latest content package from “https://www.cnrc.navy.mil/vrt/test_content/” directory to the “https://www.cnrc.navy.mil/vrt/content/” directory and upload to the AWS Cloud.
4. Notify NAWCTSD stakeholders below via group text message that the package has been deployed to the Production “https://www.cnrc.navy.mil/vrt/content/” directory in the AWS Cloud.
    a. Kimberly Crayton – XXXXXXXXXX cell
    b. Vinny Cate – XXXXXXXXXX cell
    c. Bryan Swan – XXXXXXXXXX cell
    d. Rodney Myers – XXXXXXXXXX cell
5. NAWCTSD stakeholders will test the download of the “Production” package and confirm updated content is available and is operating properly, i.e., functions as expected and generates LRS statements.
6. If any issues arise during the deployment to “Production” execute the VRT Production Content **Rollback** process below.

VRT Production Content **Rollback** Process in the event of error(s).

2. Remove the existing content package from “https://www.cnrc.navy.mil/vrt/content/” directory and upload to the AWS Cloud.
3. Copy the most recent content package (as per the date portion of the package name) from the “https://www.cnrc.navy.mil/vrt/archive/” directory example (DEP_CONTENT_V2.0.1.542020.content.zip) and upload to the AWS Cloud.
4. Rename the content package in the “https://www.cnrc.navy.mil/vrt/content/” directory to (DEP_CONTENT_V2.0.1.content.zip) and upload to the AWS Cloud.
5. Notify NAWCTSD stakeholders below via group text message that the previous package has been deployed to the Production “https://www.cnrc.navy.mil/vrt/content/” directory in the AWS Cloud.
    a. Kimberly Crayton – XXXXXXXXXX cell
    b. Vinny Cate – XXXXXXXXXX cell
    c. Bryan Swan – XXXXXXXXXX cell
    d. Rodney Myers – XXXXXXXXXX cell

NAWCTSD stakeholders will continue testing (as described in steps 1 and 2 above) the download of the rollback “Production” package and confirm the correct content is available.

Appendix C: Content Package Application Types and Work-a-Rounds

Table 5: CPA Content Types and Alternate Solutions

Content Type	Status	Work Around
Flash	Not supported	Convert to HTML 5
Power Point	Animations and links are not supported.	Rework power point to remove animations. Add wording indicating what link (either in the content package or external URL you would like to have your uses go to).
Word	Table of content and links are not supported.	Create Table of Contents from within the CPA.
PDF	Table of contents, bookmarks, notes, and links are not supported.	Create Table of Contents from within the CPA.
Content Size	Limitation is dependent on the device's storage size. Keep in mind users may also be downloading the content package from the internet so file size could be an issue.	Use links to YouTube or internet hosted videos to reduce file size. Use external links to web pages to reduce file size. Compress video if possible.
Video	Supported file types: mpeg, mpg, avi, mov, m4v, mp4, wmv, wav, mp3, YouTube	Use a program such as ffmpeg to convert your video to a supported format. Use to links YouTube or internet hosted videos.

Appendix D: VRT Mobile App (eHelm) Navigation Topics

Table 6: VRT Mobile App (eHelm) Navigation Topics

Module Container	**Subtopics**
Knowledge Pre-check	
PQS Future Sailor Dashboard	
Mission of the Navy	
Faces of Boot Camp	
SARR-D	
Navy Core Values and Ethics	
	Navy Core Values and Ethics
	Bystander Intervention Principles
	Destructive Behavior Involving Alcohol
	Navy Core Values Knowledge Challenge
	Integrity Video
	Accountability Video
	Initiative Video
	Toughness Video
	Conclusion Video
DEP Responsibilities	
General Orders	
	General Orders
	General Orders Knowledge Challenge
RTC Maxim	
	RTC Maxim
	Enlisted Rate
	Enlisted Rate Webpage
Sailor's Creed	
	Sailor's Creed
	Sailor's Creed Video
Code of Ethics	Sailor's Creed Practice
	Sailor's Creed Interactive
	Sailor's Creed Knowledge Challenge
RTC Chain of Command	
	RTC Chain of Command
	Chain of Command Interactive
	Chain of Command Knowledge Challenge
Military Drill and Etiquette	
	Military Drill and Etiquette
	Military Drill and Etiquette Video

Module Container	**Subtopics**
	Facing Movements Video
Navy Terminology	
	Navy Terminology
	Military Time Practice
	Phonetics Alphabet Knowledge Challenge
	Navy Terminology Knowledge Challenge
	Military Time Knowledge Challenge
Rank and Recognition	
	Rank and Recognition
	Rank and Recognition Multiple Choice
	Rank and Recognition Matching
	Rank and Recognition Knowledge Challenge
Aircraft and Ships	
	Aircraft and Ships
	Aircraft and Ships Knowledge Challenge
Physical Readiness	
	Physical Readiness
	Push Up Video
	Curl Up Video
	RTC Pre-Arrival Physical Training Plan
	Fitness Input Form
Hair Preparation	
	Hair Main
	French Braid
	Two Braid
	Sock Bun
	Hair Prep Interactive
Personal Financial Management	
	Personal Financial Management
	Leave and Earnings Statement (LES)
	Personal Financial Management Knowledge Challenge
Resilience	
	Resilience Welcome
	Resilience Scale Interactive Pre Assessment
	Resilience Brief
	FAQ and Resources

Module Container	**Subtopics**
	Resilience Skill: Coping Under Stress
	Resilience Skill: Adaptability
	Resilience Skill: Motivating Forces
	Resilience Skill: Promoting a Sense of Meaning and Personal Control
	Review
	Resilience Scale Interactive Post Assessment
Crossing Quarterdeck Interactive	
Advancement	
Card App	
	7 PQS Topics
	Learn
	Quiz
	Progress
	Settings
Knowledge Post-check	

Appendix E: Virtual Recruit Tracker (VRT) Usage Analysis District and Rate

The VRT Non-Users (NU) Count by PQS Code and Enlisting PayGrade Code is calculated in Figures 44 and 45. However, a considerable amount of data is missing from the analysis of the PQS code for the Non-User Cohort only. This is due to NRC clearing this variable on 5 June 2021 and re-using this field to indicate Restriction of Movement (ROM) before shipping to RTC. Within the analysis below, the data only included Future Sailors that shipped by 30 Sept 2020; all other data for the Non-User PQS Code was cleared. As an estimate for comparison for example, if each of the PQS Code percentages for "I", "N", and "Y" were doubled it would only show 6.52%, 60.36%, and 12.5% respectively (i.e., the PU cohort would have more PQS completions with 7.04%, 61.79%, and 31.16% respectively for "I", "N", and "Y", see Figure 24).

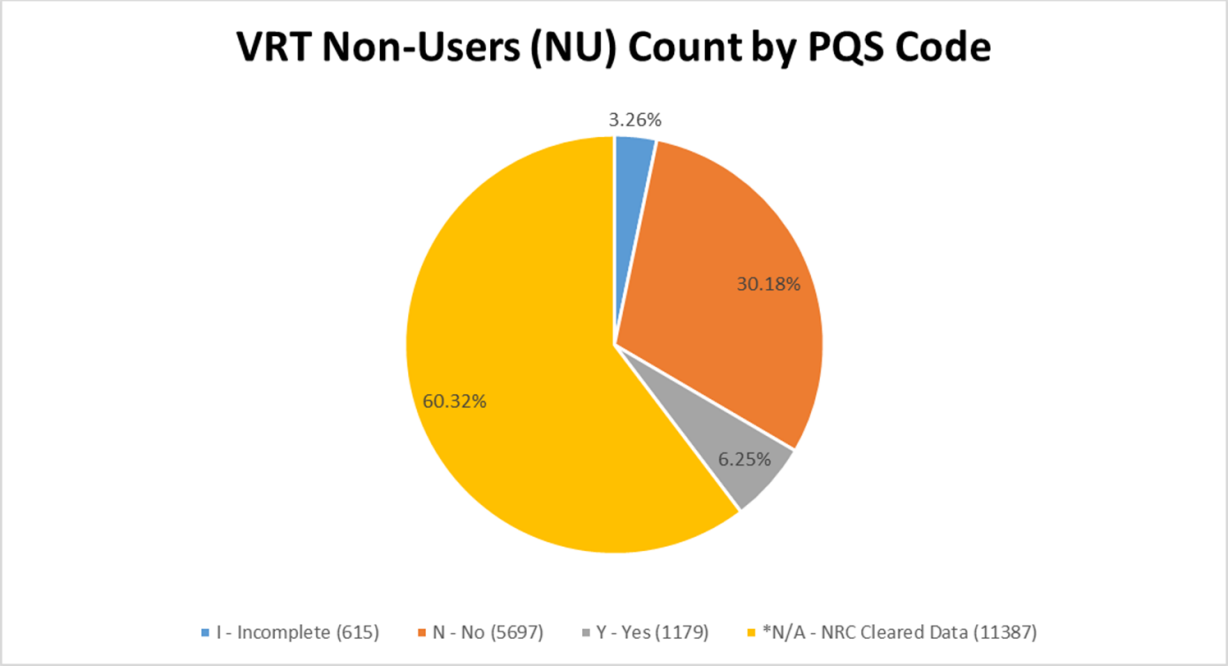


Figure 44: VRT Non-Users (NU) Count by PQS Code

E1s are nearly 50% of the Enlisting PayGrade Code and E2s are 6.44% in Figure 45 for the NU cohort. For comparison recall, the PU cohort with 62.41% and 7.31% respectively for E1s and E2s in Figure 25. The blank data (i.e., #N/A) can reasonably be expected to be E1s vs. another advanced paygrade; thus combining E1s and #N/A estimates E1s to be 70.64% for the NU cohort, see Figure 46. Although an estimate is used in this example, the E1 Enlisting PayGrade Code represents the opportunity for Onboarders to target the population for mentoring, encouraging training, and incentivizing these Future Sailors to position themselves for early promotion.

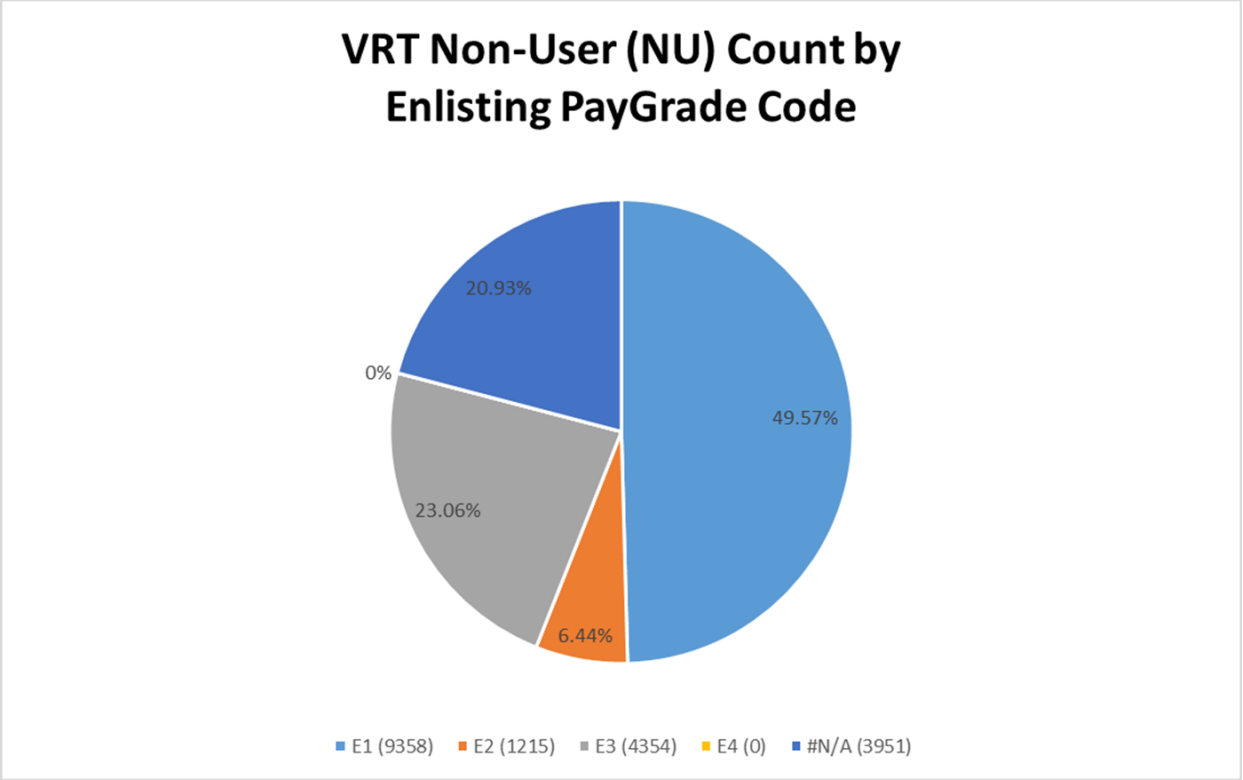


Figure 45: Non-User (NU) Count by Enlisting PayGrade Code

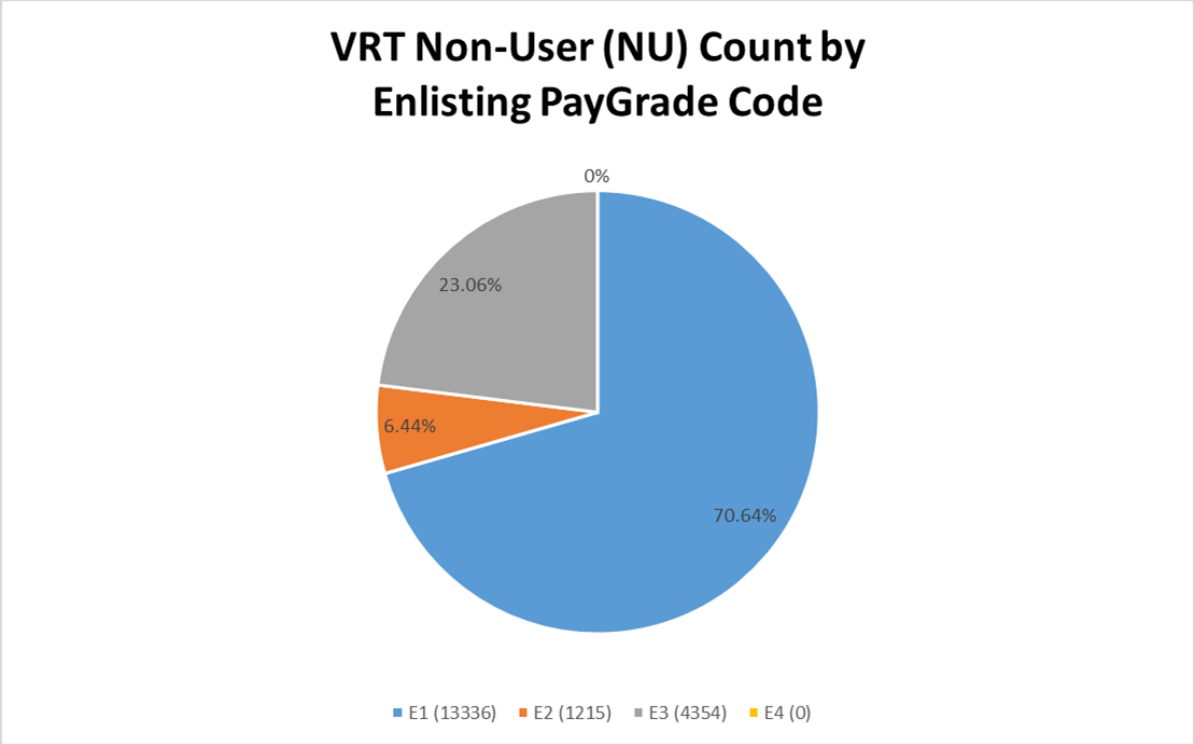


Figure 46: VRT Non-User (NU) Count by Enlisting PayGrade Code, Estimate E1

Figure 47 provides district specific information for our VRT Prime-Users (PU). For example Navy Recruiting District (NRD) 253 has 380 and NRD 156 has 314 Future Sailors that have used the tool, provided their eHelmID crosswalk information, and have shipped to RTC. There are three NRDs that have just one FS in the PU cohort; those individuals will represent the actual and average usage for that district. Figure 47 represents the total usage per NRD for PUs. It is reasonable to expect the fewer Future Sailors for an NRD the more training that is conducted at that NRD since some Future Sailors will train more/less than others based on mentoring. Onboarders can get a relative comparison for how training is going overall for their NRD/NRS/TAOC, but it is important to eventually understand the training usage at the FS level for effective mentoring.

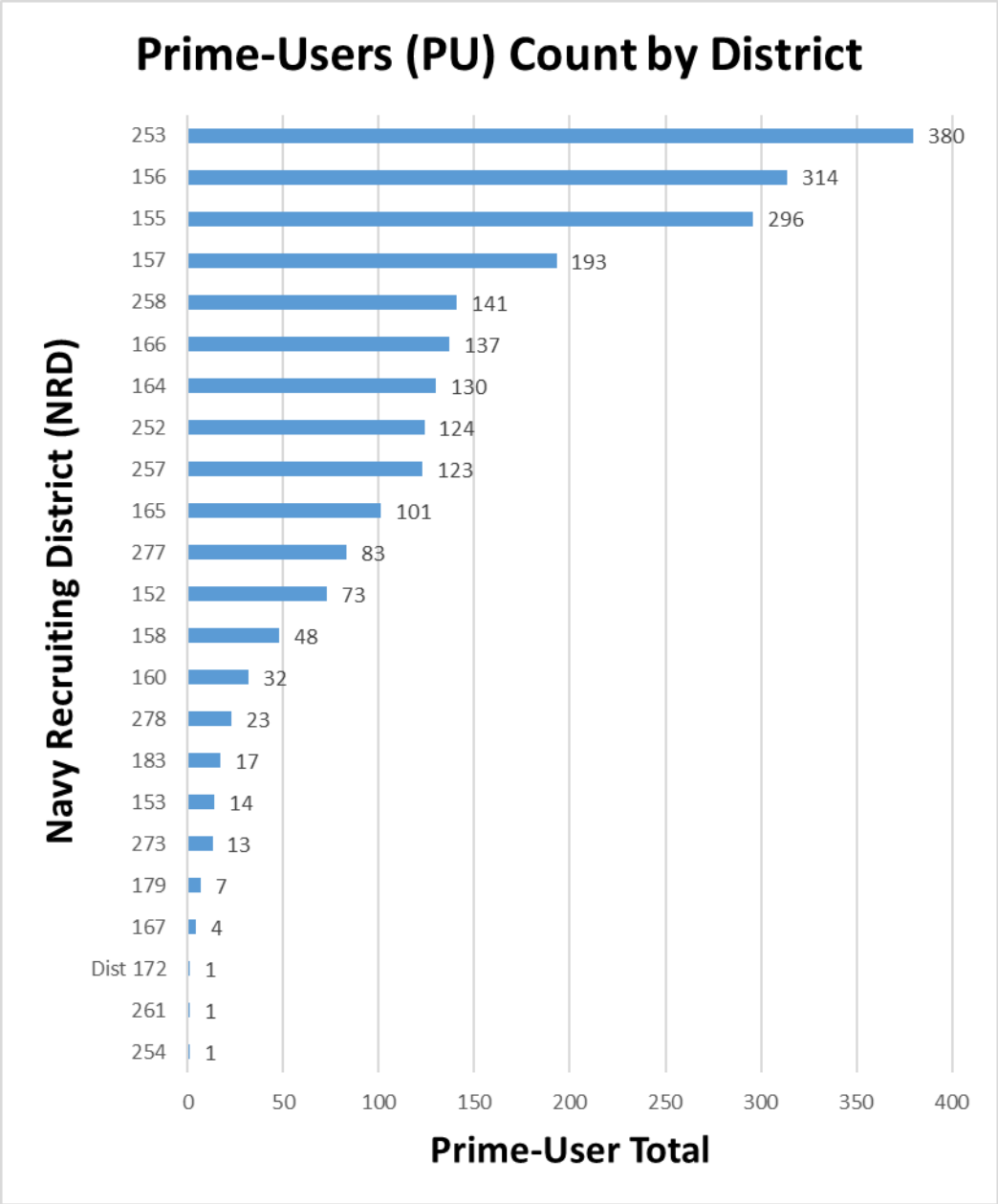


Figure 47: Prime Users (PU) Count by Navy Recruiting District (NRD)

Later in the analysis when the top performers in the PU cohort are reviewed, make note of which districts they represent. NRD 253 has accomplished significate training in the tool followed by NRD 156. Looking at NRDs with fewer than ten reported users in Figure 47, (i.e., NRD 167 vs. NRD 179), observe that NRD 167 (with 4 PUs) has actively trained more than NRD 179 (with 7 PU Future Sailors) 345 vs. 9 usage statements. This is supported with the average usage per district.

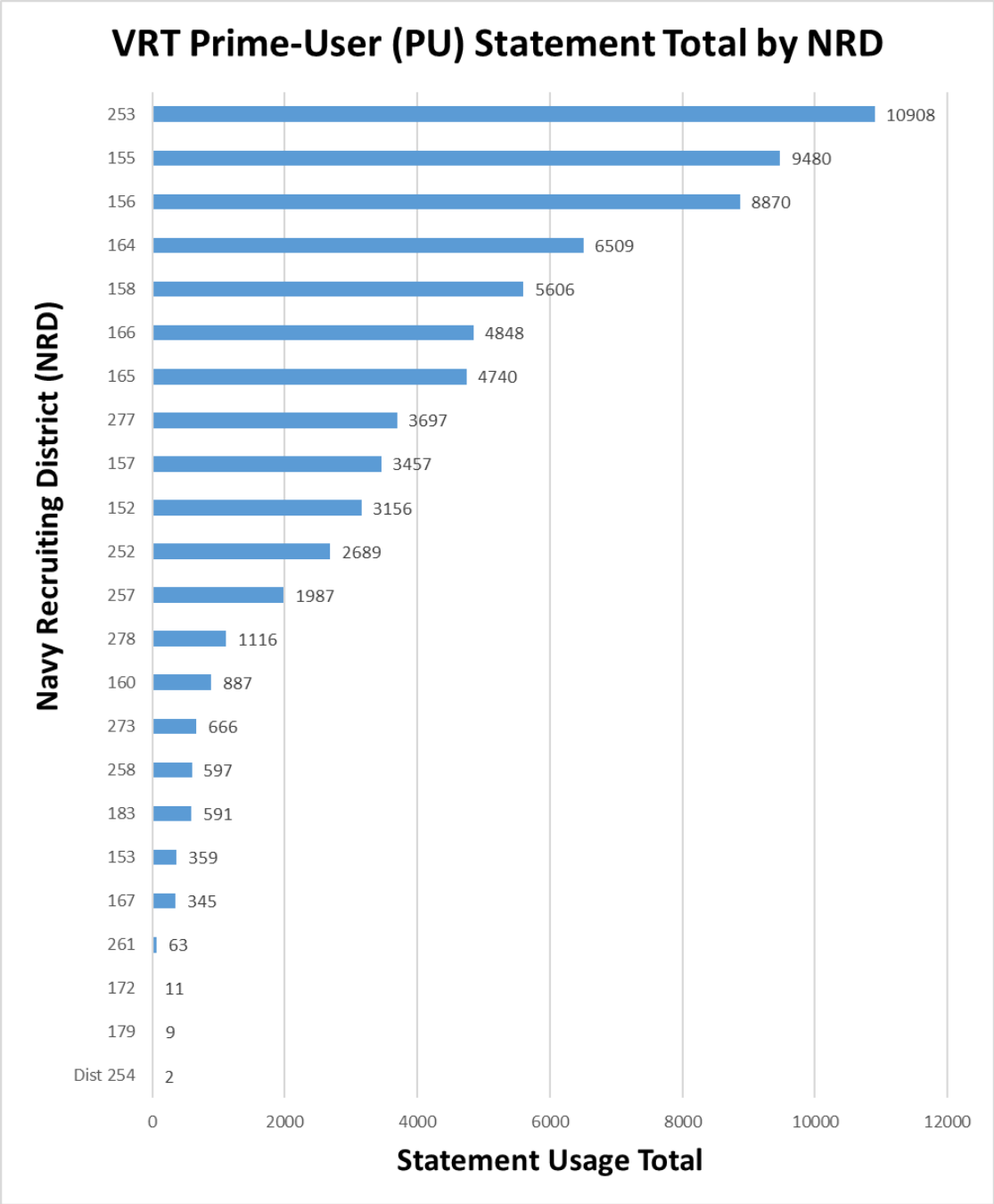


Figure 48: VRT Prime-User (PU) Statement Total by Navy Recruiting District (NRD)

Figure 49 gives the average usage per NRD, where NRD 252 with an average usage of 39.54 has trained two times more often as NRD 257 with 16.15 usage average. The average usage per NRD is a useful comparative metric of districts of different sizes and is supported by a Paired t-test (Statistical Comparison of Two Groups, 2021). The PU table of values can be found in Appendix F with each graph ordered by NRD rather than by largest to smallest.

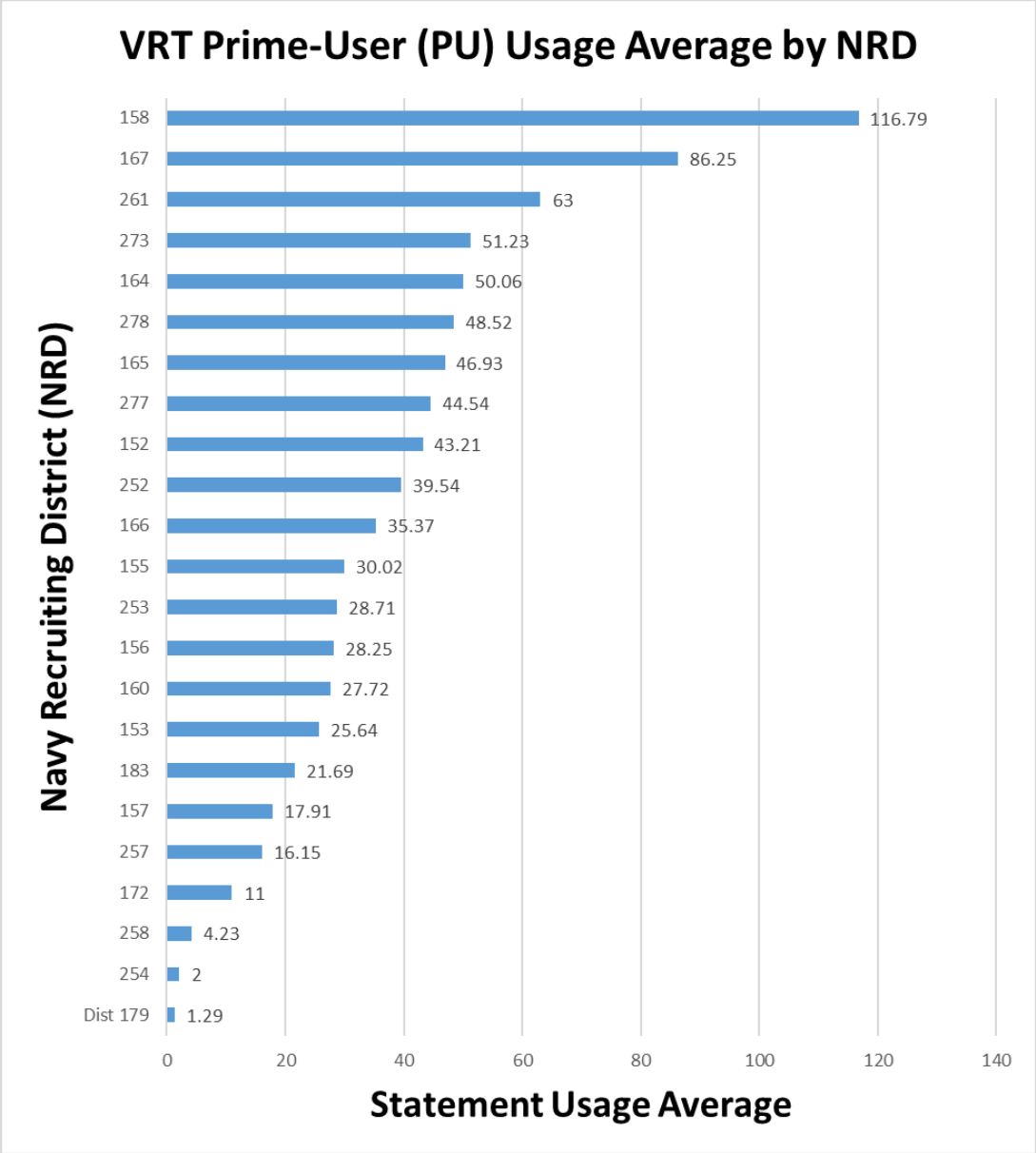


Figure 49: VRT Prime-User (PU) Usage Average by Navy Recruiting District (NRD)

The accession's rate is an additional characteristic able to be known about the PU cohort through crosswalk information in Figure 50. There are more PUs that have accessed in the NUC rate, 223, than any other rate. The Navy's Advanced Electronics/Computer Field (AECF) and Information Systems Technician (IT) are highly technical rates and are the next highest accession rate for the PUs cohort. These are the jobs these Future Sailors will hold after graduating from RTC so directing Future Sailors to the Enlisted Rate Webpages within the tool and verifying that later is effective mentoring.

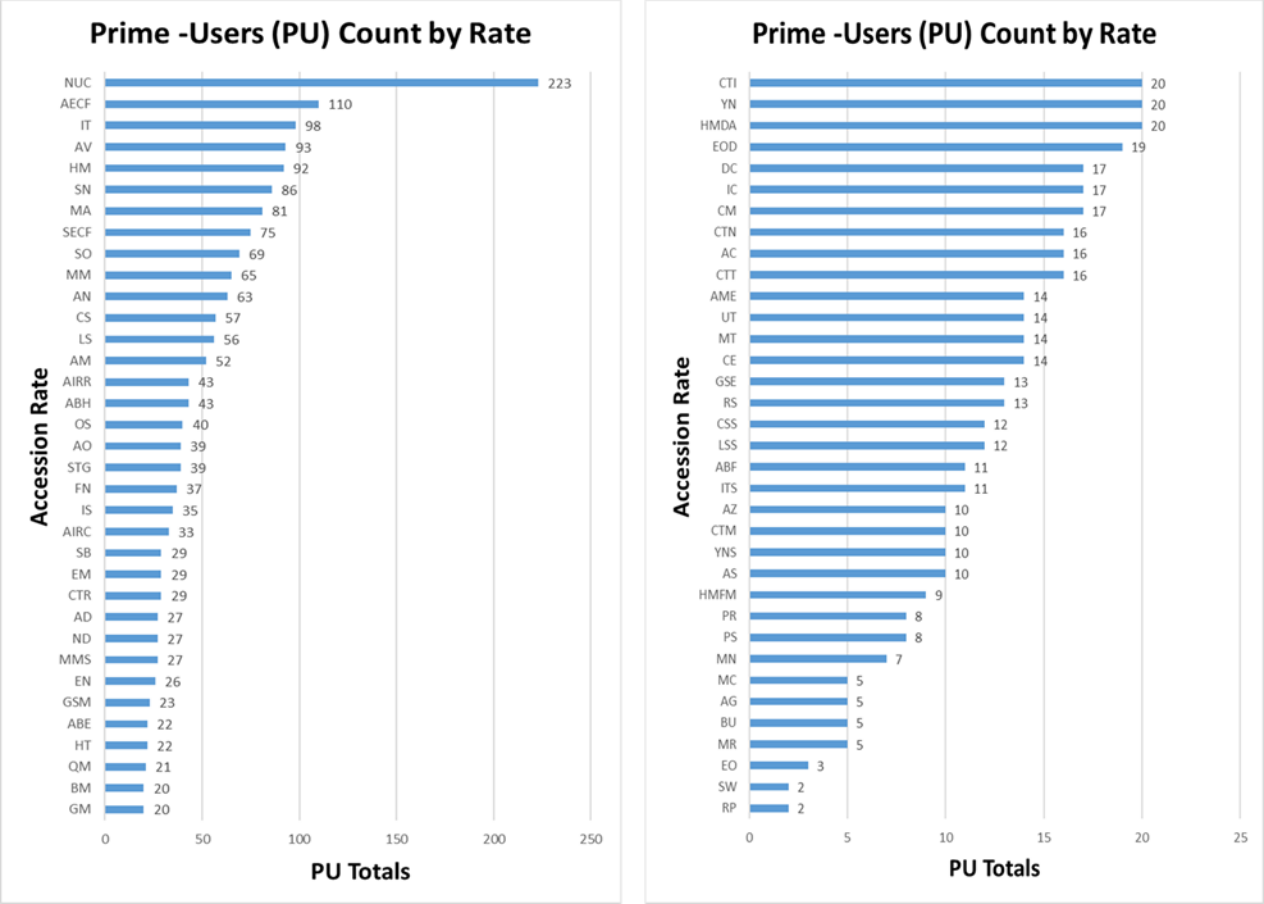


Figure 50: Prime-Users (PU) Count by Rate

Figures 51 through 55 provides the training focus of the GU top five performers to show the variety of interest in each Future Sailor, yet the graphs guide the recruiter/Onboarder on how to effectively mentor each one.

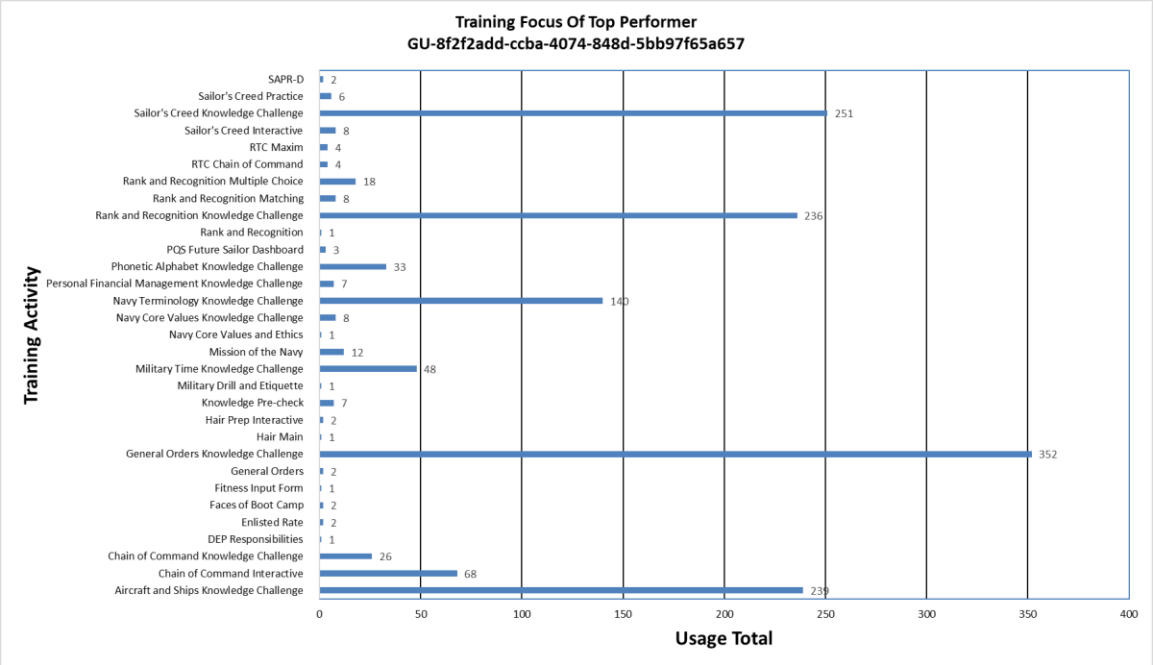


Figure 51: Training Focus of Top Performer GU-a657 with Total Statements = 1494

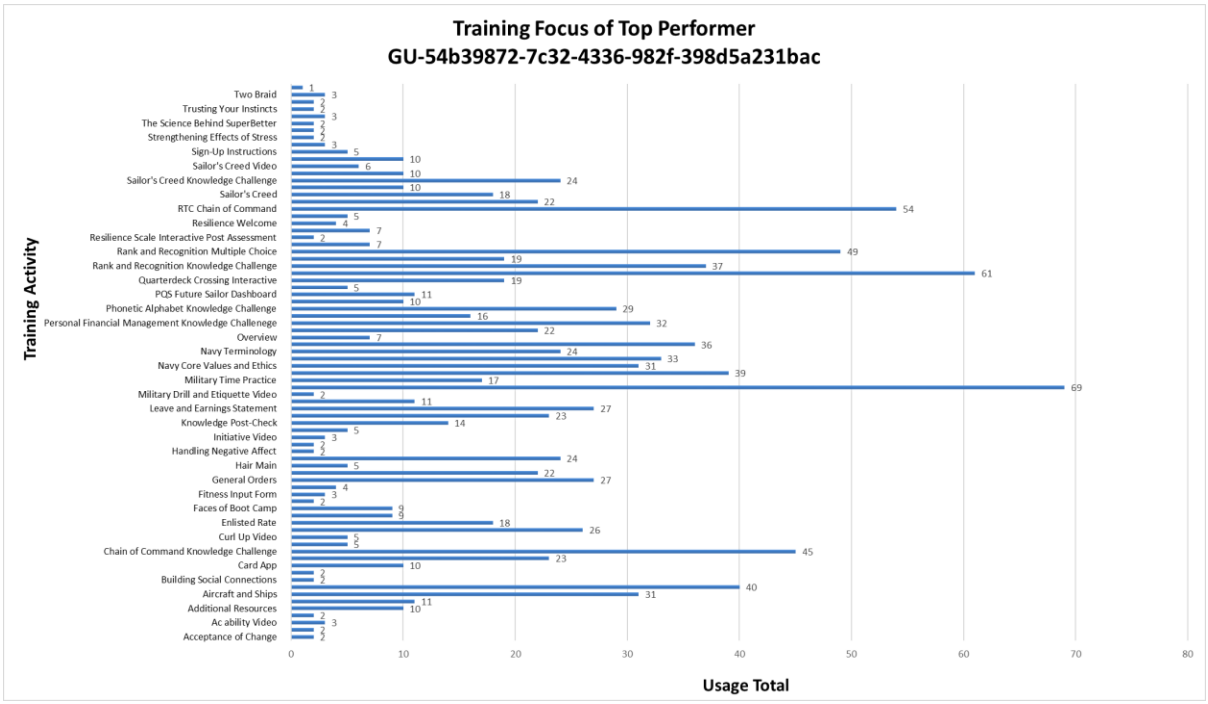


Figure 52: Training Focus of Top Performer GU-1bac with Total Statements = 1201

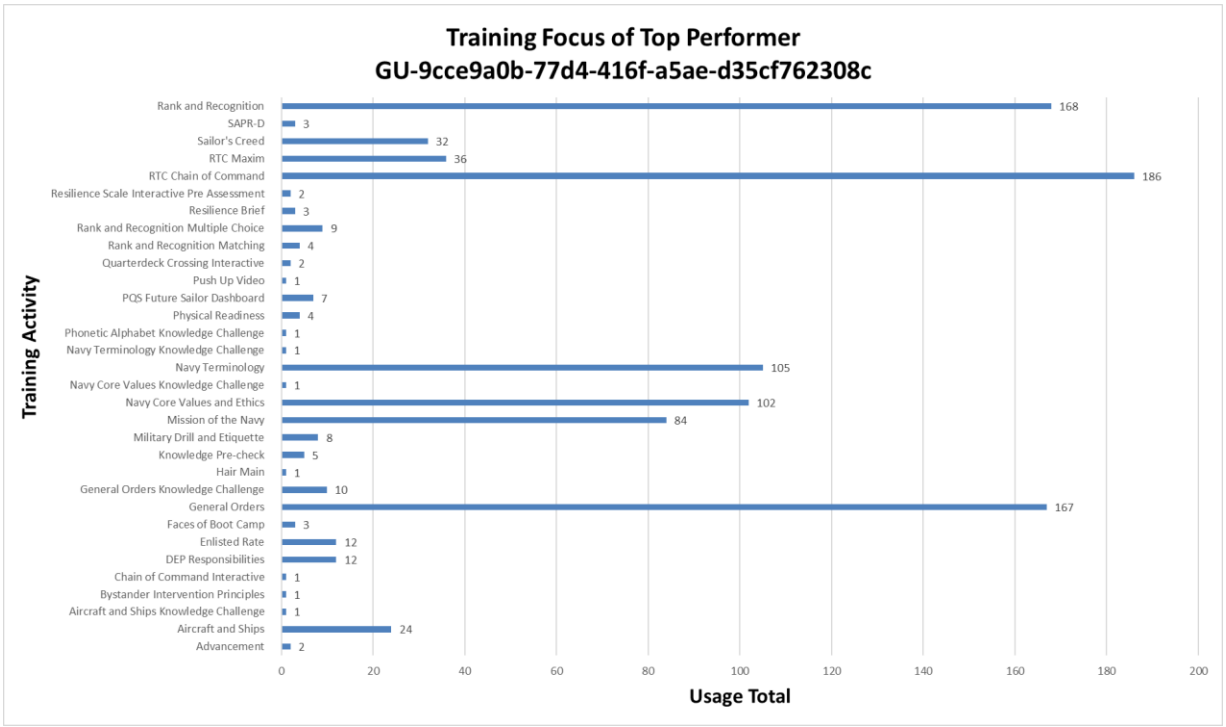


Figure 53: Training Focus of Top Performer GU-308c with Total Statements = 998

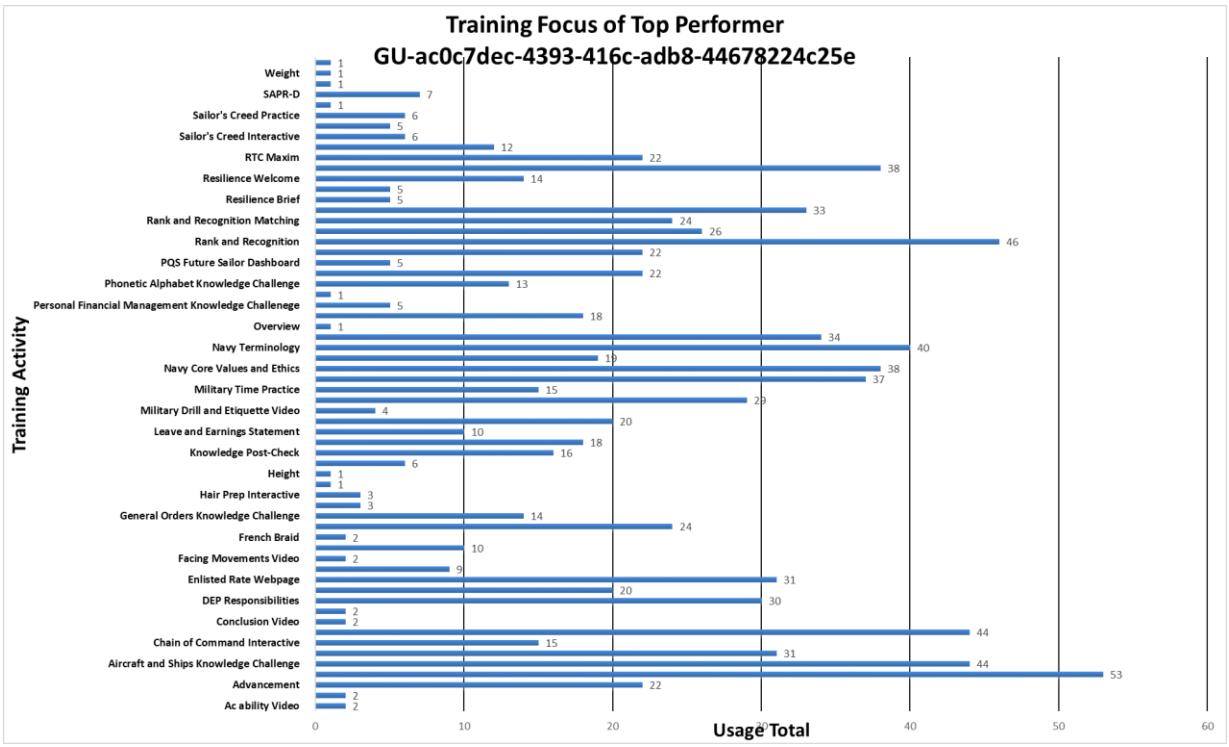


Figure 54: Training Focus of Top Performer GU-c25e with Total Statements = 993

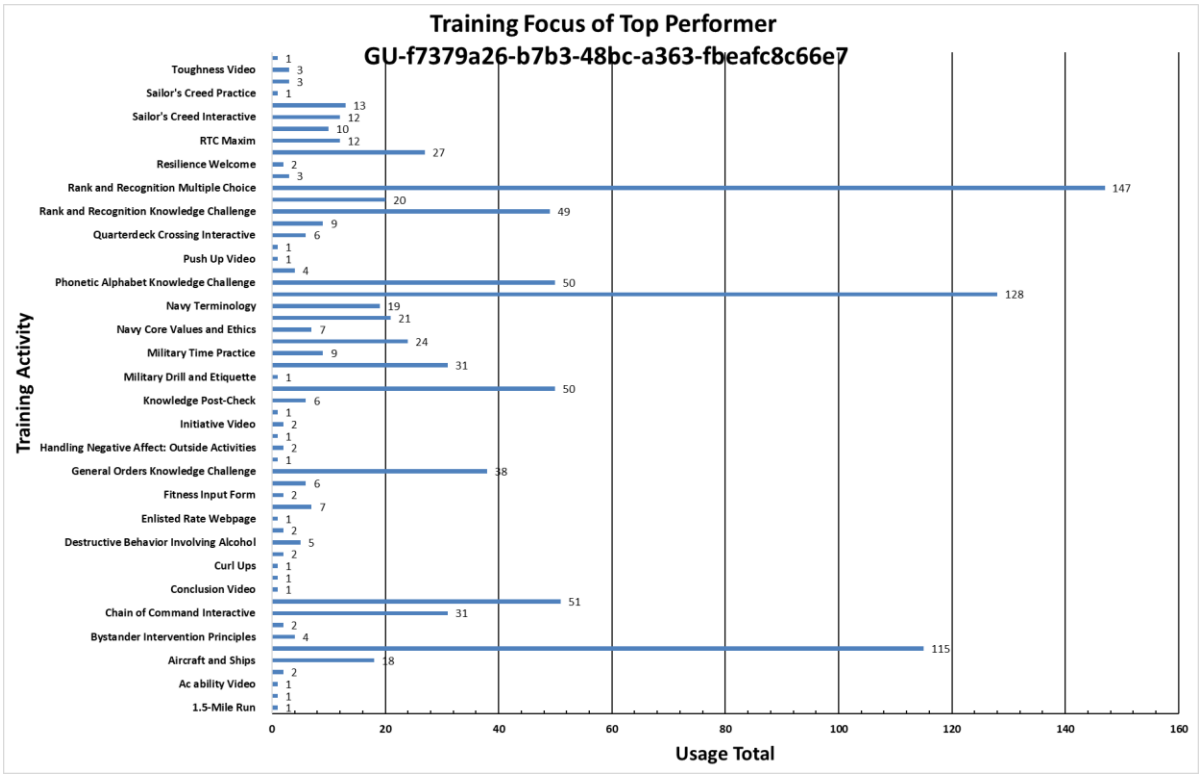


Figure 55: Training Focus of Top Performer GU-66e7 with Total Statements = 969

Appendix F: VRT Prime-User (PU) Ordered by NRD

Table 7: Prime-User Statement and Average Usage Comparison by NRD

PU NRD List	PU FS Total	PU Statements Totals	PU Average Usage
152	73	3156	43.21
153	14	359	25.64
155	296	9480	30.02
156	314	8870	28.25
157	193	3457	17.91
158	48	5606	116.79
160	32	887	27.72
164	130	6509	50.06
165	101	4740	46.93
166	137	4848	35.37
167	4	345	86.25
172	1	11	11
179	7	9	1.29
183	17	591	21.69
252	124	2689	39.54
253	380	10908	28.71
254	1	2	2
257	123	1987	16.15
258	141	597	4.23
261	1	63	63
273	13	666	51.23
277	83	3697	44.54
278	23	1116	48.52

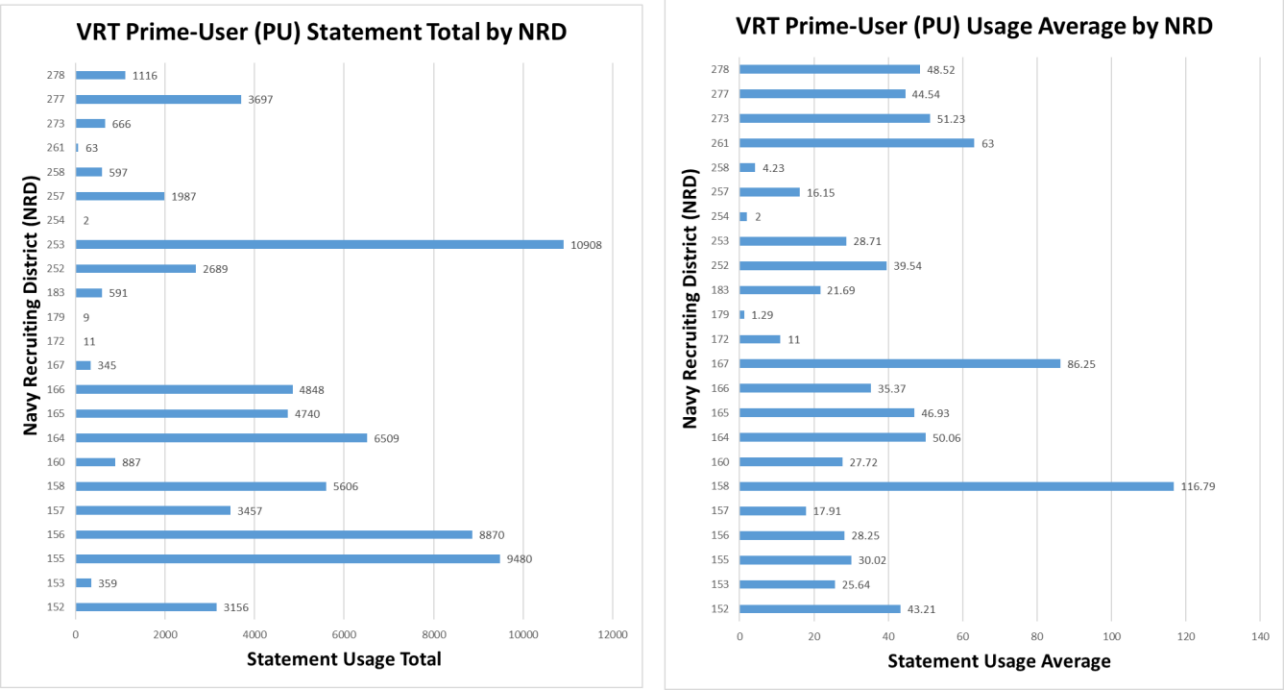


Figure 56: VRT Prime-User (PU) Statement and Usage Average Comparison by NRD

Appendix G: VRT_eHelm_Usage_Report Email and Report Tab Screen Shots

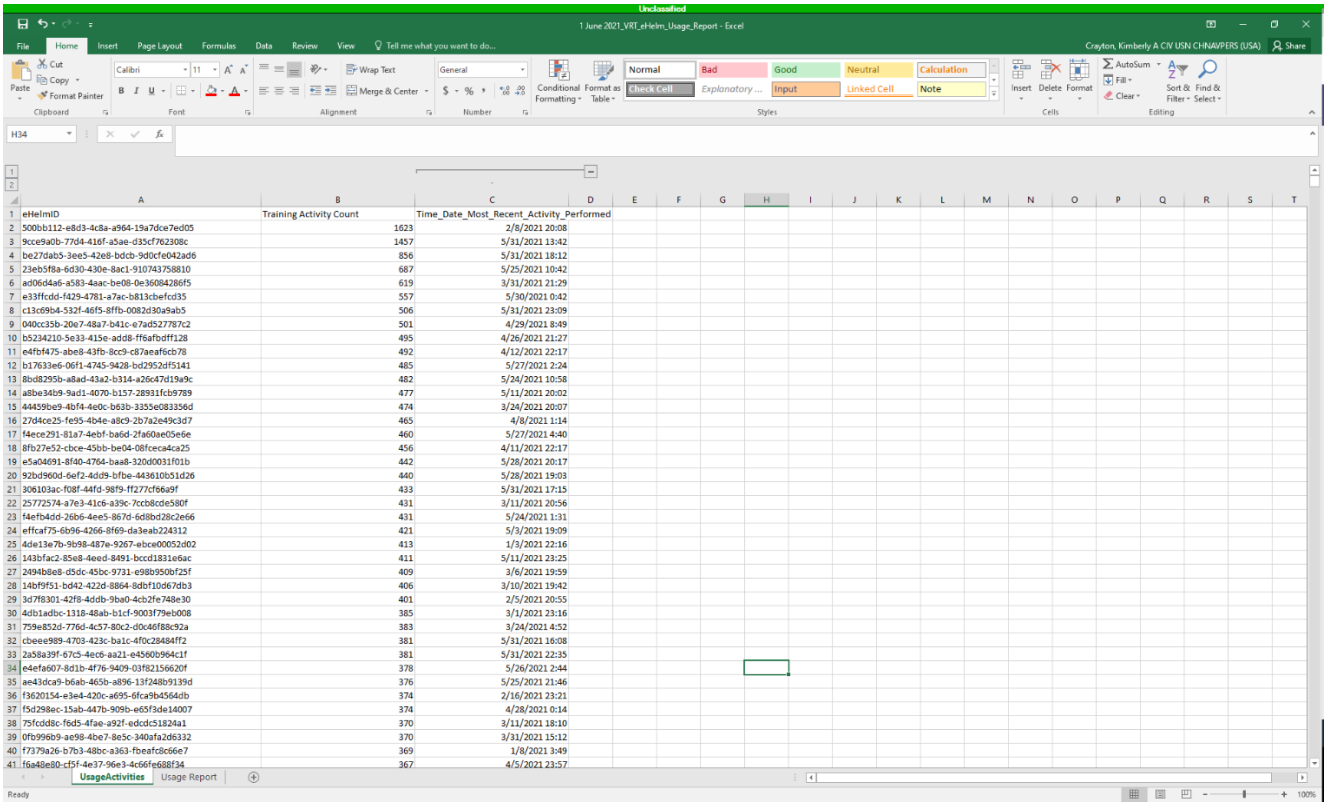
Skippers, On-boarders, Recruiters,

Download 1 June 2021_VRT_eHelm_Usage_Report.xlsx or browse all reports.

Above are two links provided by N7 and NAWCTSD to the
VRT_eHelm_Usage_Report that will provide each of your NTAGs with a report
containing (1) FS eHELM I.D., (2) FS completed training count, and (3) Time/Date of
most recent activity. The first link is to the current report and the second link is to All
previous month's reports. An email will be sent to each POC and a report will be
generated monthly, on the 1 st of each month, using a 6 month reporting window (i.e.
1February2021_VRT_eHelm_Usage_Report is from 1February2021 to 1August2020). A
Job Aid (VRT_eHelm Usage Report How-to) will accompany the report for general
navigation on how to use the report.

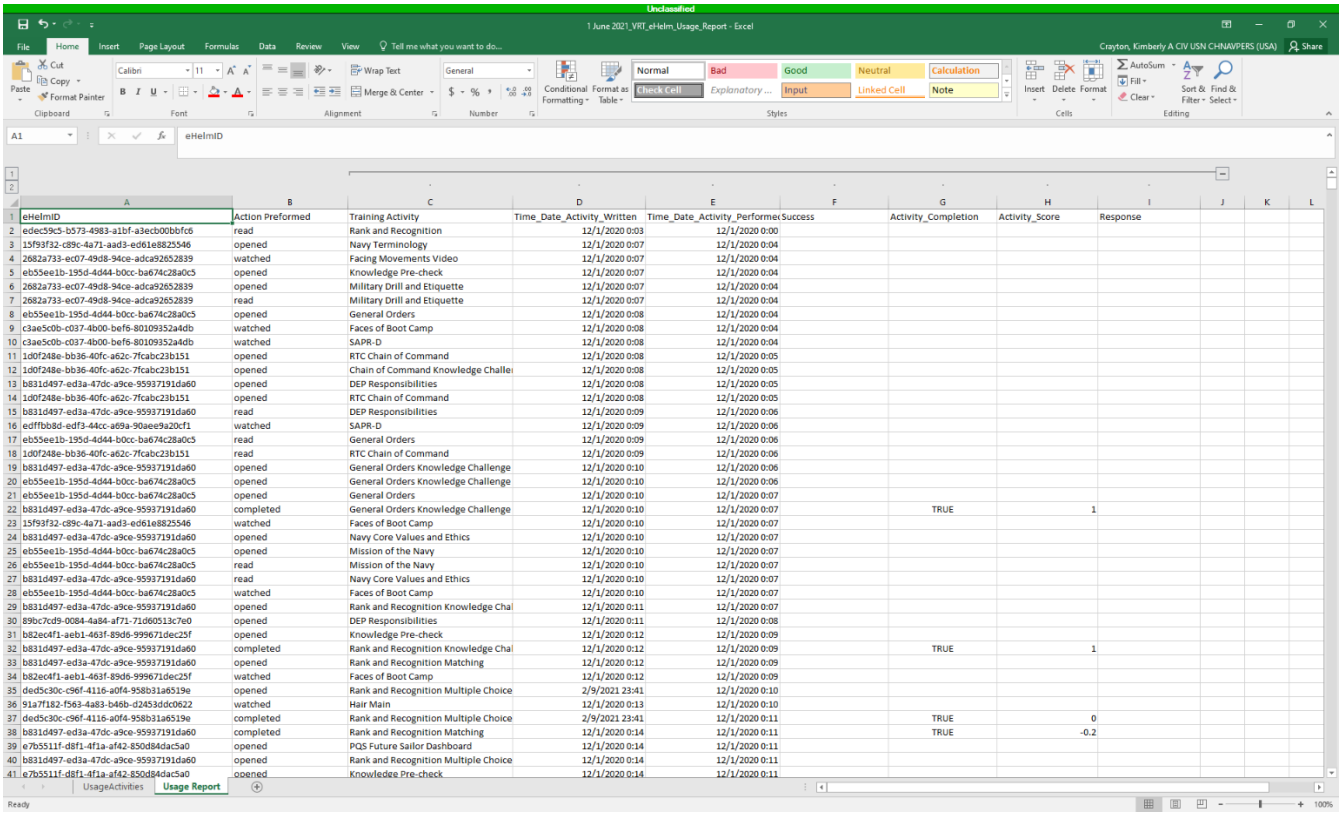
For questions, issues, or concerns please contact Kimberly Crayton at
Kimberly.Crayton@navy.mil or CPO Justin Raymond at Justin.Raymond@navy.mil or
CPO Michael Kinder at Michael.R.Kinder@navy.mil . Thank you.

v/r CAPT Beare
CAPT Matthew P. Beare
N7 DIR/Navy Recruiting Orientation Unit (NORU)
385 Millington AVE, Bldg 3644
NAS Pensacola, FL. 32508
850-452-5553 Office (Direct Line)
850-452-5401 Secretary
571-926-7214 Cell



	A	B	C
1	eHelmID	Training Activity Count	Time_Date_Most_Recent_Activity_Performed
2	500bb112-e8d3-4c8a-a964-19a7dce7ed05	1623	2/8/2021 20:08
3	9cce9a0b-77d4-416f-a5ae-d35cf762308c	1457	5/31/2021 13:42
4	be27dab5-3ee5-42e8-bdcb-9d0cfe042ad6	856	5/31/2021 18:12
5	23eb5f8a-6d30-430e-8ac1-910743758810	687	5/25/2021 10:42
6	ad06d4a6-a583-4aac-be08-0e3608428 6f5	619	3/31/2021 21:29
7	e33ffcdd-f429-4781-a7ac-b813cbefcd35	557	5/30/2021 0:42
8	c13c69b4-532f-46f5-8ffb-0082d30a9ab5	506	5/31/2021 23:09
9	040cc35b-20e7-48a7-b41c-e7ad527787c2	501	4/29/2021 8:49
10	b5234210-5e33-415e-add8-ff6afbdff128	495	4/26/2021 21:27
11	e4fbf475-abe8-43fb-8cc9-c87aeaf6cb78	492	4/12/2021 22:17
12	b17633e6-06f1-4745-9428-bd2952df5141	485	5/27/2021 2:24
13	8bd8295b-a8ad-43a2-b314-a26c47d19a9c	482	5/24/2021 10:58
14	a8be34b9-9ad1-4070-b157-28931fcb9789	477	5/11/2021 20:02
15	44459be9-4bf4-4e0c-b63b-3355e083356d	474	3/24/2021 20:07
16	27d4ce25-fe95-4b4e-a8c9-2b7a2e49c3d7	465	4/8/2021 1:14
17	f4ece291-81a7-4ebf-ba6d-2fa60ae05e6e	460	5/27/2021 4:40
18	8fb27e52-cbce-45bb-be04-08fceca4ca25	456	4/11/2021 22:17
19	e5a04691-8f40-4764-baa8-320d0031f01b	442	5/28/2021 20:17
20	92bd960d-6ef2-4dd9-bfbe-443610b51d26	440	5/28/2021 19:03
21	306103ac-f08f-44fd-98f9-ff277cf66a9f	433	5/31/2021 17:15
22	25772574-a7e3-41c6-a39c-7ccb8cde580f	431	3/11/2021 20:56
23	f4efb4dd-26b6-4ee5-867d-6d8bd28c2e66	431	5/24/2021 1:31
24	effcaf75-6b96-4266-8f69-da3eab224312	421	5/3/2021 19:09
25	4de13e7b-9b98-487e-9267-ebce00052d02	413	1/3/2021 22:16
26	143bfac2-85e8-4eed-8491-bccd1831e6ac	411	5/11/2021 23:25
27	2494b8e8-d5dc-45bc-9731-e98b950bf25f	409	3/6/2021 19:59
28	14bf9f51-bd42-422d-8864-8dbf10d67db3	406	3/10/2021 19:42
29	3d7f8301-42f8-4ddb-9ba0-4cb2fe748e30	401	2/5/2021 20:55
30	4db1adbc-1318-48ab-b1cf-9003f79eb008	385	3/1/2021 23:16
31	759e852d-776d-4c57-80c2-d0c46f88c92a	383	3/24/2021 4:52
32	cbeee989-4703-423c-ba1c-4f0c28484ff2	381	5/31/2021 16:08
33	2a58a39f-67c5-4ec6-aa21-e4560b964c1f	381	5/31/2021 22:35
34	e4efa607-8d1b-4f76-9409-03f8215662 0f	378	5/26/2021 2:44
35	ae43dca9-b6ab-465b-a896-13f248b9139d	376	5/25/2021 21:46
36	f3620154-e3e4-420c-a695-6fca9b4564db	374	2/16/2021 23:21
37	f5d298ec-15ab-447b-909b-e65f3de14007	374	4/28/2021 0:14
38	75fcdd8c-f6d5-4fae-a92f-edcdc51824a1	370	3/11/2021 18:10
39	0fb996b9-ae98-4be7-8e5c-340afa2d6332	370	3/31/2021 15:12
40	f7379a26-b7b3-48bc-a363-fbeafc8c66e7	369	1/8/2021 3:49
41	f6a48e80-cf5f-4e37-96e3-4c66fe688f34	367	4/5/2021 23:57

Figure 57: Usage Activity Tab Screen Shot of 1_June2021_VRT_eHelm_Usage_Report



eHelmID	Action Preformed	Training Activity	Time_Date_Activity_Written	Time_Date_Activity_Performed	Success	Activity_Completion	Activity_Score	Response
edec59c5-b573-4983-a1bf-a3ecb00bbfc6	read	Rank and Recognition	12/1/2020 0:03	12/1/2020 0:00				
15f93f32-c89c-4a71-aad3-ed61e8825546	opened	Navy Terminology	12/1/2020 0:07	12/1/2020 0:04				
2682a733-ec07-49d8-94ce-adca92652839	watched	Facing Movements Video	12/1/2020 0:07	12/1/2020 0:04				
eb55ee1b-195d-4d44-b0cc-ba674c28a0c5	opened	Knowledge Pre-check	12/1/2020 0:07	12/1/2020 0:04				
2682a733-ec07-49d8-94ce-adca92652839	opened	Military Drill and Etiquette	12/1/2020 0:07	12/1/2020 0:04				
2682a733-ec07-49d8-94ce-adca92652839	read	Military Drill and Etiquette	12/1/2020 0:07	12/1/2020 0:04				
eb55ee1b-195d-4d44-b0cc-ba674c28a0c5	opened	General Orders	12/1/2020 0:08	12/1/2020 0:04				
c3ae5c0b-c037-4b00-bef6-80109352a4db	watched	Faces of Boot Camp	12/1/2020 0:08	12/1/2020 0:04				
c3ae5c0b-c037-4b00-bef6-80109352a4db	watched	SAPR-D	12/1/2020 0:08	12/1/2020 0:04				
1d0f248e-bb36-40fc-a62c-7fcabc23b151	opened	RTC Chain of Command	12/1/2020 0:08	12/1/2020 0:05				
1d0f248e-bb36-40fc-a62c-7fcabc23b151	opened	Chain of Command Knowledge Challe	12/1/2020 0:08	12/1/2020 0:05				
b831d497-ed3a-47dc-a9ce-95937191da60	opened	DEP Responsibilities	12/1/2020 0:08	12/1/2020 0:05				
1d0f248e-bb36-40fc-a62c-7fcabc23b151	opened	RTC Chain of Command	12/1/2020 0:08	12/1/2020 0:05				
b831d497-ed3a-47dc-a9ce-95937191da60	read	DEP Responsibilities	12/1/2020 0:09	12/1/2020 0:06				
edffbb8d-edf3-44cc-a69a-90aee9a20cf1	watched	SAPR-D	12/1/2020 0:09	12/1/2020 0:06				
eb55ee1b-195d-4d44-b0cc-ba674c28a0c5	read	General Orders	12/1/2020 0:09	12/1/2020 0:06				
1d0f248e-bb36-40fc-a62c-7fcabc23b151	read	RTC Chain of Command	12/1/2020 0:09	12/1/2020 0:06				
b831d497-ed3a-47dc-a9ce-95937191da60	opened	General Orders Knowledge Challenge	12/1/2020 0:10	12/1/2020 0:06				
eb55ee1b-195d-4d44-b0cc-ba674c28a0c5	opened	General Orders Knowledge Challenge	12/1/2020 0:10	12/1/2020 0:06				
eb55ee1b-195d-4d44-b0cc-ba674c28a0c5	opened	General Orders	12/1/2020 0:10	12/1/2020 0:07				
b831d497-ed3a-47dc-a9ce-95937191da60	completed	General Orders Knowledge Challenge	12/1/2020 0:10	12/1/2020 0:07		TRUE	1	
15f93f32-c89c-4a71-aad3-ed61e8825546	watched	Faces of Boot Camp	12/1/2020 0:10	12/1/2020 0:07				
b831d497-ed3a-47dc-a9ce-95937191da60	opened	Navy Core Values and Ethics	12/1/2020 0:10	12/1/2020 0:07				
eb55ee1b-195d-4d44-b0cc-ba674c28a0c5	opened	Mission of the Navy	12/1/2020 0:10	12/1/2020 0:07				
eb55ee1b-195d-4d44-b0cc-ba674c28a0c5	read	Mission of the Navy	12/1/2020 0:10	12/1/2020 0:07				
b831d497-ed3a-47dc-a9ce-95937191da60	read	Navy Core Values and Ethics	12/1/2020 0:10	12/1/2020 0:07				
eb55ee1b-195d-4d44-b0cc-ba674c28a0c5	watched	Faces of Boot Camp	12/1/2020 0:10	12/1/2020 0:07				
b831d497-ed3a-47dc-a9ce-95937191da60	opened	Rank and Recognition Knowledge Chal	12/1/2020 0:11	12/1/2020 0:07				
89bc7cd9-0084-4a84-af71-71d60513c7e0	opened	DEP Responsibilities	12/1/2020 0:11	12/1/2020 0:08				
b82ec4f1-aeb1-463f-89d6-999671dec25f	opened	Knowledge Pre-check	12/1/2020 0:12	12/1/2020 0:09				
b831d497-ed3a-47dc-a9ce-95937191da60	completed	Rank and Recognition Knowledge Chal	12/1/2020 0:12	12/1/2020 0:09		TRUE	1	
b831d497-ed3a-47dc-a9ce-95937191da60	opened	Rank and Recognition Matching	12/1/2020 0:12	12/1/2020 0:09				
b82ec4f1-aeb1-463f-89d6-999671dec25f	watched	Faces of Boot Camp	12/1/2020 0:12	12/1/2020 0:09				
ded5c30c-c96f-4116-a0f4-958b31a6519e	opened	Rank and Recognition Multiple Choice	2/9/2021 23:41	12/1/2020 0:10				
91a7f182-f563-4a83-b46b-d2453ddc0622	watched	Hair Main	12/1/2020 0:13	12/1/2020 0:10				
ded5c30c-c96f-4116-a0f4-958b31a6519e	completed	Rank and Recognition Multiple Choice	2/9/2021 23:41	12/1/2020 0:11		TRUE	0	
b831d497-ed3a-47dc-a9ce-95937191da60	completed	Rank and Recognition Matching	12/1/2020 0:14	12/1/2020 0:11		TRUE	-0.2	
e7b5511f-d8f1-4f1a-af42-850d84dac5a0	opened	PQS Future Sailor Dashboard	12/1/2020 0:14	12/1/2020 0:11				
b831d497-ed3a-47dc-a9ce-95937191da60	opened	Rank and Recognition Multiple Choice	12/1/2020 0:14	12/1/2020 0:11				
e7b5511f-d8f1-4f1a-af42-850d84dac5a0	opened	Knowledge Pre-check	12/1/2020 0:14	12/1/2020 0:11				

Figure 58: Usage Report Tab Screen Shot of 1_June2021_VRT_eHelm_Usage_Report

Appendix H: RTC Data Fields

Table 8: RTC Data Definitions and Examples

Variable Name	Variable Definition and Example
Total Usage	Total xAPI statements /engagement score computed for each training activity the Future Sailor trains on (e.g., 1 point given for each training activity)
NRD	Navy Recruiting District the Future Sailor accessed from
PQS Code	Personnel Qualification Standard Code, (values = Y-Yes, N-No, I-Incomplete)
DOD ID #	Identification number on an individual's CAC card once you are Active
PERS ID	Identification number on an individual's once they are in PRIDEMODII
FULL_NAME	Last Name, First Name, Middle Name
RASS_NM_SUFFIX	Any suffix on the name (i.e., Jr., III)
ENROLL_DATE	Day recruits cross the threshold in Boot Camp; similar to shipdate; Can be compared to the active duty ship date (ADSD)
EN_GR_NGR_CATEGORY	Enroll, Graduate, Non-Graduate/Non-Academic-Non-Graduate (attires) category. Used to determine who has graduated or still going through Boot Camp.
AI_MANDAYS	Time after enrollment at RTC but before (e.g., waiting for training) instruction period begins; Restriction of Movement (ROM) is 14 days during COVID-19
AT_MANDAYS	Awaiting Transfer Mandays
HL_MANDAYS	Hold Legal Mandays
HM_MANDAYS	Hold Medical Mandays
II_MANDAYS	Interruption of Instruction Mandays
UI_MANDAYS	Complete time for instruction period at RTC, 59 days for UI
TOTAL_MANDAYS	Sum of the provided Mandays; Total time Students spent in Boot Camp; also verified by (Enroll_Date - EVNT_DT)
Program_MANDAYS	Official time for completing the training portion of basic training (i.e., 59 days for UI).
Total Setbacks	Number multiple (i.e., number multiplied by two weeks where the student does not graduate with their initial accession group, two weeks or longer for each setback)
CDP	Course Data Processing Code (i.e., 6387 = Boot Camp)
DEPTEST	Academic test only (initial test); does not include the physical fitness portion
TEST1	Academic test only (Second Test); does not include the physical fitness portion
TEST2	Academic test only (Third Test); does not include the physical fitness portion
FDIV	First Division; CeTARS created for a cohort group to show what happen to the group in September; (R-Riffle Fiscal-Year Division M-Male/F-Female/I-Integrated Fiscal-Year TG); Riffle - standard division, 900 = Band, State-Flag, 800 = Warrior Challenge, and Marching (based on your experience when you access)
Cohort Month/YR	Taking the Enroll_DATE and putting it on a Month and Year; created by Dr. Ennis. Good for doing a monthly aggregate.
TG	Training Group (took off the last 7 char fiscal year and last 3 numbers is the TG)

Variable Name	Variable Definition and Example
EVNT_DT	Date of event that is congressionally mandated, the standard was 4 and now there is 5 b/c of the COVID-19 restriction of movement (ROM) period
PEVT_ID	Personal Event ID number or code that goes with the PEVT_NM (i.e. Graduation = 288)
PEVT_NM	Personal Event Name; shows where an individual is in Boot Camp and the event that goes with that (Graduation, RELEASE FROM HOLD AWAITING TRANSFER); This is the most current information in CeTARS on the student's personal event.
Gender	Gender/Sex of Student
Attrition Category	If reason for attrite is based on Psychological or No-Psychological issues
Age at Final Event Date	Calculated field for Age (Personal Event - Birth Date);
PT0	Physical fitness test only (Initial Test)
PT1	Physical fitness test only (Second Test)
PT2	Physical fitness test only (Third and Final Test/Official)

Appendix I: RTC Physical Fitness Comparison Tables of PU vs. NU

Table 9: RTC PT0 Comparison of PU vs. NU w/ Difference

PT0	PU_PT0%	NU_PT0%	Diff
ABSENT SIQ (SICK IN QUARTERS) PT0	0	0	0
Blank or No Entry	4.146232724	5.154147685	-1.007914961
DNP OTHER	0.936246099	6.66913868	-5.732892581
DNP OTHER PT0	0	0	0
DNP OTHER PTR	0	0	0
DNP SICK LIST	1.382077575	0.381396334	1.00068124
DNP WATCH	0	0.015891514	-0.015891514
FAIL CALLED TTO	0	0.010594343	-0.010594343
FAIL FAIL PT	57.69059296	58.59730904	-0.906716081
FAIL FAIL PT PTR	0	0	0
FAIL FAILURE TO FOLLOW INSTRUCTIONS	0.356665181	0.047674542	0.308990639
INC TECHNICAL TRAINING TIME OUT	0	0	0
PASS COMPLETED	35.48818547	29.12384787	6.364337601
PASS COMPLETED PTR	0	0	0

Table 10: RTC PT1 Comparison of PU vs. NU w/ Difference

PT1	PU_PT1%	NU_PT1%	Diff
ABSENT SIQ (SICK IN QUARTERS) PT1	0	0	0
Blank	9.407044137	13.6825935	-4.27555
DNP OTHER	0.757913509	1.991736413	-1.23382
DNP OTHER PT1	0	0	0
DNP OTHER PTR	0	0	0
DNP SICK LIST	1.114578689	1.9387647	-0.82419
DNP WATCH	0	0.026485857	-0.02649
FAIL CALLED TTO	0	0.005297171	-0.0053
FAIL FAIL PT	24.56531431	24.82254476	-0.25723
FAIL FAIL PT PTR	0	0	0
FAIL FAILURE TO FOLLOW INSTRUCTION	0	0.254264223	-0.25426
INC TECHNICAL TRAINING TIME OUT	0	0.005297171	-0.0053
PASS COMPLETED	64.15514935	57.27301621	6.882133
PASS COMPLETED PTR	0	0	0

Table 11: RTC PT2 Comparison of PU vs. NU w/ Difference

PT2	PU_PT2 %	NU_PT2 %	Diff
ABSENT SIQ (SICK IN QUARTERS) PT2	0	0.005297171	-0.0053
Blank	9.496210432	15.17109863	-5.67489
DNP OTHER	0	0	0
DNP OTHER PT2	0.267498885	0.238372709	0.029126
DNP OTHER PTR	0.044583148	0.100646255	-0.05606
DNP SICK LIST	0	0	0
DNP WATCH	0	0	0
FAIL CALLED TTO	0	0	0
FAIL FAIL PT PT2	0.267498885	0.519122788	-0.25162
FAIL FAIL PT PTR	2.496656264	1.65801462	0.838642
FAIL FAILURE TO FOLLOW INSTRUCTIONS	0.133749443	0.026485857	0.107264
INC TECHNICAL TRAINING TIME OUT	0	0	0
PASS COMPLETED PT2	79.09050379	76.36931878	2.721185
PASS COMPLETED PTR	8.203299153	5.911643183	2.291656

Appendix J: Acronyms and Abbreviations

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Acronym	Definition
A	return to top↥
AECF	Advanced Electronics/Computer Field
App	Application
AWS	Amazon Web Services
AT	Awaiting Training
B	return to top↥
BFP	Body Fat Percentage
BMI	Body Mass Index
BLUF	Bottom Line Up Front
BYOD	Bring Your Own Device
C	return to top↥
CNRC	Command Navy Recruiting Command
CO	Commanding Officer
CAC	Common Access Card
CP	Content Package
CPA	Content Packaging Application
COVID-19	Coronavirus 2019
CeTARS	Corporate Enterprise and Training Activity Resource System
D	return to top↥
DB	Database

Acronym	Definition
DNP	Did Not Participate
DDS	Direct Deposit System
DoDID	Department of Defense Identification
DEP	Delayed Entry Program
E	return to top↥
eHelm	Mobile application
F	return to top↥
FOB	Faces of Boot Camp
FIT	Fitness Improvement Training
FS	Future Sailor
G	return to top↥
GU	General User
GUID	Globally Unique Identifier
GR	Graduation
H	return to top↥
HL	Hold Legal
HM	Hold Medical
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
I	return to top↥
II	Interruption of Instruction
ISD	Instructional Systems Designer

Acronym	Definition
J	return to top↥
K	return to top↥
L	return to top↥
LPO	Leading Petty Officer
LCPO	Leading Chief Petty Officer
LES	Leave and Earnings Statement
LRS	Learning Record Store
M	return to top↥
MR	Machinery Repairman
MC	Management Component
MS	Microsoft
METIL	Mixed Emerging Technology Integration Lab
MPT&E	Manpower, Personnel, Training, and Education
N	return to top↥
NAVAIR	Naval Air Systems Command
NAWCTSD	Naval Air Warfare Center Training Systems Division
NMCI	Navy Marine Corps Intranet
NRC	Navy Recruiting Command
NRD	Navy Recruiting District
NORU	Navy Recruiting Orientation Unit
NRS	Navy Recruiting Station
NTAG	Navy Talent Acquisition Group
NTAF	Navy Talent Acquisition Force

Acronym	Definition
NU	Non-User
O	return to top↥
OS	Operating System
OPNOTE	Operation Note
OPM	Office of Personnel Management
OPNAV	Office of the Chief of Naval Operations
P	return to top↥
PAO	Public Affairs Officer
PDF	Portable Document Format
PFA	Physical Fitness Assessment
PII	Personal Identifiable Information
PRIDEMODII	Personalized Recruiting for Immediate and Delayed Enlistment Modernization II
PRT	Physical Readiness Test
PTR	Physical Training Remediation
PQS	Personnel Qualification Standards
PU	Prime User
Q	return to top↥
QR	Quick Response
R	return to top↥
RADM	Rear Admiral
RTC	Recruit Training Command
RDT&E	Research Development Training & Education
ROM	Restriction of Movement

Acronym	Definition
ROI	Return on Investment
S	return to top↥
SAPR-D	Sexual Assault Prevention and Response – Department of Defense
S&T	Science & Technology
SSN	Social Security Number
SOP	Standard Operating Procedures
START	Standards Transition Acknowledgement Requirement Training
T	return to top↥
TAOC	Talent Acquisition Onboarding Center
U	return to top↥
UI	Under Instruction
UCF	University of Central Florida
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
V	return to top↥
VRT	Virtual Recruit Tracker
W	return to top↥
WWW	World Wide Web
X	return to top↥
xAPI	Experience Application Programming Interface
Y	return to top↥
Z	return to top↥
ZXING	Zebra Crossing

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