

CONSOLIDATION AND WHAT IT COULD MEAN TO
MILITARY HELICOPTER FLIGHT TRAINING

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE
General Studies

by

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Fort Leavenworth, Kansas
2013-01

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REPORT DOCUMENTATION PAGE			<i>Form Approved</i> <i>OMB No. 0704-0188</i>		
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1. REPORT DATE (DD-MM-YYYY) 22-05-2013		2. REPORT TYPE Master's Thesis		3. DATES COVERED (From - To) AUG 2012 – MAY 2013	
4. TITLE AND SUBTITLE CONSOLIDATION AND WHAT IT COULD MEAN TO MILITARY HELICOPTER FLIGHT TRAINING			5a. CONTRACT NUMBER		
			5b. GRANT NUMBER		
			5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S) LCDR Victor H. Avila, USN			5d. PROJECT NUMBER		
			5e. TASK NUMBER		
			5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301			8. PERFORMING ORG REPORT NUMBER		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)		
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT This study investigates the feasibility of consolidating the three different Department of Defense helicopter flight training programs that are currently in place between two different facilities; Naval Air Station Whiting Field near Pensacola, Florida and Fort Rucker, Alabama. While the Air Force and Army currently share a facility, they conduct separate training in this same location. The core skills developed in all three of the separate helicopter training programs are similar (Contacts, Instruments, Formation, and Tactics). Future defense spending cuts may demand training consolidation among the different services. Helicopter training is a prime candidate for this proposed consolidation. This study answers if consolidation is possible for helicopter flight training. All of the Services flight syllabi were analyzed during this study to include the helicopter portion as well as the fixed wing portion of training. Analyzing the syllabi was critical in deciding if consolidation was possible; currently the Air Force and Navy use the fixed wing portion of the flight training program as a precursor to the helicopter training. Fixed wing training is currently not being provided to Army helicopter pilot candidates. There have been a number of studies completed over the years beginning in the late seventies that have tried to consolidate all of the flight training pipelines. There have been a number of consolidations or joint partnerships between the Air Force and the Navy, but have been limited to fixed-wing primary and advanced multi-engine training not helicopters. This study concludes that consolidation will need further study by the GAO and will be a long-term endeavor. Near-term recommendations include a personnel exchange program, both student and instructor. In light of the current economic realities, the Department of Defense is going to have to find a way to cut costs. Having three different helicopter flight schools to include Army, Air Force and Navy, The Department of Defense will likely revisit this matter in the very near future.					
15. SUBJECT TERMS Helicopter Flight Training, Aviation Training, Joint Flight Training					
16. SECURITY CLASSIFICATION OF: UNCLASSIFIED			17. LIMITATION OF ABSTRACT (U)	18. NUMBER OF PAGES 89	19a. NAME OF RESPONSIBLE PERSON
a. REPORT (U)	b. ABSTRACT (U)	c. THIS PAGE (U)			19b. PHONE NUMBER (include area code)

MASTER OF MILITARY ART AND SCIENCE

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

CONSOLIDATION AND WHAT IT COULD MEAN TO MILITARY HELICOPTER FLIGHT TRAINING, by Lieutenant Commander Victor H. Avila, 89 pages.

This study investigates the feasibility of consolidating the three different Department of Defense helicopter flight training programs that are currently in place between two different facilities; Naval Air Station Whiting Field near Pensacola, Florida and Fort Rucker, Alabama. While the Air Force and Army currently share a facility, they conduct separate training in this same location. The core skills developed in all three of the separate helicopter training programs are similar (Contacts, Instruments, Formation, and Tactics). Future defense spending cuts may demand training consolidation among the different services. Helicopter training is a prime candidate for this proposed consolidation. This study answers if consolidation is possible for helicopter flight training. All of the Services flight syllabi were analyzed during this study to include the helicopter portion as well as the fixed wing portion of training. Analyzing the syllabi was critical in deciding if consolidation was possible; currently the Air Force and Navy use the fixed wing portion of the flight training program as a precursor to the helicopter training. Fixed wing training is currently not being provided to Army helicopter pilot candidates. There have been a number of studies completed over the years beginning in the late seventies that have tried to consolidate all of the flight training pipelines. There have been a number of consolidations or joint partnerships between the Air Force and the Navy, but have been limited to fixed-wing primary and advanced multi-engine training not helicopters. This study concludes that consolidation will need further study by the GAO and will be a long-term endeavor. Near-term recommendations include a personnel exchange program, both student and instructor. In light of the current economic realities, the Department of Defense is going to have to find a way to cut costs. Having three different helicopter flight schools to include Army, Air Force and Navy, The Department of Defense will likely revisit this matter in the very near future.

ACKNOWLEDGMENTS

First and foremost I would like to thank the U. S. Army for letting me participate in this challenging Masters program. I would also like to thank the faculty at the Western Hemisphere Institute for Security Cooperation. Without their help and understanding throughout the year this task would have been impossible.

I would also like to thank my committee members, Dr Prisco Hernandez, COL Paul McKenney, LTC Esteban Rodriguez and LCDR Chip Murphy. Without their dedication, understanding and insight, this thesis would have never come to fruition.

Finally, to say that I am eternally thankful to my beautiful wife Johanna, would be a grave understatement. Thank you, Nana for being my most consistent supporter and motivator. I would also like to thank my two little pieces of heaven, Isabella Victoria and Sol Tatiana. Without their undying love and understanding, I would not have been able to realize this mammoth task.

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ACRONYMS

AFB	Air Force Base
ASR	Airport Surveillance Radar
API	Aviation Preflight Indoctrination
BRAC	Base Realignment and Closure
BWS	Basic Warfighter Skills
CBI	Computer Based Instruction
CNATRA	Chief of Naval Air and Training
CO	Commanding Officer
CPT	Cockpit Procedural Trainer
CSAR	Combat Search and Rescue
CTS	Course Training Standard
DOD	Department of Defense
DOD-IG	Department of Defense of the Inspector General
DOR	Drop on Request
EOB	End of Block
FAA	Federal Aviation Administration
FLIP	Flight Information Publication
FR&R	Flight Rules and Regulations
FRS	Fleet Replacement Squadron
FTS	Flight Training Squadron
GAO	Government Accountability Office
GPS	Global Positioning System
HA	Holding Area

IERW	Initial Entry Rotor Wing
IFS	Introductory Flight Screening
IFT	Instrument Flight Trainer
IIMC	Inadvertent Instrument Meteorological Conditions
IMC	Instrument Meteorological Conditions
IP	Instructor Pilot
IPC	Initial Progress Check
ISR	Intelligence, Surveillance and Reconnaissance
ITO	Instrument Take Off
ITRO	Interservice Training Review Organization
JCS	Joint Chiefs of Staff
JPPT	Joint Primary Pilot Training
LOC	Localizer
LTE	Loss of Tail rotor Effectiveness
LPV	Localizer Performance with Vertical Guidance
LZ	Landing Zone
MIF	Maneuver Item File
MPTS	Military Primary Training Syllabus
NAS	Naval Air Station
NVG	Night Vision Goggles
OBC	Officer Basic Course
OCS	Officer Candidate School
OFT	Operational Flight Trainer
PAR	Precision Approach Radar
POI	Program of Instruction

PZ	Pick up Zone
RAG	Replacement Air Group
ROTC	Reserve Officer Training Corps
SAR	Search and Rescue
SMA	Student Military Aviator
SNA	Student Naval Aviator
SPOT	Situation Position Observation Task
SXX90	See Glossary
TACAMO	Take charge and move out
TTO	Training Time Out
TW	Training Wing
USMC	United States Marine Corps
USN	United States Navy
UTD	Unit Training Device
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VOR	VHF Omnidirectional Range
XO	Executive Officer

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CHAPTER 1

INTRODUCTION

It's time to fundamentally change the way that we do business in Washington. To help build a new foundation for the 21st century, we need to reform our government so that it is more efficient, more transparent, and more creative. That will demand new thinking and a new sense of responsibility for every dollar that is spent.

— President Barack Obama, *Weekly Address April 25, 2009*

Background

In a post Iraq-Afghanistan war fight over the size and role of the U.S. Armed Forces, specifically the role of the U.S. Army, it is of extreme importance on the process that the Department of Defense will take to downsize the number of troops that were used for both wars as well as the efficient use of the soon to be very limited resources. One theory is that the Department of Defense will again visit the possibility of merging military flight training schools from many into few. Several phases of flight training have already been put to the test with a consolidated fixed-wing syllabus for primary flight training.

The Military Primary Training Syllabus (MPTS) was a project that was started in the late part of the 20th century and began to create a partnership between the Air Force and Navy. At this point the primary phase of flight training is being conducted jointly under this syllabus at Naval Air Station (NAS) Whiting Field, Florida where one squadron of T-6B Texan II (VT-3) is completely “joint” and requires an Air Force officer to be either in the Commanding Officer or Executive Officer position. These positions are fleet-up jobs which mean that they do the job as the Executive Officer first then when

complete, perform a change command with the Commanding Officer after an average of 18 months on the job.

The same process happens in Enid, Oklahoma at Vance Air Force Base (AFB) where the 8th Flight Training Squadron (FTS) is responsible for primary flight training on the Air Force side of the house. The same process occurs there as far as having a Navy Commanding officer or Executive Officer. This program has taken a large effort by both services over the years and so far has really proven to be very advantageous for both services and could prove that consolidation would be slowly but surely, not only possible, but necessary.

This Study will answer the question “Is it possible to consolidate the Department of Defense helicopter flight schools into one and will the advantage of consolidation outweigh the specific training missions required by each service?”

The Department of Defense has a huge challenge to continue a post war mission consisting of fewer people and a scarcity of funds. It is in this context that a review of inter service redundancy will once again be revived in light of the possibility for a total consolidation of not just portions of flight training, but a complete consolidation of flight training as it is known today.

The major consolidation of helicopter training, as a concept, as well as proposals for the same, date back to as early as 1970.¹ Since then there have been multiple studies, proposals and recommendations for consolidation. There were funding request in the Fiscal Years (FY) 1978 through 1980 and 1982 for complete consolidation. It was closest

¹U.S. Department of Defense, Inspector General, Audit Report Number 92-063, *Acquisition of Common Aircraft for Navy and Air Force Undergraduate Pilot Training* (Washington, DC: Department of Defense, 1992).

to coming to fruition in 1980 when the Navy took initial steps to actually sending Student Naval Aviators (SNA) to Army helicopter type training aboard the base at Fort Rucker.²

At the end, funding was never approved as the process lost support.

Senator Barry Goldwater, who was the lead supporter for consolidation, urged the Secretary of Defense to back and approve consolidation. This caused the Senate Armed Services Committee to direct the Government Accountability Office (GAO) to study the issue in 1985. The GAO's recommendation at the time did not support a consolidation of helicopter training.³ Further support came from studies by the Inter service Training Review Organization (ITRO) in 1991 and the Defense Management Report (DMR) in 1992. DMR 962 pointed out some possible benefits to consolidation and this led to the funding of a working group for further study.

Several of these studies have recommended consolidation, but most recommendations have been short lived by service parochialism as well as political objections by congress. A move such as this will require multiple politicians as well as senior military to work together to make consolidation work.

To really understand the show stoppers of consolidation, an executive summary is required to really understand the major differences between all three helicopter programs.

²Ibid.

³Ibid.

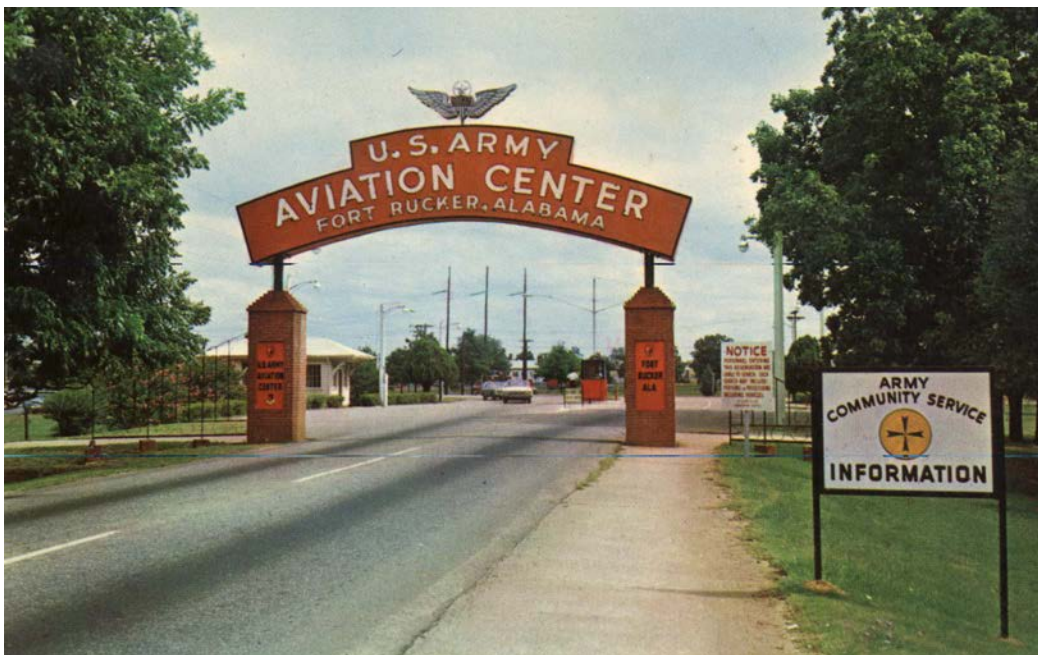


Figure 1. Fort Rucker Front Gate

Source: Army Aviation Flight School, <http://www.armyflightschool.org/rucker.htm> (accessed April 23, 2013).

The Army, Navy and Air Force historically have operated separate training programs.⁴ The Army has conducted its particular program with and without the Air Force. The Air Force had chosen to join the Army training at Fort Rucker at one point, but now that the Army has switched to Flight School XXI in 2004, the Army and the Air Force once again have gone their separate ways. The Air Force still trains at Fort Rucker, but all the instructors and staff are Air Force. They share the airspace and facilities, but the process is completely separate. The Navy on the other hand has always been responsible for training both the U. S. Marine Corps as well as the U.S. Coast Guard. The

⁴Richard W. Stokes, Jr., *Joint USN/USAF Pilot Training: An Operational Concept*. Final Report. Monterey: U.S. Naval War College, 1989.

relationship between all three has always been transparent. The helicopter portion of training is conducted on NAS Whiting Field in the Florida panhandle.

The Army has changed, as mentioned before, from a Legacy flight training pipeline to a Flight School XXI pipeline. Both will be addressed because of the possible relation these two programs may have to the consolidated program. The Legacy syllabus consisted of the Initial Entry Rotor Wing (IERW) Core which included two weeks of preflight training both practical and classroom study. The Contact phase was 10 weeks long and 60 flight hours of instruction. The instrument phase completed the IERW portion that was eight weeks long and included 30 simulator hours and 20 flight hours. This was all completed in a TH-67 which is the military version of the civilian Bell 206.

The Next block of training was the Combat Skills and Night Vision Goggle (NVG) block and was executed in either an OH-58C or a UH-1H. This block consisted of eight weeks and 49 flight hours in combat skills specifically followed by four weeks and 20 flight hours in the NVG portion. This was completed by the Officer Basic Course (OBC) just prior to earning their wings.

After winging, Army aviators would continue training in the specific model selected. Their options are (1) UH-60 Blackhawk, (2) CH-47 Chinook, (3) OH-58 Kiowa, and (4) AH-64 Apache (see figures 2 through 5):



Figure 2. UH-60 Blackhawk

Source: SimHQ, http://simhq.com/forum/ubbthreads.php/topics/3415913/UH_60_BlackHawk (accessed February 23, 2013).



Figure 3. CH 47 Chinook

Source: Enemy Forces, http://www.enemyforces.net/helicopters/ch47_chinook.htm (accessed February 23, 2013).



Figure 4. OH-58 Kiowa

Source: Aircav, http://www.aircav.com/kiowa/58gal01/1cruisin_3.html (accessed February 24, 2013).



Figure 5. AH-64 Apache

Source: Beautiful Cool Wallpaper, <http://beautifulcoolwallpapers.files.wordpress.com/2011/07/ah-64apacheusaarmy2527sprimaryattackhelicopter5.jpg> (accessed March 24, 2013).

Different platforms need different time frames and flight hours to complete the proper readiness level progression. The only big difference between the Legacy syllabus and the Flight School XXI syllabus is that the Student Aviator now receives 12 hours of navigation instruction immediately after IERW and then transfers to a longer process in the specific model selected. They earn their wings shortly after completing that platform specific training.

The Legacy syllabus was very similar to the Navy syllabus except the Navy syllabus includes fixed wing flying instruction. Student Military Aviator (SMA), which is a recent change from Student Naval Aviator (SNA), starts his training immediately after commissioning. The first stop is a civilian flight school that usually flies the Cessna 172. This block is called Introductory Flight Screening (IFS). The SMA receives 25 hours of flight time that includes two solo flights. The IFS program is used to weed out any officer that just does not make the cut without spending a large amount of money in an expensive military trainer.⁵ IFS is followed by Aviation Preflight Indoctrination (API) which consists of six weeks of classroom instruction. This is intense instruction with very high cutoff scores that covers aerodynamics, engines, navigation and flight rules and regulations (FR&R). This is an additional weeding out process before the Navy starts spending some real money on these future Naval Aviators. The last two weeks of API consist of aviation physiology and aircrew survivability. These two weeks are considered the payoff for such an intense mentally draining initial four weeks. This includes more

⁵U.S. Navy, CNATRA ISTRUCTION 3501.1C, *Introductory Flight Screening (IFS) Program* (Corpus Christi: CNATRA, March 19, 2012).

physically intense events like parasailing, swimming with flight gear and getting plucked out of the water by a real life navy helicopter in the Pensacola Bay.⁶

The last step before beginning the helicopter portion of Navy flight training is primary flight training that is conducted at three different bases. NAS Corpus Christi in Texas is in the middle of a transition from T-34C Turbo Mentors to T-6B Texan II's. NAS Whiting Field is complete with their transition to T-6B's.⁷ The last base is Vance AFB in Enid, Oklahoma that flies and older version of the Texan, the T-6A.

All of the previous mentioned bases are under the Military Pilot Training Syllabus (MPTS). The syllabus is a consolidation between previous Air Force and Navy syllabi. Primary includes over 100 flight hours and includes several phases. The first one is the Contact phase where the SMA learns how to fly basic flight maneuvers. This is followed by the instrument phase which teaches the SMA about instrument flight rules and procedures. The last two blocks are shorter than, and not as intense as the previous blocks. These blocks include day navigation, night navigation and formation flying.⁸

After successful completion of Primary flight training, SMA's select from several platform options which include helicopters, tail hook, maritime or take charge and move out (TACAMO). TACAMO are military 707's that conduct secret communications with ballistic missile submarines. The Maritime pipeline is transitioning from the venerable P-

⁶U.S. Navy, *Aviation Preflight Indoctrination (API) Curriculum Guide* (Corpus Christi: Department of the Navy, 1992).

⁷U.S. Navy, *Primary Flight Training (T-34) Master Curriculum Guide* (Corpus Christi: Department of the Navy, 1991).

⁸U.S. Navy, *T-6B Joint Primary Pilot Training (JPPT)* (Corpus Christi: CNATRA, 2012).

3C Orion to the new Boeing 737 with a military classification of P-8. These are anti-submarine, anti-surface and intelligence, surveillance and reconnaissance (ISR) mission capable aircraft. The second to last is Tailhook and that is all carrier borne fixed wing aircraft. In the Tailhook community is further track selected for jets or propeller aircraft in later advanced phases of training.

The most important part of the Navy syllabus to this study is the helicopter portion and that encompasses several blocks of training and over 100 hours of instruction. The helicopter syllabus is also MPTS and continues with the same blocks of training plus helicopter specific training. Portions familiar with the primary syllabus are Contact, Instrument, Navigation, and Formation. The helicopter specific syllabus includes mostly of tactical training and includes Shipboard/Search and Rescue (SAR), Shipboard Operations, Field Deck Landing Practice, Ship Deck Landing Practice and night vision goggle training.⁹

At the conclusion of the advanced helicopter syllabus, SMA's receive their wings of gold and continue to the fleet replacement squadrons where they learn in one of the following multi-service platforms.

⁹U.S. Navy, *Undergraduate Helicopter Flight Training (TH-57) Master Curriculum Guide* (Corpus Christi: Department of the Navy, 1992).



Figure 6. SH-60 Bravo Seahawk

Source: Wonyong, http://www.flickr.com/photo_zoom.gne?id=173981228&size=o (accessed February 12, 2013).



Figure 7. SH-60 Foxtrot Seahawk

Source: Secretary of Defense, <http://www.dodmedia.osd.mil/Assets/2004/Navy/DN-SC-04-10809.JPEG> (accessed March 23, 2013).



Figure 8. HH-60 Hotel Seahawk

Source: U.S. Navy, <http://www.navy.mil/management/photodb/photos/011215-N-8421M-010.jpg> (accessed April 3, 2013).



Figure 9. MH-60 Sierra Seahawk

Source: U. S. Navy, <http://www.navy.mil/management/photodb/photos/130221-N-QI595-096.jpg> (accessed April 3, 2013).



Figure 10. MH-60 Romeo Seahawk

Source: U. S. Navy, <http://www.navy.mil/management/photodb/photos/130215-N-OY799-114.jpg> (accessed April 3, 2013).



Figure 11. MH-53 Dragon

Source: U.S. Navy, <http://www.navy.mil/management/photodb/photos/130305-N-PB086-109.jpg> (accessed April 3, 2013).



Figure 12. AH-1Z Cobra

Source: U. S. Marine Corps, <http://www.marines.mil/Photos.aspx?igphoto=74999> (accessed April 15, 2013).



Figure 13. UH-1Y Huey

Source: U. S. Marine Corps, <http://www.marines.mil/Photos.aspx?igphoto=2000007146> (accessed April 15, 2013).



Figure 14. MV-22 Osprey

Source: U. S. Marine Corps, <http://www.marines.mil/Photos.aspx?igphoto=2000008614> (accessed April 15, 2013).

Most are Seahawk variants and are a cousin of the original Army Sikorsky Blackhawk. Upon completion of this training the Fleet replacement squadron, or RAG (Replacement Air Group, really old name) as it is commonly called, Naval Aviators are assigned to their fleet squadron where they will perform the duties of a military helicopter pilot.

This study focuses on a common syllabus for a consolidated helicopter flight school program. Specifically, the primary research question to be answered is: Is it possible to consolidate the Department of Defense helicopter flight schools into one and will the advantage of consolidation outweigh the specific tactical training missions required by each service? If complete consolidation is not possible, can a common syllabus be created to instill a sense of “jointness” between all the flight training schools?

Several of the secondary questions that will be answered are:

1. How much commonality presently exists between current programs?
2. How should service specific requirements be met?
3. What is the impact or deficiencies in a consolidated syllabus?
4. If unable to productively create a Joint syllabus, can the possibility of consolidating common programs like the Air Force and Navy be considered?

Assumptions

Some assumptions are necessary for the consolidation of the helicopter portion of all three syllabi.

The first assumption is that, at a future date, consolidation could be mandated by Congress or the Department of Defense so that it would be implemented in a way that the formulation of a joint syllabus is necessary. This would eliminate the evaluation of all helicopter training bases and the feasibility of collocation. This would allow the study to continue without the burden of evaluating infrastructure, manning, cost effectiveness or environmental risks.

Another assumption is that fixed wing is an important part of flight training and the option to include in the study is required. The possibility of having the Army aviators also train in fixed wing aircraft can be a big road block to further study. This has been the show stopper in previous studies, but nevertheless flight training must to be addressed as a whole and not just a selected portion.

Additionally, if the study finds that fixed-wing training is not required then the assumption is made that all helicopter pilots must learn the basic helicopter flying skills

and that these will be universal across all branches and agencies that fly rotary wing aircraft.

Next, that a consolidated syllabus will not in any way degrade the level of training that is being received at this time. Any proposals or recommendations must take this into consideration in the needs of the specific service analysis of their programs.

Finally, the programs in place now from all services are where the services desire. They meet their needs and expectations and that the selection for prospective pilots will be screened according to service specific requirements. This study will formulate and derive a recommendation without sacrificing the quality of the aviators produced.

Definitions

Consolidation. The term consolidation is used mainly to describe the process of merging all three helicopter programs and it may include colocation of training, but is mainly used to create a common syllabus at a minimum.

Initial Entry Rotor Wing (IERW). IERW will be used for all Army specific syllabus recommendations or citations. This includes all portions of Army flight training up to and including winging. Winging is the term used when a student aviator is a full rated pilot and is entitled to wear the device designated by his or her service. This will make it easier to differentiate between all three syllabi and will have the ability to be a more thorough study.

Military Pilot Training Syllabus (MPTS). MPTS will be used as a Navy portion of the syllabus as well as the Air Force portion if that is what the Air Force will use. MPTS includes both fixed-wing and rotary-wing training and will be used interchangeably for both programs. The word helo will preface MPTS if it's only rotary-wing specific.

Limitations

The first limitation is the lack of congressional direction or a Joint Chiefs of Staff (JCS) mandate at this time to actually create or derive that consolidation is required or necessary.

A second limitation is the influence by specific services in prior studies that will make my research more subjective than objective. The research will mostly encompass official military instructions, but will also address previous studies as well as their results.

Delimitations

The primary delimitation of this study is the selected area of research. Consolidation can incur multiple levels in flight training, but the study will specifically focus on the syllabus from all three services to dissect them and morph into one master syllabus or JHPT syllabus. Also, the cost that will be incurred can be very subjective and will not be covered specifically, but generally when the author deems that a significant cost savings will be gained.

Significance

In the process of studying this information on consolidating helicopter training, the research conducted may help understand other joint issues. This can have the potential to gain a better understanding of joint type problems and offer the possibility of consolidating other service specific programs. All the services have common tasks that must be achieved for example; finance, personnel, medical, communications and cyber space just to name a few. There is no reason why a single school and a single process cannot be created or consolidated so that we can easily work in a joint environment in the

future. Also, with the cash flow problems that the government is having now, a possible consolidation of resources can have a tremendous positive effect on the tax payers.

CHAPTER 2

LITERATURE REVIEW

The sources that will be examined in my research include: books, periodicals, several studies on training consolidation and specific helicopter consolidation studies. It will also consider theses and research papers pertaining to joint functions and problems. Most of the studies were carried out by the specific services. Each study outlines the advantages and disadvantages of consolidation. A major task in using evidence from these sources is the ability to look at objectively and evaluate the validity in each.

There have been several studies over the years that have been carried out by multiple third party companies and agencies to include the Government Accountability Office (GAO) on the possibility of consolidation of not just helicopter training, but of several other areas.

In the end, consolidation of helicopter training into one geographical area or into a joint syllabus, consolidation would have to produce a dollar savings. Also, it would have to match or exceed the quality of pilot that it would be making and at the end, even if you make a higher quality pilot that is able to perform at a very high level of stress it could all be for naught because of the absence of congressional direction or JCS mandate.

There have been multiple proposals as well as multiple studies that have recommended the elimination of fixed-wing pilot training, but just like there have been multiple studies, there have also been multiple cultural differences that have derailed such endeavor.

Some of the studies also explored the possibility of using the same aircraft for the same type of training. One of them is the Department of Defense Office of the Inspector

General (DOD IG) that issued an Audit Report 92-063 that was entitled “Acquisition of Common Aircraft for Navy and Air Force Undergraduate Pilot Training” March of 1992.¹⁰ It mentions and discusses in detail the Navy requirement for the fixed wing training that it gives to its helicopter pilots as well as the proposal for consolidated training at Fort Rucker. Twenty years later and this proposal failed multiple times to come to fruition, but whether it is a good thing or not, the subject will come up again.

The subject of consolidation came up again in 1999 with another GAO report that mentioned that at that current time consolidation would not be cost effective.¹¹ This was at the time of big BRAC (Base Realignment and Closure) base closures and no one wanted to be left without their military bases.

Delineation of the Army program is found in several documents. The Program of Instruction (POI) for the Initial Entry Rotary Wing (IERW) breaks it down by the specific tasks and training events. It is arranged in sequence with event type and description and has all the levels of core, tracks and advanced syllabi.

The Navy’s program is run by the Chief of Naval Air and Training (CNATRA). CNATRA provides all the guidance for all pilot training, but in this case specifically for helicopter training. The TH-57 master curriculum guide contains guidelines for the implementation of the program as well as specific tasks and training required. It also provides an outline for hours and outline of items that are taught or evaluated in each flight. As it is key to this study, CNATRA also is responsible for the initial flight

¹⁰U.S. Department of Defense, Inspector General. Audit Report Number 92-063.

¹¹U.S. Government Accounting Office, *Observations on Aviation Training Consolidation and Expansion Plans* (Washington, DC: Congressional Research Service, 1999).

screening (IFS), aviation preflight indoctrination (API) and Primary flight training syllabus.

Safety and flying training data from both the Army and Navy Safety centers may provide some insight into the quality or lack thereof on a level that is most important to realize. The possibility of loss of life makes this study critical for the safety of all military aviators.

A field research trip was executed to the Aviation Center of Excellence at Fort Rucker during the study as well as to the Air Force training facilities at Cairns Army airfield, collocated at Fort Rucker, and Whiting Field Naval Air Station (NAS) in Pensacola, Florida. This will provide direct knowledge of both the process and training time required. Interviews of key personnel in at least one squadron per facility will be conducted to get updated or specific information on changes already coming down the pipeline in the subject.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this research is to collect, analyze and interpret data relevant to the research topic. The research model is constructed to answer the research question pertaining to the consolidation of all helicopter training programs as well as the possibility of collocating all helicopter training for all services in one location.

Collection

Data will be collected from both primary and secondary sources that were mentioned in chapter 2. Primary sources encompass all flight training instructions as well as program of instruction. Secondary sources include all magazine articles, official studies conducted by both private companies as well as government entities. A tertiary source will be any book or study that deals with consolidation and multiservice or joint focused partnerships.

The first step of the study is to collect pertinent information that deals with each flight training separately and specifically. This is to get a basic understanding for all of the flight schools that will be considered in this study. Also, the basic objective of all of this is to identify the most important issues that deal with consolidation, the debate that it is tied to as well as what each service thinks on the matter. This will all show the actual requirements to make the consolidated syllabus successful and where it might fit into each specific syllabus.

Once all the background information is collected and the history of consolidation attempts are established then the next step is to collect information that pertains to all the

current programs. Since there are three different programs (Army, Navy, Air Force) each of them will be defined.

The initial research on the Navy flight training program showed that more information is needed to completely review thoroughly the Military Pilot Training Syllabus (MPTS) starting from Initial Flight Screening (IFS) then on to Aviation Preflight Indoctrination (API) as well as Primary flight training. This is done so a complete look at what level of proficiency and expertise each Navy flight student will arrive with at Advanced Helicopter Training.

The Master curriculum guide for all the phases starting from IFS, then API, followed by Primary and finally on to advanced helicopter training were accessed from the Chief of Naval Air and Training multiple publications of MPTS. Together they provided a thorough breakdown of from beginning to end of the objectives, methods, content, training times, sequence of events and order of academics and flight support. Included in this was the breakdown for both simulator events as well as actual flight instruction.

Analysis

The objective of the analysis phase of the research is to evaluate collected data. This analysis concentrates on several main areas to include background and current syllabi.

First, the background will show any issues that were important in all versions of the selected syllabi. This will help to formulate a thorough and refined joint syllabus.

Next is to compare all the current syllabi with common criteria that are pertinent across all the syllabi. This will identify important areas of commonality.

The first criterion is to define the objectives of each program. These are stated very specifically in present syllabi. This process will help understand the overall structure and content of each syllabus.

The next criterion is the actual content that covers the areas that are taught. This includes academic and flight support as well as simulator and flight instruction events. The analysis will look at the number of flight hours, training days, lessons and actual flight events that are dedicated to each common topic of instruction.

Additional criterion will be to analyze the pace, sequence and methods of the training. Pace of training evaluates the amount of training that is conducted in a specific timeframe.

Interpretation

The first step in the interpretation phase is to define the objective of each particular flight training syllabus. This helps us determine where the Joint syllabus will start and to what level this will be accomplished. This will also help us reach the desired end state.

Items identified as strictly service unique will be evaluated on the ability to be included in the Joint syllabus or whether it needs to be added to post winging platform specific training.

The end state is expected to be a consolidated syllabus with the ability to be carried out in a joint environment. Colocation will most likely not be recommended because of past service specific issues to include tactical and geographical training that always tend to come up in most of the studies researched.

CHAPTER 4

ANALYSIS

Introduction

This chapter discusses the multiple syllabi from all three services included in this study. The syllabi are very different in some areas and very alike in others. The analysis will attempt to go in the order from beginning to end depending on the syllabus and comparing the differences at the same time with syllabi that are common to multiple programs. The programs will be compared in several areas to include the pace of training, sequence of training as well as objectives and methods.



Figure 15. Helicopter Training Timeline

Source: Created by author.

Initial Flight Screening

Initial Flight Screening is a Navy program that includes Navy and Marine Corps Student Naval Aviators (SNA). IFS was created in the beginning of the century to be

used as a way to identify students with a lack of determination, motivation and the adaptability necessary for primary flight training.¹²

The training that a SNA receives includes 13.5 to 15 hours of civilian FAA approved training. SNA must solo prior to hour 15 to successfully pass the course. Associated ground training is required and completion of the FAA Private Pilot Airplane Airman Knowledge Test is a pre requisite and must be successfully completed with a minimum of 80 percent. All students enrolled are required to complete the training in 50 days or less.¹³ All SNA are briefed on and sign a statement of understanding of training-time-out (TTO) and drop-on-request (DOR) policy and attrition consequences; restriction from any further flight training, re-designation to another warfare community, or as directed per parent service personnel policy.¹⁴

This training may be conducted anywhere a properly licensed flight school is located. Several of these schools are used in the Pensacola area due to the amount of SNA that come from OCS. Other schools are conveniently located in Annapolis as well as near Navy ROTC units around the country. This is a cost saving because in the case were a student fails this program, he can be rerouted to another location for initial training in their new career field.

The Air Force has a similar program where the requirement is to complete a private pilot's certificate which requires about 50 hours of training. Most of the training

¹²U.S. Navy, CNATRA INSTRUCTION 3501.1C, *Introductory Flight Screening (IFS) Program* (Corpus Christi: CNATRA, March 19, 2012).

¹³*Ibid.*, 2.

¹⁴*Ibid.*, 3.

is conducted at Pueblo, Colorado near the Air Force Academy. All other aspects of training are the same as Navy IFS.

The Army does not have an Initial Flight Screening at this time. If consolidation is approved then a form of initial flight screening should be implemented into a consolidated syllabus.

Aviation Preflight Indoctrination

Aviation Preflight Indoctrination (API) is a six week course conducted aboard NAS Pensacola, Florida. The course includes all students in the Navy, Marine Corps, Coast Guard and designated Air Force personnel selected for Navy training. The specifics of this training include both academics as well as physically rigorous events. The academic portion starts with a 21 hour block of instruction that covers aerodynamics. This includes only fixed-wing aerodynamics.

This is followed by a 14 hour block of weather. This block brings all students up to a very proficient level of weather knowledge required to be a Naval Aviator. This includes weather knowledge pertaining to the actual weather to how to decipher and understand official weather reports.

The next block is Engines and it includes 13 hours of study. This block is where the flight student learns the operation of all engines that would be on a naval aircraft like jet, turboprop and turboshaft.

The next block is Navigation and it includes 17 hours of instruction in aviation specific navigation.

The last academic block is flight rules and regulations and only includes seven hours of instruction. At the end of each block there is a multiple choice test and must be negotiated with a score of at least 80 percent.

At this point the course starts getting easier academically, but intensifies physical. It is also the portion where SNA may start wearing their flight suit.

The last two weeks the SNA will complete blocks of land survival, altitude chamber, parachute drag, helo dunker and bay operations. Bay operations is where the student jumps into the Pensacola Bay with all of his flight gear and is pick up out of the water by a Navy helicopter.¹⁵

The Air Force has the same training in their phase one of primary flight training. This doesn't include any Navy specific training and Navy students selected for Air Force training must complete the task required by phase one again.

The Army preflight like the Air Force is included in the primary flight program and will be covered later in this chapter.

Joint Primary Pilot Training (JPPT)

Primary flight training is conducted at NAS Whiting Field (TW5) in Florida and NAS Corpus Christi (TW4) in Texas. This training is conducted in the joint environment and it could set the scenario for a joint helicopter training syllabus. The prerequisite for this course is API as well as IFS. The course length is 123 training days or 27.3 calendar weeks at TW4 and 123.6 training days and 27.4 weeks at TW5. There's also a USN/USMC strike top-off of 13 training days and 2.9 calendar weeks for Navy and

¹⁵U.S. Navy, *Aviation Preflight Indoctrination (API) Curriculum Guide* (Corpus Christi: Department of the Navy, 1992).

Marine Corps students that select Jets. Air Force students have a top-off of the same for Air Force students that select jets as well. Jet flight training is outside the scope of this study, but it will show how a helicopter syllabus can be designed to include all services.¹⁶

The syllabus is broken down to several stages. The first stage is ground training and is comprised with 77.5 hours in the syllabus. Ground training includes several classes to include systems, course rules, crew resource management as well as airsickness awareness. There are both computer based instruction (CBI) as well as military or civilian instructor led classes. There are also several exams dealing with aircraft systems and course rules.¹⁷

Initial flight support is the second block of training and it is comprised of a total of 92.6 hours and in this stage procedures are the main emphasis. Most courses are followed by an exam and the longest course is 22.6 hours in radio instrument flight procedures. This is the portion of training where a pilot learns how to fly the aircraft without any outside references. The SNA must be able to know where he is at by reading several flight instruments that collectively tell him his location as well as where he should not be.¹⁸

The next block is flight training. This portion of training is conducted in several ways. Two simulator type trainers as well as the actual aircraft. The events that

¹⁶U.S. Navy, *T-6B Joint Primary Pilot Training (JPPT)* (Corpus Christi: CNATRA, 2012).

¹⁷*Ibid.*, ix.

¹⁸*Ibid.*, x.

encompass this block are day contact, night contact, instruments, day navigation, night navigation, low-level navigation and formation.

The first simulator is a unit training device (UTD). This device is used for procedural training in the cockpit and does not require any outside references. It is where checklists are learned, practiced and performed. There are only a total of 12 flights and 15.6 flight hours devoted to this training. The events that use this training are both day contact and instruments.

The second simulator is an operational flight trainer (OFT) and it is a 135 degree video screen that is capable of making the student feel like he is really up in the air flying. This simulator covers 24 flights and 31.2 flight hours. There are 13 flights in instrument events, seven in day contact and one each in day navigation, night navigation, low-level, and formation.

Flight in the actual aircraft (T-6B Texan II) is broken down further into dual and solo flights. In the dual flight portion, the student is with a military instructor pilot and in the solo the student is alone in the aircraft. Dual flights consist of 44 flights and 71.7 hours and the solos are three flights with a total of 4.6 hours. Solo flights are only performed in the day contact and formation events. All other flights are conducted with an instructor pilot.¹⁹

All syllabus events have either a five or six digit identifier. The first and second character signifies the stage (contact, instruments, formation, etc.). The third signifies the media (aircraft or simulator). The fourth is the block in the sequence. The fifth and sixth are the event identifier. The format is shown in figure 15 below:

¹⁹Ibid., xi.

Char	Meaning	Remarks		
1 st - 2nd	Stage	C-Contact F-Formation G-Ground I-Instrument IN-Inst Flt Support	L-Low-Level LL-Low-Level Flt Support N-Navigation	NA-Nav Flt Support PR-Operating Procedures SY-Systems
3rd	Media	0-Ground Training 1-Flight Support	2-T-6B UTD 3-T-6B OFT	4-T-6B
4 th	Block	Sequential, indicating block within stage.		
5 th & 6 th	Event/Check & Identifier	Sequential, indicating event within block, or other event types as shown below: 84-Adaptation 85-Practice Sim 86-Warmup 87-Extra Training		
		88-Initial Progress Check 89-Final Progress Check 90-Check Flight/Exam		

Figure 16. Lesson Designator

Source: U.S. Navy, *T-6B Joint Primary Pilot Training (JPPT)* (Corpus Christi: CNATRA, 2012), xxiii.

T-6B JPPT FLIGHT/DEVICE COURSE FLOW

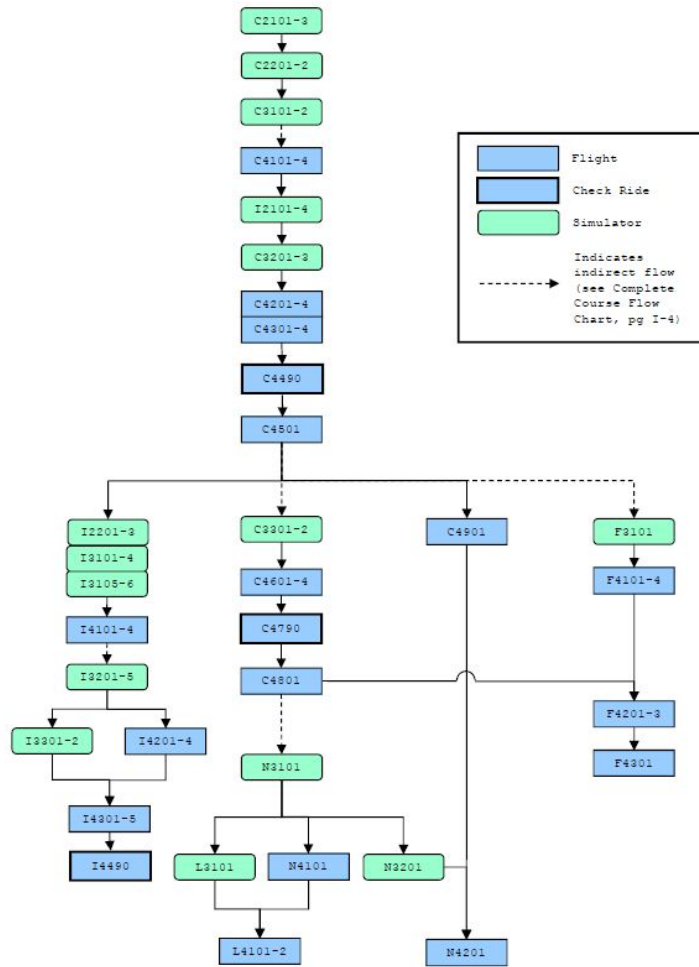


Figure 18. Simulator Course Flow

Source: U.S. Navy, *T-6B Joint Primary Pilot Training (JPPT)* (Corpus Christi: CNATRA, 2012), I-5.

Grading Procedures

The grading system follows an absolute grading scale. All maneuvers graded are compared to the course training standard (CTS) shown in figure 17. CTS show items that

are performed as a “Good G/4” level. The other levels are above or below CTS and are broken down into five levels:

1. Demonstrated (NG/1 Level). When maneuver is demonstrated by the instructor pilot (IP) or when IP is unable to observe the maneuver in a solo flight.
2. Unable (U/2 Level). Performance of maneuver is unsafe and deviations exceed CTS. Student requires constant coaching.
3. Fair (F/3 Level). Performance is safe and performed with limited proficiency. Deviations exceed CTS. Moderate coaching required.
4. Good (G/4 Level). Performed within CTS. Deviations outside CTS are permitted if they are brief and minor.
5. Excellent (E/5 Level). Greatly surpasses CTS. Requires no coaching.

4. Basic Airwork	
<ul style="list-style-type: none"> ● Establish and maintain desired altitude, airspeed, and heading during flight. 	<ul style="list-style-type: none"> ● Maintains aircraft within 100 feet, 10 KIAS, 10° of heading. ● Appropriately uses power, attitude, and trim. ● Levels off within 100 feet of desired altitude. ● Maintains smooth/positive control consistent with flight conditions. ● Correctly uses trim system to maintain aircraft control.
5. In-Flight Checks/Fuel Management	
<ul style="list-style-type: none"> ● Complete checks as required. 	<ul style="list-style-type: none"> ● Performs: <ul style="list-style-type: none"> ▶ Operations checks at least every 20 minutes. ▶ Before landing checklist at required configuration points. ▶ Pre-stalling, spinning, and aerobatics checklist when required. ● Does not go below Joker or Bingo fuel without informing the flight leader as applicable.
6. In-Flight Planning/Area Orientation	
<ul style="list-style-type: none"> ● Perform in-flight planning to include maintaining area orientation, profile management, energy management, and remaining within area limits. 	<ul style="list-style-type: none"> ● Efficiently sequences maneuvers. ● Adjusts mission profile for external factors (weather, traffic, etc.). ● Maintains positional awareness using ground references, navigational aids, VFR charts, or FLIPs. ● Maintains appropriate boundaries and altitude block within a working area as required.

Figure 19. Course Training Standard (CTS)

Source: U.S. Navy, *T-6B Joint Primary Pilot Training (JPPT)* (Corpus Christi: CNATRA, 2012), IX-5.

Overall event grades for a flight or simulator are broken down into three ranks. These are the grades that show the overall grade for a training flight. They are broken down as follows:

1. Pass. Prior to the end of block (EOB) flight the student shows adequate level of proficiency to meet end of block standards.
2. Marginal. The possibility to meet standards by EOB is questionable.
3. Unsatisfactory. Dangerous tendencies are observed by the IP.



Figure 20. T-6B Texan II

Source: U. S. Navy, <http://www.navy.mil/management/photodb/photos/120828-N-NP779-045.jpg> (accessed April 4, 2013).

Maneuver item file (MIF) is the required level in each block that must be met by the student. Each block is different and is increased as the student progresses through the syllabus. If a student meets MIF at the end of the last block then the student is able to complete primary flight training. Additional requirements to complete primary flight training include a minimum of 10.0 hours of night time. 3.0 hours of solo time.

CONTACT STAGE MANEUVER ITEM FILE															
CTS REF	MANEUVER	C2103	C2202	C3102	C4104	C3203	C4204	C4304	C4490	C4501	C3302	C4604	C4790	C4801	C4901
1	General Knowledge/ Procedures	3+	3+	3+	3+	3+	3+	4+	4+	4	4+	4+	4+	4	4+
2	Emergency Procedures	3+	3+	3+	3+	3+	3+	4+	4+	4	4+	4+	4+	4	4+
3	Headwork/ Situational Awareness		2	2+	2+	2+	3+	3+	3+	3	3+	4+	4+	4	4+
4	Basic Airwork	2	2	2+	3+	3+	3+	4+	4+	4	4+	4+	4+	4	4+
5	In-flight Checks/Fuel Management	2+	2+	2+	3+	3+	3+	4+	4+	4	4+	4+	4+	4	4+
6	In-flight Planning/Area Orientation			2+	2+	2+	3+	3+	3+	3	3+	4+	4+	4	4+
N	Abort Start	3+													
N	Fire Warning on Ground (Fire Annunciator Illuminated)	3+													
N	Emergency Engine Shutdown	3+													
N	Emergency Ground Egress	3+													
N	Abort Takeoff	3+													

Figure 21. Maneuver Item File

Source: U.S. Navy, U.S. Navy, T-6B Joint Primary Pilot Training (JPPT) (Corpus Christi: CNATRA, 2012), IV-2.

There are several check rides (SXX90) in the syllabus where the student must be able to complete the designated maneuvers up to the MIF level. These flights are the main generators of progress checks. An initial progress check (IPC) can be generated by several circumstances. Failed check rides are the main reason for an IPC, but some are generated in the case where two consecutive or three cumulative unsatisfactory events in the same block of training.²¹ After an unsatisfactory flight brief or two academic failures.

Passing an IPC returns the student to the normal syllabus flow. Failing results in a final progress check (FPC). An FPC can only be conducted by the squadron commanding officer (CO), executive officer (XO) or a CO designated representative. Outcome from an FPC can be either return to normal syllabus flow if passed or attrition if failed.²²

²¹Ibid., I-24.

²² Ibid., I-25.

JPPT PROGRESS CHECK TRAINING REVIEW PROCESS

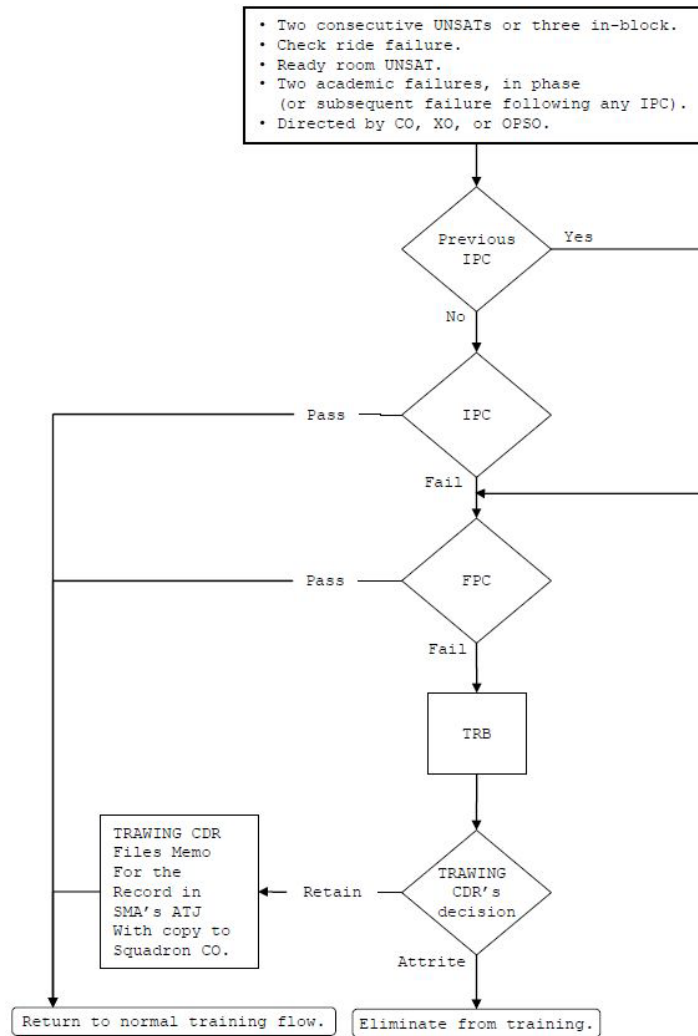


Figure 22. Progress Check Training Review Process

Source: U.S. Navy, *T-6B Joint Primary Pilot Training (JPPT)* (Corpus Christi: CNATRA, 2012), I-27.

At the completion of primary flight training students depending on grades and needs of the Navy then select from several pipelines. The pipeline that is the focus of this study is helicopters. When helicopters are selected the student moves to NAS Whiting

Field, Florida if primary is completed at TW4 in Corpus Christi, Texas. If primary is completed at NAS Whiting Field then the student transfers across the base from a fixed wing training squadron to a helicopter training squadron.

Initial Entry Rotary Wing

Initial Entry Rotary Wing (IERW) Army training is conducted in a very structured environment. The training is conducted at Fort Rucker, Alabama. The primary aircraft used for this stage is the TH-67 Creek. This training encompasses three blocks of training. These blocks are primary, instrument and basic warfighter skills. The blocks are further separated into stages. Blocks and stages are conducted in sequence and may not be adjusted for weather or maintenance. If a training day is lost for either weather or maintenance then the training day is lost and pushed to the following working day.²³ Students are separated into several flights of about 30 to 40 students both warrant officer and commissioned officers. The flights are scheduled to split the time between academics and the flight line. Every student either flies in the morning or the afternoon, leaving the other block for academics.

The primary stage is 50 training days long with 40 flying periods and should be about 10 weeks long, two weeks for preflight training and eight weeks for the flight stage. The first stage of the primary block is relatively short. It is the pre-flight stage and is 10 training days long. The stage includes only academics and cockpit procedural trainers (CPT). The second stage in the primary block is comprised of 44.4 of instruction in the aircraft and two evaluation flights of one hour each designated P1 and P2. This

²³U.S. Army, *Initial Entry Rotary Wing (IERW) Aviator Course Common Core Primary* (Fort Rucker: Department of the Army, 2011).

brings the total flight hours for stage one of primary to 46.4. Training flights are 1.2 hours long and a total of 45.4 hours must be flown before P2 may be executed. Stage two starts with training day 11 and the first flight is on training day 12. P1 or the first evaluation is conducted on training day 28 or flight period 18. At this point the student should have around 20.2 flight hours.

Evaluations are broken down into four phases. The first phase is the introduction where the student introduces him or herself and ensures he has all required equipment.²⁴ This is the part where the student discusses with the instructor about the standards and grading criteria. Phase two is the oral examination. The student must be very familiar with operation limitations and restrictions as well as emergency procedures of his aircraft and they are as follows:

1. Operating Limits and Restrictions.
 - a. Define Warning, Caution and Note.
 - b. Turbine Outlet Temperature limits.
 - c. Torque meter limits
 - d. Wind limitations
 - e. Engine starting limitations.
 - f. Rotor Limits.
 - g. Engine oil pressure limits.
 - h. Gas producer limits.

²⁴Ibid., 18.

2. Emergency Procedures
 - a. Land as soon as possible.
 - b. Land as soon as practicable.
 - c. Autorotate.
 - d. Emergency shutdown.
 - e. Engine failure at a hover.
 - f. Engine failure – low altitude/low airspeed or cruise.
 - g. Hot start.
 - h. Engine/fuselage fire – ground.
 - i. Engine/fuselage fire – flight.
 - j. Electrical fire – flight.

After successful completion of above items the student continues onto phase three of the evaluations which is the flight examination. The tasks that are selected for evaluations are as follows:

1. Mission Brief
2. Perform as a crew member
3. Prepare a performance planning card
4. Verify aircraft weight and balance
5. Operate aviation life support equipment
6. Perform preflight inspection
7. Perform from before starting engine up to before leaving helicopter checks
8. Perform hover checks
9. Perform before landing checks

10. Maintain airspace surveillance
11. Perform hover power check
12. Perform hovering flight
13. Perform visual meteorological conditions takeoff from a hover
14. Perform fuel management procedures
15. Perform visual meteorological (VMC) conditions flight maneuvers
16. Perform VMC conditions approach to a hover
17. Respond to emergencies
18. Oral knowledge

After completion of phase three is the final portion of phase four. This is where the student is debriefed and told if he passes or failed as well as what he did right or wrong and how he can better himself for future flights.²⁵

The third stage starts on training day 29 and culminates on day 50 with a total of about 46.4 hours of flight time and evaluation number two (P2). P2 is very similar to P1 except that phase two and three are more in depth. Phase two includes everything from phase two in P1 as well as the following:

1. Regulations/Publications
 - a. Visual flight rules (VFR) flight planning
 - b. Publications required for aircraft
 - c. Weight and balance requirements
 - d. Flight restrictions due to exogenous factors
 - e. Preparation and interpretation of performance charts

²⁵Ibid., 20.

2. Operating Limitations and Restrictions
 - a. System limits
 - b. Miscellaneous system limitations
 - c. Load limits
 - d. Airspeed limitations
 - e. Maneuvering-aerobatic maneuvers
3. Operating and flight characteristics
 - a. Loss of tail rotor effectiveness
 - b. Thunderstorm/lightning
4. Emergency procedures
 - a. Definition of emergency terms
 - b. Engine malfunctions
 - c. Rotor, transmission, and drive system malfunctions
 - d. Flight control malfunctions
5. Aeromedical Factors
 - a. Physiological stressors
 - b. Hypoxia
 - c. Spatial disorientation
 - d. Fatigue
6. Aerodynamic factors
 - a. Transverse flow effect
 - b. Dissymmetry of lift
 - c. Effective translational lift

- d. Settling with power
- e. Dynamic rollover
- f. Airflow during a hover
- g. Retreating blade stall

Phase three of P2 is like phase two where the student is responsible for everything from P1 plus the following:

1. Perform after landing checklist
2. Perform radio communication procedures
3. Perform VMC takeoff
4. Perform simulated maximum performance takeoff
5. Perform VMC steep approach
6. Perform shallow approach to a run-on landing
7. Respond to engine failure at a hover
8. Respond to engine failure at cruise flight
9. Perform autorotation
10. Perform hovering autorotation

At the completion of P2 the student aviator has successfully completed the primary portion of IERW. At this point the student starts the second block of IERW and it is strictly an instrument block. This block is mostly simulator based events both instrument flight trainer (IFT) and operational flight trainer (OFT). The block is 53.2 dual flight training hours with 37.5 in the simulator and 15.7 in the aircraft and should be about eight weeks long.

Stage one of the instrument block starts on training day 51 and is strictly simulator events. Stage one is a total of 10.5 hours and it culminates with an evaluation flight on training day 58. The initial flight evaluation has the same sequence as the one in primary except for phase two and three which are swapped.²⁶ Phase one remains the same and phase two is the flight examination that includes the following:

1. Perform unusual attitude recovery
2. Perform straight and level flight
3. Perform climbs and descents
4. Standard rate turn
5. Climbing and descending turn
6. Perform acceleration/deceleration

Phase three is the oral examination and is not applicable for this evaluation. Phase four remains the same as the contact block.

Stage two begins on training day 58 and culminates on training day 90 with a thorough evaluation of the instrument block. This stage is 42.7 hours with 27.0 in the simulator and 15.7 in the aircraft.²⁷ On training day 90 after a total of 53.2 hours in the instrument block, the stage two evaluation is conducted. Stage two evaluations are comprised of the following instrument specific tasks:

1. Plan an instrument flight rules (IFR) flight plan
2. Perform instrument takeoff (ITO)

²⁶U.S, Army. *Initial Entry Rotary Wing (IERW) Aviator Course Common Core Instrument* (Fort Rucker: Department of the Army, 2011).

²⁷*Ibid.*, 6.

3. Perform radio navigation
4. Perform holding procedures (VOR, LOC, GPS)
5. Perform non precision approach (VOR, LOC, GPS, ASR)
6. Perform precision approach (ILS, GPS/LPV, PAR)
7. Perform missed approach

Phase three is the oral examination and unlike stage one, stage two is very thorough with instrument flight rules and procedures, visual flight rules and procedures, DOD/Government FLIP and IIMC avoidance and recovery procedures.²⁸

The third and final block of IERW is the basic warfighter skills (BWS) stage. This stage lasts four weeks and 21.5 total flight hours in a TH-67 Creek (figure 17) or an OH-58 Kiowa (figure 4).

²⁸Ibid., 19.



Figure 23. TH-67 Creek

Source: U.S. Army, <http://www.rucker.army.mil/aircraft/th67.html> (accessed April 14, 2013).

The BWS stage starts on training day 91 and culminates on training day 110 with an evaluation.²⁹ This evaluation is the last event prior to track selection and is given a grade definition as follows and is compared to the Navy fixed wing standard:

1. Characteristics of A (90-100) is similar to Excellent E/5
2. Characteristics of B (80-89) is similar to Good G/4
3. Characteristics of C (70-79) is similar to Fair F/3
4. Characteristics of N is not to standard or unsatisfactory U/2
5. Letters of DM is demonstration or D/1

²⁹U.S. Army. *Initial Entry Rotary Wing (IERW) Aviator Course Common Core Basic Warfighter Skills Phase Flight Training Guide* (Fort Rucker: Department of the Army, 2011).

The evaluation sequence is organized into three functional areas and takes 5.5 hours to complete. The first is the oral portion followed by the hands-on performance and completed with the critique/summary portion.³⁰ The oral portion has the following mandatory graded items:

1. Written/Oral Quizzing
 - a. Describe dynamic rollover
 - b. Describe LTE
 - c. Describe aerial observation
 - d. Transmit a tactical (SPOT) report.
 - e. Describe fundamentals of reconnaissance
 - f. Describe target handover to an attack helicopter of call for and adjust fire
 - g. Describe actions on contact
 - h. Describe LZ/PZ/HA reconnaissance or route reconnaissance
2. Regulations and Publications
 - a. Aviation life support equipment
 - b. Describe IIMC
 - c. Weight and balance requirements

The hands-on performance includes a flight evaluation and the instructor has discretion of what tasks are to be graded with a minimum of the following tasks:

1. Crew mission briefing
2. Verify weight and balance
3. Maintain airspace surveillance

³⁰Ibid., 16.

4. Perform hover power check
5. Perform radio communication procedures
6. Perform hovering flight
7. Perform VMC takeoff
8. Navigate by pilotage and dead reckoning (Low-level, contour)
9. Perform fuel management procedures
10. Perform VMC flight maneuvers
11. Perform wind recognition
12. Perform VMC approach
13. Perform slope operations
14. Respond to emergencies
15. Describe aircraft limitations
16. Negotiate wire obstacles
17. Perform tactical flight mission planning
18. Perform tactical map preparation
19. Perform terrain flight takeoff
20. Perform terrain flight(Low-level, contour)
21. Perform recognition of hazards to terrain flight
22. Perform terrain flight approach
23. Perform terrain flight deceleration
24. Operation mission planning system
25. Perform electronic aided navigation

The last portions are the debriefing and summary where oral debriefing of evaluated tasks and written debriefing and overall grading of student is accomplished.³¹

At the completion of all three blocks of instruction, the student pilot track selects the aircraft they will go on to fly in the Army. Their choices are the AH-64 Apache, CH-47 Chinook, OH-58 Kiowa and the MH-60 Blackhawk. Army aviators will earn their wings after this training, but platform specific training is outside the scope of this study and will not be covered.



Figure 24. Army Aviator Wings

Source: 82nd Airborne Division Museum, <https://82ndairbornedivisionmuseum.com/cube/images/uploads/Stickers/Army%20Aviator%20Wings.jpg> (accessed April 13, 2013).

Navy Helicopter MPTS

The mission of the Navy helicopter MPTS is to teach the skills necessary for flying rotary-wing aircraft and to qualify student naval aviators for rotary-wing and Naval

³¹Ibid., 17.

Aviator designations, and a standard instrument rating.³² The prerequisite for this portion of training is either the Navy or Air Force joint primary syllabus. The course length is a total of 133.6 training days or 29.6 Calendar weeks.³³

³²U.S. Navy, *Advanced Helicopter MPTS Curriculum* (Corpus Christi: CNATRA, 2012), vii.

³³*Ibid.*, vii.

HELICOPTER								
Flight/Events	CPT		SIM		TH-57B/C			
	Flts	Hrs	Flts	Hrs	Dual		Solo	
					Flts	Hrs	Flts	Hrs
Procedures Trainer	5	6.5						
Contact 'B'					13	24.0	1	1.0
Contact 'B' Safe-for-Solo Check Ride					1	1.2		
Contact 'C'			1	1.3	4	6.0		
Contact Emergency Procedures			1	1.3				
Contact 'C' Check Ride					1	1.2		
Night Contact 'C'					2	3.0		
Basic Instruments			5	6.5	6	10.2		
Basic Instruments Check Ride					1	1.5		
Instrument Emergency Procedures			2	2.6				
Radio Instruments			18	23.4	8	15.2		
Airways Navigation			2	2.6				
Instrument Navigation					4	8.0	1	2.0
Instrument "Safe for Solo" Check Ride					1	1.8		
Day Navigation					3	5.1	1	1.7
Night Navigation					1	1.7		
Low-Level Navigation					5	7.5		
Formation					3	6.0		
Combat Cruise Formation					1	1.8		
Day Tactical					3	4.5		
Shipboard/SAR			2	2.6	3	2.5		
Night Vision Device			1	1.3	5	8.5		
Totals	5	6.5	32	41.6	65	109.7	3	4.7

Figure 25. MPTS Hour Breakdown

Source: U.S. Navy, *Advanced Helicopter MPTS Curriculum* (Corpus Christi: CNATRA, 2012), ix.

Primary instructional methods are lecture, computer-assisted instruction (CAI), self- and group-paced study, as well as in-flight instruction. Similar to the primary

syllabus, the course training standard is used to evaluate student performance for items and maneuvers.³⁴

This syllabus is used by the Navy as well as the USMC, USCG and international flight students (IMS) that have follow on training in rotary wing aircraft.³⁵ The platform used for this training is both the TH-57B and TH-57C, a very similar aircraft from the outside, but completely different on the inside. The TH-57 is a monkey skills training with limited instrumentation as well as a lack of a stability augmentation system. The TH-57C has all the bells and whistles. It is equipped with a full instrumentation suite as well as stability augmentation. This aircraft is mostly used for the instrument phase as well as the final portion of training.

³⁴Ibid., x.

³⁵Ibid., I-1.



Figure 26. TH-57B/C Sea Ranger

Source: U. S. Navy, <http://www.navy.mil/management/photodb/photos/081216-N-2101W-003.jpg> (accessed April 21, 2013).

The syllabus is divided into several stages and is grouped by training regimes: contact, instrument, navigation, formation, tactical, shipboard/SAR, and night vision device. These stages are further divided into blocks with a specified number of flights that have to be negotiated according to the maneuver item files (MIF, Figure 20) by the end of the block.³⁶

³⁶Ibid., I-1.

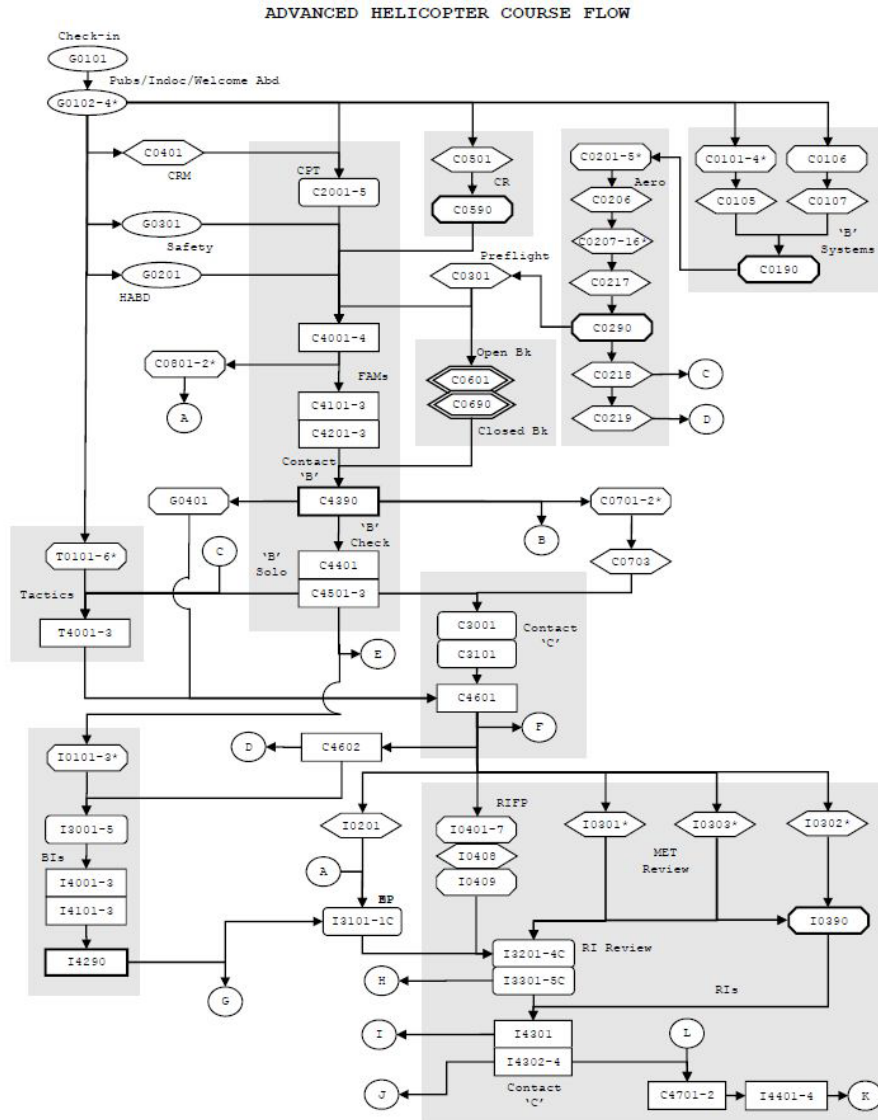


Figure 27. MPTS Course Flow page 1

Source: U.S. Navy, *Advanced Helicopter MPTS Curriculum* (Corpus Christi: CNATRA, 2012), I-4).

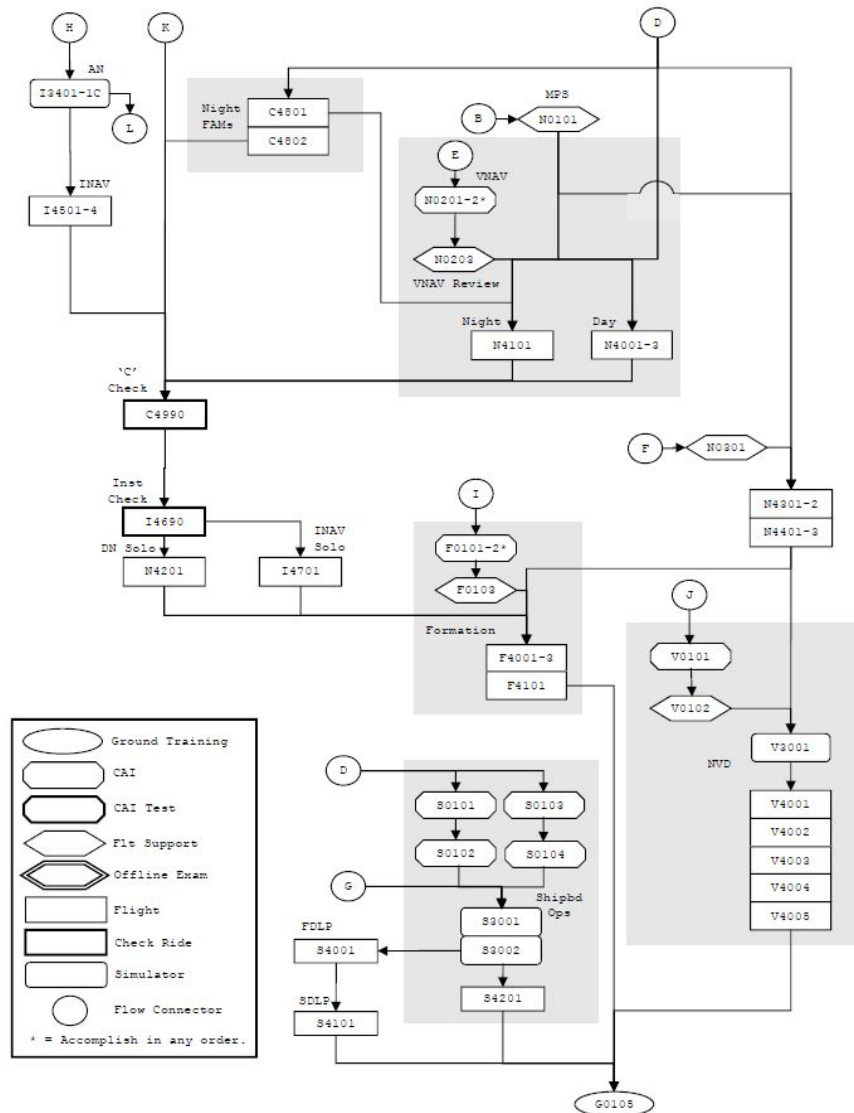


Figure 28. MPTS Course Flow page 2

Source: U.S. Navy, *Advanced Helicopter MPTS Curriculum* (Corpus Christi: CNATRA, 2012), I-5).

Flight simulators are used throughout the syllabus and predominantly during the instrument phase. Flight simulators are a great resource because the cost is not as high as the actual aircraft. Also when a student crashes there's no loss of life or aircraft.



Figure 29. TH-57C Simulator

Source: U.S. Navy, <http://www.navy.mil/management/photodb/photos/081216-N-2101W-001.jpg> (accessed April 20, 2013).

As you can see in figure 26 and 27, the syllabus is not as rigid as the Army syllabus. This helps with scheduling issues and maximizing resources. A student can do an instrument event if the weather is below standards for a contact or formation event. The student can be opted for multiple flights and must be prepared to fly all the events he is opted for plus three ahead in each block.

Warm up events, grading and the progress check training review process is the same as the primary MPTS. Both syllabi are identical in structure and only deviate in specific requirements and end state.

Evaluations in this syllabus total four and are called check rides. Two are in the contact block and two are in the instrument block. The final instrument check ride is the culmination of instrument training and grants the student an FAA instrument rating.

The first check ride identified by C4390 is a safe for solo check ride and must be completed in the Bravo model of the TH-57. This check ride is after 13 flights and is considered the mid-phase check ride. The final contact check ride is identified by C4990 and is just prior to the final instrument check ride and grants an instrument rating. The check ride has the following specific maneuvers:

1. General knowledge and procedures
2. Emergency procedures/system failures
3. Headwork/situational awareness
4. Basic air work
5. Flight planning
6. Ground operations
7. Crew resource management (CRM)
8. Cockpit management
9. Radio procedures
10. Course rules
11. Low work
12. Max load takeoff
13. Normal approach
14. Normal approach/Stab-off flight
15. Steep approach

16. Hydraulic boost off approach
17. Sliding landing
18. No-hover landing
19. Wave off (power on)
20. Wave off (power off)
21. Power recovery auto rotations
22. Simulated engine failure at altitude
23. Simulated engine failure in a hover
24. Simulated engine failure in a hover taxi³⁷

Maneuver 14 must be performed at a fair level (3) and the rest of the maneuvers must be performed at the level of Good (3) as delineated in CTS.

The other check rides in helicopter MPTS are the instrument phase check rides. I4290 is a basic check ride that involves basic instruments (BI). It is after the first portions of instrument simulators and after six flights in the aircraft. The main and most important check ride is I4690. This check ride if passed will grant you an official FAA instrument rating as well as a solo flight in the instrument flight environment.³⁸

The final portion starts just prior to both the final contact and instrument check ride with navigation events. This involves day and night events as well as low-level events. After the two check rides is where the fun events start. The flight students can relax because they do not anymore check rides and they start flying formation, tactics.

³⁷Ibid., III-22.

³⁸Ibid., IV-33.

Specific tactic flights include search and rescue (SAR), shipboard operations and night vision device (NVD) events.

Upon completion the student awaits graduation and platform selection. The student submits a dream sheet that gives him choices on both platform and duty station. Billets are decided according to class ranking and needs of their respective service. The number one student receives his first choice if available. At the completion of platform selections the students graduate and earn their wings of gold, as well as entrance into the fold of sailors, marines and coast guard pilot that have earned them. This will be a flight student's most significant achievement.



Figure 30. Navy Pilot Wings

Source: The Golden Eagles, http://www.epnaao.com/Quarterly%20Reports/A_Quarterly_Report_2_2012.html (accessed April 22, 2013).

Air Force

The Air Force has its own training pipeline at Fort Rucker Alabama that uses the Army resources and has a similar syllabus to both the Army and the Navy. The Air Force uses a drastically different helicopter from the other services (TH-1). They also only graduate 50-60 helicopter pilots a year. This is a drastic difference from the Army's 1200 plus and Navy's 900 plus helicopter pilots completed in a year. Therefore the author believes that consolidation will be an afterthought for the Air Force and should be able to adapt to whatever syllabus and aircraft required by the other services for their particular helicopter pilot training.



Figure 31. TH-1 Huey

Source: U. S. Air Force, <http://www.af.mil/shared/media/photodb/photos/091216-F-5906J-401.jpg> (accessed April 18, 2013).

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

In answering the primary research question: Is it possible to consolidate the Department of Defense helicopter flight schools into one and will the advantage of consolidation outweigh the specific tactical training missions required by each service? This author has come to the conclusion that consolidation is very much possible. There will have to be more specific studies on the topic to really decide whether a consolidation will outweigh the cost to each specific service's tactical training needs.

Complete consolidation is a long multi-year process that will have several big phases. One of those phases will have be the consolidation of a training syllabus that will be common to all three services without leaving any particular service short or deficient in required training. In the case of the Air Force the author believes that it can be adapted to either a Navy or Army training pipeline with ease. The training the Air Force and Navy presently execute is very similar in content and structure. Therefore, the Army will be the challenging portion because of their size and process of making a pilot.

Several of the secondary questions are also answered starting with the first question of how much commonalty presently exists between current programs. The commonality in all three services varies depending on whether fixed wing training is included. The Army does not have a fixed wing portion of flight training and makes the comparison akin to comparing apples to oranges.

If only the helicopter portions of the syllabi are compared, then there is almost a mirror commonality between the Army and the Navy. The contact and instrument portion

is very similar and only changes in the tactical portion of the syllabi. The Air Force is a little different due to the short three hour instrument portion in the actual helicopter. This could be because the Air Force students receive enough instrument training in the primary fixed wing-portion of their training. It is obvious that the Air Force puts more importance in the tactical portion of training instead of the instrument portion.

Table 1. Hour Comparison by Phase

Service	Navy	Army	Air Force
Contact	35.4	44.4	41.1
Instrument	36.7	15.7	3
Tactics	37.6	21.5	62.6
Solos	4.7	0	0
Total	114.4	81.6	106.7

Source: Created by author.

How should service specific requirements be met? There are multiple ways that specific tactical training requirements can be met. There is a process already in place in the MPTS syllabus called the strike top-off option. Students can also complete tactical specific training in later platform specific pipelines. In a drastic action for savings, the tactical portion can be discontinued all together. Recommendations will be made by the author and covered later in this chapter.

What is the impact or deficiencies in a consolidated syllabus? Specific impacts exist and have been a minor issue in the primary fixed wing portion of the joint syllabus. One of the impacts is specific language used by each service. Most students are straight out of college and lack any type of cultural or tactical language in their specific service. Another deficiency is the importance that is placed on specific training by each service. One service may emphasize the instrument portion of training and the other may emphasize contact.

As far as the last question the author believes that a joint syllabus may be created as well as consolidation of common programs. The first step to a consolidated syllabus can be a consolidation of specific programs or just a simple student exchange between the services. The bottom line is that consolidation is very much possible, but several hurdles must be traversed to make sure that the cost savings are worth the effort of such lofty task.

Recommendations

Small steps must be implemented to make sure that a consolidation of helicopter training is a viable and executable task.

The first and easiest recommendation is for a personnel exchange. Navy pilots that have graduated from the primary fixed wing syllabus can then go through the Army primary helicopter syllabus. Navy students can complete at least two out of the three portions of the training (contact and instruments) at Fort Rucker. The third portion (BWS) may be completed in every fifth student so that a comparison can be made. Navy students can then transfer back to Whiting Field to finish the tactical portion of the syllabus earning the coveted wings of gold at the completion of Navy training.

Navy students can also attend the Air Force portion of helicopter flight training then complete the instrument portion of Navy helicopter training. The author believes that the Air Force tactical training is something extremely beneficial to a Navy flight student. The Air Force's primary mission is combat search and rescue (CSAR) and this is shared by the Navy in as a secondary mission.

Army students would have to go through the fixed wing portion of either Navy or Air Force training before attempting to complete the Navy helicopter syllabus. Once complete with the helicopter portion of the syllabus an Army student will have to transfer to Fort Rucker to complete the BWS portion of Army training. Army students would also have to complete fixed wing training before attending the Air Force portion of training. As stated above, the Army student would have to complete BWS after Air Force helicopter training.

Navy and Air Force students are interchangeable and would only have to complete the tactical portion from their respective service. With this being said, it is clear that the Navy and Air Force programs would be much easier to consolidate. The similarities between these two services are for several reasons. One reason is because both services not only make helicopter pilots, but jet and multi-engine heavy pilots.

An alternative to this would be to exchange instructors. An instructor pilot can complete instructor specific training in their respective service then complete the instructor specific training in a sister service. This will bring a capable instructor to a sister service with the ability to complete flights required by their respective service. This would mean, for example, that a Navy flight student can complete all Navy required training at the Army base because there will be a Navy instructor capable of executing

such training. This would be very easy for the Navy and Air Force, but at this time, the Army contracts out primary flight training to a company called UBS. All their instructors are civilian pilots mostly from the Vietnam War era. Because of this the Army would have to train military primary helicopter instructors to send to both the Navy and Air Force pipelines.

When consolidation is reality and the decision for a lead service is established. The author recommends that the Navy be placed in charge. Naval aviation has been around since the beginning of military aviation and has learned many lessons in the process of such long history.

Recommended Areas for Future Research

The author has three topics that are recommended for further research. First and foremost, the author believes that a future study must be conducted by the Government Accountability Office (GAO) with the emphasis in cost analysis. When the GAO conducts this study, members in the group must have military service members in each service that are able to study this topic objectively.

Second, a study must be conducted on the make-up of officers in all services. The Navy, Marine Corps, Air Force and Coast Guard use commissioned officers exclusively for piloting military aircraft while the Army uses mostly Warrant officers. Does the Army have a secret that it is not sharing with the other services or are they holding on to an archaic Vietnam era way of saving money?

Lastly, a study needs to be conducted on the specific cost benefit to a single common training helicopter. At this time the Navy and Army use basically the same training aircraft, but the Air Force use a Vietnam era helicopter. What are the benefits to

this and should the Army and Navy scrap their reliable trainer for a higher performance Huey.

Summary

In summary, Chapter five has restated the primary research question as well as the secondary questions. Both the main research and secondary questions were answered in either the conclusions or recommendations portion of the chapter. Recommendations were made to make consolidation much less challenging or has given a starting point for it. Three recommendations were made for future study including a future study by the GAO, Warrant vs. Commissioned pilots and a common training helicopter. Consolidation is going to work, but will be a challenging and tedious process that must be thoroughly studied as well as vigorously implemented.

GLOSSARY

Strike top-off. The block of flight reserved for sister services to implement and teach service specific training that will be required in the strike pipeline.

SXX90. Generic lesson designator for a check ride. S stand for stage (contact, formation, instruments, etc.) First X is for media (simulator, flight support, aircraft, etc.). Second X stands for event sequence in block (first, second, third, etc.) and the last two for event in this case a check ride (88, 87, 89, etc.).

APPENDIX A TRAINING SEQUENCE COMMON CORE

a. The primary stage of training is broken down as follows:

<u>TH-67</u>	<u>EVALS</u>	<u>TOTAL</u>
44.4	2.0	46.4

b. Flying time:

- (1) Aircraft: Training flights – 1.2 hours per day
P1 Evaluation flight – 1.0 hour
P2 Evaluation flight – 1.0 hour
- (2) A total of 45.4 hours must be completed prior to the P2 evaluation.

OBJECTIVE FLIGHT HOUR CHART

PRE-FLIGHT STAGE										
TNG DAY	1	2	3	4	5	6	7	8	9	10
Academics	-----Aeromedical-----					ACT-B	-----TH-67 Systems-----			
CPT							1.5	1.5	1.5	1.5

PRIMARY STAGE I (P1)										
TNG DAY	11	12	13	14	15	16	17	18	19	20
FLT PD	1	2	3	4	5	6	7	8	9	10
Academics	-----TH-67 Systems-----					-----Flight Support Subjects-----				
CPT	1.5									
TH-67	PRE-Flight	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
CUMUL		1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8

								EVAL
TNG DAY	21	22	23	24	25	26	27	28
FLT PD	11	12	13	14	15	16	17	18
Academics	-----Theory of RW Flight-----					-----Navigation-----		
TH-67	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.0
CUMUL	12.0	13.2	14.4	15.6	16.8	18.0	19.2	20.2

(0795)

PRIMARY STAGE II (P2)											
TNG DAY	29	30	31	32	33	34	35	36	37	38	39
FLT PD	19	20	21	22	23	24	25	26	27	28	29
Academics	-----Navigation-----						-----Weather-----				
TH-67	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
CUMUL	21.4	22.6	23.8	25	26.2	27.4	28.6	29.8	31.0	32.2	33.4

										EVAL	
TNG DAY	40	41	42	43	44	45	46	47	48	49	50
FLT PD	30	31	32	33	34	35	36	37	38	39	40
Academics	-----Weather-----					-----Instrument Orientation-----					
TH-67	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.0
CUMUL	34.6	35.8	37.0	38.2	39.4	40.6	41.8	43.0	44.2	45.4	46.4

(0797)

Source: U.S. Army, *Initial Entry Rotary Wing (IERW) Aviator Course Common Core Primary* (Fort Rucker: Department of the Army, 2011), 6.

APPENDIX B

TRAINING SEQUENCE INSTRUMENTS

This instrument stage of training consists of 53.2 dual flight training hours (37.5 hours in the TH-67 HFS and 15.7 hours in the TH-67 helicopter) which are broken down as follows:

TRNG STAGE	HFS	TH-67	TOTAL
Stage I	16.5	0.0	16.5
Stage II	27.0	15.7	42.7
TOTAL	37.5	15.7	53.2

OBJECTIVE FLIGHT HOUR CHART

STAGE I									
TRNG DAY	51	52	53	54	55	56	57	58	
FLT PD	1	2	3	4	5	6	7	8**	
Academics	DOD FLIP	RMI	RMI	RMI/PE1	Exam I	Radio Nav	Building	App. Proc	
HFS*	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.82	
CUM TIME	1.5	3.0	4.5	6.0	7.5	9.0	10.5	11.3	
STAGE II									
TRNG DAY	58	59	60	61	62	63	64	65	
FLT PD	1**	2	3	4	5	6	7	8	
Academics	Approach Procedures			PE2	Exam II	Gen Flight Rules	ATC / IFR Commo	IFR Commo	
HFS*	0.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
CUM TIME	12.0	13.5	15.0	16.5	18.0	19.5	21.0	22.5	
TRNG DAY	66	67	68	69	70	71***	72***	73***	
FLT PD	9	10	11	12	13	14	15	16	
Academics	IFR Commo	PE3	Exam III	IFR FLT Plan				PE4	
HFS*	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
OFT									
CUM TIME	24.0	25.5	27.0	28.5	30.0	31.5	33.0	34.5	
TRNG DAY	74***	75***	76***	77***	78***	79***	80***	81	
FLT PD	17	18	19	20	21	22	23	24	
Academics	Exam IV	Critique	ACT-E Initial Qualification		ACT-E Exam	Terrain Fx Operations (TFO)		TFO Exam	
OFT	1.5	1.5							
TH-67			1.1	1.1	1.1	1.1	1.2	1.0	
CUM TIME	36.0	37.5	38.6	39.7	40.8	41.9	43.0	44.0	
TRNG DAY	82	83	84	85	86	87	88	89	90
FLT PD	25	26	27	28	29	30	31	32	33****
Academics	Map Prep Brief								
TH-67	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.25
CUM TIME	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.2

*HFS = Instrument Flight Trainer (IFT) or Operational Flight Trainer (OFT)

**FLT PD 8 / FLT PD 1 are scheduled as a guide for the STAGE I evaluation (0.8 hours) and STAGE II Training (0.7 hours)

***Training during TD-71 thru TD-80 must be conducted for all students; however, it may be scheduled as necessary within the 10 training days to level out resource requirements for simulator and aircraft usage.

****FLT PD 33 is scheduled for the STAGE II evaluation.

Source: U.S. Army, *Initial Entry Rotary Wing (IERW) Aviator Course Common Core Instrument* (Fort Rucker: Department of the Army, 2011), 6.

APPENDIX C

TRAINING SEQUENCE BWS

a. Training may be conducted in either a TH-67 or OH-58. The time allotted per SP is as follows:

TOTAL	21.5
Aircraft (Day)	21.5

b. SPs will fly all 21.5 hours dual (right seat) instruction.

c. Flight hour objectives for each training day are based on the following chart and designed to provide the SP a 50:50 split between navigation and hands-on flight skills training:

OBJECTIVE FLIGHT HOUR CHART

TNG DAY	91	92	93	94	95
FLT PD	1	2	3	4	5
Academics	SINGGARS (U.S. Only)	SINGGARS Exam (U.S. Only)	Aviation Mission Planning System (AMPS)		
ACFT	In-briefing	1.0	1.1	1.1	1.1
CUM TIME	0.0	1.0	2.1	3.2	4.3

TNG DAY	96	97	98	99	100
FLT PD	6	7	8	9	10
Academics	Aviation Mission Planning System (AMPS)	Aircraft Survivability Equipment (ASE) (U.S. Only)	IFF Training (U.S. Only)	ASE/IFF Exam (U.S. Only)	Basic Fire Support (BFS)
ACFT	1.1	1.1	1.1	1.1	1.1
CUM TIME	5.4	6.5	7.6	8.7	9.8

TNG DAY	101	102	103	104	105
FLT PD	11	12	13	14	15
Academics	Basic Fire Support	Basic Fire Support Exam	Aerial Adjustment of Artillery		
ACFT	1.1	1.1	1.1	1.1	1.2
CUM TIME	10.9	12.0	13.1	14.2	15.4

TNG DAY	106	107	108	109	110	EVAL
FLT PD	16	17	18	19	20	
Academics	Aerial Adjustment of Artillery Exam					
ACFT	1.2	1.2	1.2	1.2	1.3	
CUM TIME	16.6	17.8	19.0	20.2	21.5	
						(0761)

C2/05/12

Source: U.S. Army, Initial Entry Rotary Wing (IERW) Aviator Course Common Core Basic Warfighter Skills Phase Flight Training Guide (Fort Rucker: Department of the Army, 2011), 6.

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