

COMPETENCIES OF TRAINEE MARINE PILOTS

The National Maritime Safety committee is presently in the process of developing a standard specifying the competencies required by trainee marine pilots. As I develop and deliver for PIVOT maritime professional development courses for coastal marine pilots I have a direct interest in the standard.

My own professional development over the last ten years has been in the area of adult education and competency assessment completing under and post graduate degrees in these areas. Consequently, I was particularly interested to see the competencies listed to be a trainee marine pilot; however, I was sadly disappointed.

What was presented was a well rounded program of education for someone with no background in the industry to gain a good understanding of maritime operations. The program is based on extant iterations of the industry's:

- Diploma (deck watch-keeper) – first year,
- Advanced diploma (master/chief mate) – second year and
- Bachelor program - third year. .

What was not presented is of much more interest. There was:

- No list (in educational vocabulary – profile) of draft competencies;
- No evidence or research to support the view that 9 months sea service would be sufficient to be ready to train as a marine pilot; and
- No evidence to that an ‘ab initio’ marine pilot at 24 or 25 would be able to demonstrate the aptitude (maturity) in their decision making process to be a trainee marine pilot.

Educational design

Members of the reference group who had developed the draft standard indicated that the aviation industry has 'equivalent' training schemes for pilots of large multi-engine jet aircraft. It was contended that the aviation industry scheme can take an ‘ab initio’ and make them qualified and ready to command a multi-engine jet at 30.

Training in the aviation industry is a mix of formal training and on-the-job experience broken down into 3-4 years initial training, then on average 3-5 years as a Second Officerⁱ on long haul aircraft such as the Boeing 747-400 or Airbus 380 and the remainder as a First Officer. At about the 10-15 year mark you may see appointment to command of short to medium haul aircraft such as the 737 or 767. It is feasible for an individual to gain command at just over 30 but not usually of a 747ⁱⁱ; however, this would be the exception. This is mainly because of an airline's system of seniority and pilots' preference to command long haul aircraft, which attract higher scales of pay.

Like the maritime industry training in the aviation industry is competency based and is covered by an approved training package, AVI08 Aviation Training Package Version 2ⁱⁱⁱ. The work roles and functions covered by this Training Package are from entry level through to senior management and include:

- Flight Crew - (CPL, HPL and Instrument Rating, Helicopter Aircrew and Rescue Crewman)

- Cabin Crew and Supervisory Cabin Crew
- Air Traffic Control
- Airport Management
- Airport Reporting Services
- Baggage Handling and Freight Services
- Ground Support and Ramp Services
- General Airport Operations
- Check in and Customer Service Staff.

Consequently it would seem appropriate when the educational design for any marine pilot training scheme is complete that it should be included in the equivalent maritime industry training package, TDM07 Maritime Training Package^{iv}. The maritime training package, like the aviation training package covers the majority of qualifications in our industry from deck hand to Master (Unlimited) and it the basis for AMSA accreditation of training.

The role of experience

Experience is an essential component of learning; however, can training substitute for experience. Can someone be competent without experience?^v

Competence in all things is a blend of technical skill and sufficient mastery of the social structures which inevitably embrace all human activity. In the case of seafaring, shipboard society needs to be a place where the values of pride in craft and occupation are spontaneously asserted in informal rules, phraseology and vocabulary, taken-for-granted rituals, and so on.

(Lane^{vi} 1999 p.23)

In the committee's discussions, 'experience' became an area that some thought should be addressed. An argument ensued about whether training could make up for experience and aptitude (maturity). The proposed program has two anomalies:

- the first being that it only includes 9 months sea service in the initial training program which is 3 months less than the minimum specified by STCW and 9 months short of the minimum specified by AMSA for someone to keep a deck watch; and
- the second, the detail of the on-the-job training that would provide sufficient experience to ensure that the trainee pilot had the opportunity to acquire the skills, knowledge and attitude necessary to discharge their role.

It is interesting to note the similarities between the extant training programs for deck officers under STCW 95 and what actually occurs in the aviation industry. The first opportunity for a deck officer to change their pathway, to become a marine pilot generally occurs at the same age as some one seeking to gain command in the aviation industry. It should also be noted that QANTAS pilot recruitment also advised that they value experience on a range of aircraft types. The table below compares the 3 training schemes.

COMPARISON OF PROGRAMS			
Age	Ab Initio marine pilot	Extant deck officer	Aviation pilot
18		Complete secondary education	
19	Bachelor of Applied Science Program	Deck officer training	Initial flight training 1-3 years
20		Dip, Adv Dip & 18	
21		months on-the-job	
22	On-the-job training as a trainee marine pilot	Experience as a junior ships officer (3 rd & 2 nd mate)	2nd Officer (3-5 years)
23			
24			
25			
26	Appontment as a marine pilot	Experience as a senior ship's officer (1 st mate)	1st Officer (5-7 years)
27			
28			
29			
30		Master mariner Qualified, awaiting an appointment	Command 737 – 767
35			
40			
45	Command 747		

Figure 1 – Comparison of ‘Ab Initio Marine Pilot, Deck Officer & Aviation Pilot Programs

Experience is doing, whether the experience contributes to learning or not can be debated and certainly not all experiences are educative (Dewey in Merriam, et al^{vii} 2007 p.162). The latter qualification by Dewey is common where a task is routinely performed time and time again, once mastered it does not necessarily prepare you for the exceptional circumstance. For example, a trainee marine pilot performing the same pilotage time and time again ceases to improve their technique because the task has to a large extent become subconscious and therefore automatic.

Further, limiting the breadth of experience may actually educate out the learner’s flexibility to deal with new circumstances. This of course means that the learner has to put experience into the context of growth. As a marine pilot where the potential variables affecting a simple task are as diverse as the environment itself, wind tide, time of day, currents, etc it is important to be able to ‘think-on-your-feet’ - action in reflection (Merriam, et al^{viii} 2007, p.178).

Mariners are also completely immersed in their workplace providing them with a wide range of experience. In addition to the technical skills and scientific mastery of their vocation, marine pilots are required to effectively interact, provide leadership in professional community.

Aptitude (Maturity)

Under the draft it is theoretically possible for a graduate to commence piloting ships at 24.5 to 26 years of age (18 years + 3.5 years at College + 3 years in port training = 24.5). In previous research for a paper in 2005, I was advised by senior staff at the University of Newcastle that the median age for command of a 747 was about 48. Actually, the present (2009) age for the senior command (747 400 or A380) in the Australian aviation industry, QANTAS, is typically 45-46 years of age^{ix}. Further, QANTAS pilot recruitment advises that:

‘progressing through the ranks at Qantas is highly dependant upon promotional opportunities which are generally greatest at times of growth within the airline. It

therefore can wildly fluctuate however, generally speaking, it will take up to 10 - 15 years on average (from the start date with Qantas as a Second Officer) to progress through to the role as a Captain.^x

Maturity in a marine or aviation pilot's decision making process is also critical. Personally I subscribe to John Horn's paradigm of Fluid and Crystallised intelligence indicating that the latter (Crystallised) exceeds the former (Fluid) at about 29-39, the common age at which in my industry normally recruit junior marine pilots. (Hoyer & Roodin^{xi} 2003 p.316-319) In the aviation training model during the initial training phase, pre appointment as a second officer, the individual has to obtain a Commercial Pilot's Licence and completion of Air Transport Pilot's Licence theory subjects proving they have the aptitude to fly.

The following table summarises the present age profile of the senior members of the current Australian aviation industry (source Australian and International Pilots Association). The data covers almost 1000 Aircraft Captains showing their average ages from which the conclusion can be drawn that they possess considerable relative experience and maturity. In a review of the data there was only 1 out of 244 B747-400 Aircraft Captains under the age of 40 or from a different perspective (lifting the bar) 2 under the age of 45.

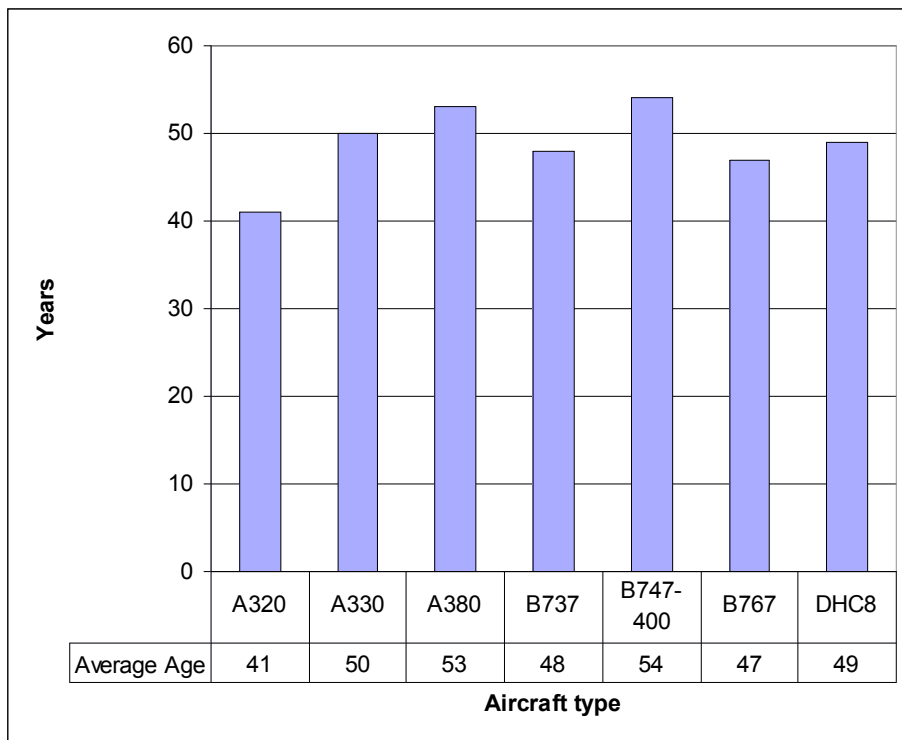


Figure 2 – Average of Australian Aircraft Captains by Aircraft type

My background is as an operator and trainer of mariners, I have some concerns about an 'ab initio' or cadet marine pilot attaining adequate maturity in their decision making process at 25-26 years of age. I note that there will always be exceptions. The aviation industry's present system of training is analogous to that of the extant deck officer training program with a student attaining a master's ticket and being ready to command at about 30.

Other concerns

Among the other concerns not fully developed in the discussions was equity. The reference group pointed out that there were multiple points of entry to the program; however, there presently appears to be a single point of exit. This is in part because the proposed program of education is not articulated in terms of competencies leading towards the award of a Certificate of Competency (CoC), albeit that the program is delivered by an AMSA accredited training provider, AMC.

The only aspect that seems to prevent the program being accredited is the sea service element as the first 2 years are common with the present deck officer stream. If students were eligible for a Deck Watchkeeper CoC this would provide at exit from the program an alternate career at sea should the student not demonstrate the aptitude nor have the opportunity to become a trainee marine pilot.

All that is required is for the sea service component to be increased from 9 to 18 months to meet the minimum requirements for a student to be eligible to apply for a Deck Watchkeeper CoC. Further, should their career keep them at sea they would of course be able to apply for a command CoC.

Conclusion

The National Maritime Safety Committee is presently considering a standard for 'ab initio' (cadet) marine pilots to address a perceived (yet to be demonstrated) skills gap in Australia. In conclusion, the present draft does not specify the competencies required by trainee marine pilots. It captures a well thought out program of education that may assist an individual to become a marine pilot from a non traditional background. Industry questions some of the underpinning assumption made with respect experience and aptitude (maturity) were not addressed. No evidence was circulated to underpin the proposals being put to the consultative group. I believe, despite the good work to date, that there is still a very long way to go in the development of this proposed standard and we need to invest research into the standard's development.

Ian Gray, MEd, Grad Dip Bus (Ship), Dip Mar Stud, MNI, Assoc AIMS

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ⁱ Note: Qantas is the only Australian carrier to have "Second Officers".

ⁱⁱ Email from Michael Harris, Adviser Pilot Recruitment dated 22 Oct 09

ⁱⁱⁱ Available at

http://www.ntis.gov.au/Default.aspx?trainingpackage/AVI08/volume/AVI08_1/chapter/Intro accessed 27

Oct 09, see Also refer to CASA competency standards for the issue of CPL and ATPL:

http://aod.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_90012 and competency standards found

in CAAPs (Operational): http://aod.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91054. CAR

1988, Part 5 may also be a relevant reference (refer to division 8 and 13 in particular):

[http://www.comlaw.gov.au/comlaw/legislation/legislativeinstrumentcompilation1.nsf/0/FA9B22EFF92F0C75CA25763F007F9919/\\$file/CivilAviation1988Vol2.pdf](http://www.comlaw.gov.au/comlaw/legislation/legislativeinstrumentcompilation1.nsf/0/FA9B22EFF92F0C75CA25763F007F9919/$file/CivilAviation1988Vol2.pdf)

^{iv} Available at <http://www.ntis.gov.au/Default.aspx?trainingpackage/TDM07> accessed 27 Oct 09

^v The aviation industry asked the same questions when ICAO introduced a new type of licence called the Multi-Crew Pilot Licence (MPL) in Nov 2006. You will find arguments FOR and AGAINST the move towards competency based training (and away from arbitrary experience based requirements) if you research the subject

^{vi} Lane, A. D. (1999) 'Crew Competence', Maritime Review, pp. 21-27, London: Pacific Press, (<http://www.sirc.cf.ac.uk/pdf/CrewComp.pdf>) viewed 17/05/09

^{vii} Merriam S, Caffarella R and Baumgartner I (2007) experience and Learning, chapter 7 in *Learning in Adulthood a comprehensive guide* (Third Edition) Jossey Bass, San

^{viii} Merriam S, Caffarella R and Baumgartner I (2007) experience and Learning, chapter 7 in *Learning in Adulthood a comprehensive guide* (Third Edition) Jossey Bass, San

^{ix} Advice from the Australian and International Pilots Association date 22 Oct 09

^x Email from Michael Harris, Adviser Pilot Recruitment dated 22 Oct 09

^{xi} Hoyer, W & Rooding, P (2003) *Adult Development and Aging*, 5th Ed. McGraw-Hill Higher Education