

'23

推薦

## 小論文 2

(医学部医学科)

### 注 意 事 項

1. 試験開始の合図があるまで、この問題冊子を開いてはいけません。
2. 問題冊子は1冊(7頁)、解答用紙は2枚、下書用紙は2枚です。落丁、乱丁、印刷不鮮明の箇所等がある場合には申し出てください。
3. 氏名と受験番号は解答用紙の所定の欄に記入してください。
4. 解答は指定の解答欄に記入してください。
  - (1) 文字はわかりやすく、横書きで、はっきり記入してください。
  - (2) 解答の字数に制限がある場合には、それを守ってください。
  - (3) ローマ字、数字を使用するときは、マス目にとらわれなくてもかまいません。
5. 解答用紙は持ち帰ってはいけません。
6. 問題冊子と下書用紙は持ち帰ってください。

以下の文章を読んで、問1～問4に日本語で答えなさい。

\*の付いた語には末尾に訳注があります。

Aviation has advanced enormously in making flying a routine and safe experience for its passengers. In the beginning each pilot learned from his or her peers\* and knowledge was handed down from master to student. During the pioneering stages every flight brought new insights. Setbacks\* were a daily experience and often pilots paid the ultimate price for failure, i.e., death. Naturally there was a strong urge to help fellow pilots to survive in a harsh and unforgiving environment. The best practices found their way into manuals, and standard operating procedures were made mandatory\*.

Safety is the ultimate goal in aviation (as well in healthcare, as stated in the Hippocratic Oath\* '*primum nil nocere*\*'). The aviation community is very determined to convert lessons learned from incidents and accidents into better procedures and practices. For every rule in the pilot's handbook there is someone who has paid for it with their life. Therefore best practices and results from accident investigations are formulated into standard operating procedures that are legally binding for the entire industry.

### **What is taught?**

A universal pilot's licence requires a uniform syllabus\*. If the kind of proficiency\* is not defined, or which kind of behaviour should be achieved, it will not be possible to compare the qualifications and training measures that lead to them. International regulatory bodies like the EASA\* and the FAA\* have issued detailed syllabuses that are mandatory for each training organization. To a limited extent this has also been achieved in healthcare, but it seems that internationally binding standards are not yet in view. The reasons for that are multifaceted\*, e.g., the vast amount of medical knowledge and the speed of its progress. Nevertheless, it is a barrier to comparing the efficiency of training methods and results.

During the last 30 years Crew Resource Management (the way aviation professionals deal with each other and handle the challenges they face together with their team) became increasingly important in aviation. Consequently the contents of pilot training and rating had to be amended\*. Currently it is generally agreed that a good pilot shows proficiency not only in technical skills and procedures but also in interpersonal skills, also known as non-technical skills.

## **How are pilots trained in aviation?**

Pilot training consists of Basic Training to obtain the pilot's licence, and specific training, like the Type-Rating Course, to qualify flying on a certain model of aircraft. These are summarised under the terms 'initial' and 'conversion' training. The training is accompanied by life-time recurrent\* training. Each quality airline provides its pilots with regular simulator events to train for particular emergency scenarios. This training is termed 'line-oriented flight training'. During these sessions a pre-selected emergency scenario is handled by the crew in real time. The flight is video-taped for the subsequent debriefing, where the crew analyses the previous session together with the flight instructor.

In addition, all pilots must demonstrate their proficiency in normal and emergency situations every 6 months in a check-flight (at present, mostly in a simulator) to renew their license. Should the performance be substandard, the candidate will undergo a tailored retraining followed by another check-flight. If they still fail to fulfil the requirements they will be (in most airlines) faced with the termination of their working contract. High standards in the recruitment of student pilots, as well as the above-mentioned recurrent training, ensure that this will be a rare event. Finally, all pilots are rated annually during their normal line performance.

To train and to rate a person's performance, the desired behaviour must be broken down into behavioural markers, as shown in Table. This is a step toward a more detailed description of the training contents than most syllabuses usually contain. It requires much work, but the result is worth the effort, as every student can clearly see what skills, techniques and behaviour will be expected from them at the end of the training. It is also a decisive step away from the traditional master-apprentice\* relationship in training. Flight hours, whether spent in a real aircraft or a simulator, are far too expensive to be wasted on the fixed concepts of old-fashioned instructors.

Training has been successful if the trainee constantly shows the required behaviour when performing the specific task. The quantity and quality of the trainee's behaviour will be documented on a specific grade sheet. This reduces the effect of instructor-related rating-errors like the 'halo effect\*' or first/last impressions.

Table. Elements of interpersonal skills

Categories	Elements	Example behaviours
Cooperation	Team building and maintenance	Establishes an atmosphere for open communication and participation
	Considering others	Takes condition of other crew members into account
	Supporting others	Helps other crew members in a demanding situation
	Conflict solving	Concentrates on what is right rather than who is right
Leadership and managerial skills	Use of authority and assertiveness	Takes initiative to ensure involvement and task completion
	Maintaining standards	Intervenes if task completion deviates from standards
	Planning and co-ordinating	Clearly states intentions and goals
	Workload management	Allocates enough time to complete tasks
Situation awareness	System awareness	Monitors and reports changes in system states
	Environmental awareness	Collects information about the environment
	Anticipation	Identifies possible/future problems
Decision making	Problem definition/diagnosis	Reviews causal factors with other crew members
	Option generation	States alternative courses of action
	Risk assessment/option choice	Asks other crew member for options
	Outcome review	Considers and shares risks of alternative courses of action Checks outcome against plan

## Who trains in aviation?

Nearly all training in aviation is administered by qualified peers. Instructor pilots regularly show above-average performance in all three areas (technical, procedural and interpersonal). Also, they are chosen because of their educational skills. As mentioned earlier, aviation has moved away from the traditional master-apprentice relationship. Training time is far too expensive to be wasted by ill-suited training methods. Authoritative\*, intimidating\* behaviour by the instructor is a thing of the past. At present, flight instructors see themselves as facilitators\* and mentors\*. Furthermore, this is being emphasized because flight-deck hierarchies that are too rigid and steep can endanger\* flight safety. As a substantial part of pilot training takes place in real aircraft and sometimes on regular line-flights, i.e., with real passengers on board, airlines simply cannot afford safety to be affected by a tainted\* instructor-student relationship.

Pedagogic\* skills are neither a gift nor congenital\*, but can be learned. Thus there are seminars and training programmes that enable pilots to develop and consolidate\* their educational skills, and finally to obtain an instructor's licence. Life-time training and re-qualification also applies to flight instructors. To maintain an instructor's licence the candidate must furnish proof that he or she has trained and checked a minimum number of trainees in a certain period. Again, all this is internationally standardized and legally binding.

Training in aviation is often 'on the job' training. High training costs and the overall demand for safety require exceedingly efficient training methods. Especially during the clinical phases of medical training, certain parallels to aviation training can be drawn. It is now the time to move beyond the traditional master-apprentice relationship in clinical teaching. Detailed, standardized syllabuses and objective performance-rating tools, together with sound educational training of the instructors, will lead to more effectiveness, more efficiency and ultimately to more safety in medical training.

(Sommer KJ. Pilot training: What can surgeons learn from it? Arab J Urol. 12:32-36. (2014)より引用、一部改変)

訳注

peer	同僚
setback	失敗
mandatory	必須の
Hippocratic Oath	ヒポクラテスの誓い
<i>primum nil nocere</i>	(ラテン語) first, do no harm
syllabus	シラバス、授業の概要
proficiency	熟達、達成目標
EASA	欧州航空安全機関
FAA	アメリカ連邦航空局
multifaceted	多面的に
amend	修正する
recurrent	反復する
apprentice	練習生
halo effect	後光効果、認知バイアスの1つ
authoritative	権威のある
intimidating	怖がらせる
facilitator	促進者
mentor	助言者
endanger	危険に晒す
tainted	汚れた
pedagogic	教育学の
congenital	先天的な
consolidate	強化する

問1 航空と医療の類似性について本文で述べられていることを、100字以内で説明しなさい。

問2 航空業界の教官に求められる特性について本文で述べられていることを、200字以内で説明しなさい。

問3 著者は、医療現場で行われている訓練をどのように変えることが望ましいと述べているか、120字以内で説明しなさい。

問4 航空における訓練手法を医療に導入する際に予想される限界について、400字以内であなたの意見を述べなさい。

(以下余白)