

Re: To Err is Human: Case report of Two Military Aircraft Accidents Possible mechanisms of human failure

Ken Masters

ان تخطيء - من طبيعة البشر تقرير حالتين من
حوادث الطيران الحربي
إحتمال آليات فشل الإنسان

كين ماسترس

To the Editor

I read the article detailing the tragic death of Flying Officer V with interest.¹ The cause of death was given as the result of his head striking parts of the aircraft upon ejection, and the author is to be commended for such a detailed analysis.

Troubling, however, is the conclusion in the article: "Nevertheless, such an event was inevitable when the pilot chose to fly in a position which would compromise his flight safety. If he had chosen the prescribed seat position, he would probably have made an uneventful escape from his aircraft. It was thus the attitudinal error...of the pilot which led to this uncalled for incident."

The question is: why did the pilot elect to sit in a position that he knew "would compromise his flight safety"? The answer is given a few paragraphs earlier: "He had chosen to use the high seat position because he found the bomb sight and the front gun sight easier to operate in the high position."

This is key. Using the bomb site and the front gun site properly and easily are *essential* requirements and duties of a fighter-bomber pilot. In other words, the pilot had a choice: he could either fly in a position that was safer for him, but then he would not be able to perform his duty properly, or he could fly in a dangerous position, but do his duty. He chose the latter. As if his work were not dangerous enough, he knowingly increased the risk to his own life so that he could perform the duty that was expected of him.

While the conclusion to the article is not inaccurate, I feel that it does not go far enough. It should also state that the pilot had been put into the unenviable position of having to increase the risk to his own life in order to perform his work, and he chose to sacrifice his life. He compensated for an aircraft design flaw with courage beyond the call of duty.

It also leaves one wondering whether or not changes to the design of the aircraft were made after his death, and how many other fighter-bomber pilots are currently making the same unenviable choice.

Ken Masters

Medical Education Unit, College of Medicine & Health Sciences, Sultan Qaboos University, Muscat, Oman
Email: kmasters@ithealthed.com

Reference

1. Dikshit, B. To err is human - case reports of two military aircraft accidents: possible mechanisms of human failure. *SQU Med J* 2010; 10:120–5.

Author's Response

I read with great interest the very erudite comments offered by Dr Ken Masters on my article *To Err is Human: Case report of two military aircraft accidents* and thank him for the same.¹ I do wish however to clarify a slight misconception he seems to have developed.

The unfortunate pilot was aware of the risk he ran by using a seat position in which he perceived he could operate the gun and bomb sight more efficiently while doing ground attack using front guns and dive bombing. There was no problem of seat height in air to air gunnery. In all probability, he resorted to the use of a mental mechanism of denial where in he convinced himself that he would not be injured during ejection, if it so happened, while using the higher seat position. Alternatively, he could have jettisoned the canopy first, and then ejected. Many other pilots also felt that they could not operate the front gun and bomb sights efficiently during ground attack in their prescribed seat positions, but accepted the operational limitation. Anecdotally, there were no reports to suggest that the front gun strafing and dive bombing scores on the firing range of pilots who stuck to their prescribed seat positions were any worse than the occasional pilot who selected his own position in order to overcome this perceived deficiency. It was thus a perception which the ill fated pilot had developed that made him use the wrong seat position.

To take the explanation further: According to the aircraft manufacturer's specifications, the seat positions in Sukhoi 7 B (also known as the S 22) were allotted as per the sitting height of the pilot. In the correct position, the pilots "eye datum line" was expected to coincide with a similar line marked on the ejection seat bulk head. Once this happened, the front gun and bomb sights could be operated suitably. Pilots were therefore carefully allotted their given seat positions. The aircraft cockpit and ejection seat design was tailored to suit the anthropometric data of Russian pilots. It was accepted therefore that some Indian Air Force pilots would not fit in to the requisite scheme of things. Minor readjustments had to be made by the use of specially designed seat cushions in order to ensure that the eye datum lines were correctly aligned. It is to be appreciated that aircraft designs can not be changed once the aircraft is put into operational service. It is also reiterated that this accident was the only one of its kind in the Indian Airforce (IAF) where the fatal injuries suffered were attributed to flying in a faulty seat position. Perhaps it would not have occurred if human frailty had not won the day. The findings of this accident were publicised amongst pilots of the Sukhoi so as to caution them against flying in a wrong seat position. Suffice to say that such an accident was not reported again. This class of aircraft was later withdrawn after rendering many years of yeoman service to the IAF.

Mohan B Dikshit
Dept of Physiology
College of Medicine & Health
Sultan Qaboos University
Muscat, Sultanate of Oman
Email: mohand@squ.edu.om

Reference

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Re: Evaluation Tools in Postgraduate Medical Education–Do we need “Made in Oman” tools?

Nadia Al Wardy

أدوات التقييم للدراسة الطبية التخصصية هل نحتاج إلى أدوات
”صنع في عُمان“؟

نادية الوردى

To the Editor,

I read your editorial on “Evaluation tools in postgraduate medical education - Do we need “made in Oman” tools?”¹ with interest and felt that the issue of formative versus summative assessment needed to be clarified before conclusions could be made about which and how assessment tools should be used.

The terms “formative” and “summative” define the purpose of assessment and not the tools of that assessment. Formative assessment is used for diagnosis and remediation, while summative assessment is used for promotion and certification. The tools being used can be the same for both assessments; there are no tools that are specific for formative while others are for summative assessment. For example, an multiple choice question based test can be used in either a formative or a summative fashion. Ideally, all assessments should have a formative component even if used in a summative manner. The purpose of the formative component is to provide feedback to students on their strengths and weaknesses.

The practice of using certain assessment methods for summative purposes stems from the reliability of the scores obtained from these methods; hence, their use in making important decisions about student progression as they alone can reliably ensure the fulfillment of the teaching mission of the medical school. Several very appealing assessment methods, especially in postgraduate medical education, are now emerging, but, despite their high face value, their cost effectiveness, educational impact, and use in undergraduate medical education needs to be carefully assessed before their use can be advocated. The resource intensity of these methods might very well be the factor that limits their use to very few medical schools as mentioned in your editorial. What one can advocate, however, is research into the evaluation of these assessment methods which is exactly what the document of “Assessment Policy, Regulations, & Guidelines” of the College of Medicine & Health Sciences at Sultan Qaboos University does.² The policy not only affirms that assessment should be used in both formative and summative manner, but also goes further to recommend that assessment methods used should be evidence-based and, where evidence is lacking, best-practiced methods should be used and evaluated. Feedback, a major component of formative assessment, is also highlighted very well in this policy document which emphasizes that it should be given to students in a timely manner. The assessment tools listed in the policy document have, when used correctly, demonstrated validity and reliability. Tools such as checklists and rating scales are the basis of most workplace-based assessments such as the mini-clinical evaluation exercises, 360° assessment, direct observation of procedural skills, etc. can be used in any manner desired, formative or summative.

Nadia Al Wardy

*Head, Medical Education Unit
College of Medicine & Health Sciences
Sultan Qaboos University
Email: naiwardi@squ.edu.om*

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Authors' Response

We thank Dr. Al Wardy for her interest in our Editorial. The purpose of the Editorial was to stimulate discussion on the subject and we are glad it did, because this is a very important subject to all Medical Educationalists, undergraduate even more than postgraduate as pointed out by Dr. Al Wardy. We agree with Dr. Al Wardy that the terms summative and formative refer more to how the tool is used rather than the actual type of tool, but what we were pointing out in the Editorial is that some tools are intrinsically more formative than others. Indeed all tools can be used for both purposes. We also agree with Dr. Al Wardy that the summative purpose of the assessment tools in the “Assessment policy, Regulations, & Guidelines” of the College of Medicine & Health Sciences at Sultan Qaboos University stems from the reliability of these tools in ensuring the fulfillment of the teaching mission of the medical school – and hence our comment in the Editorial about those tools.

We congratulate the College of Medicine & Health Sciences at Sultan Qaboos University for the two major steps forward they have taken recently in producing the new avant-garde curriculum and impressive set of assessment tools in the new “Assessment policy, Regulations, & Guidelines”.

Congratulations to you and the Medical Education Unit, and keep up the great work.

Lamk Al-Lamki

Editor-in-Chief

SQU Medical Journal

Email: mjournal@SQU.EDU.OM

Neela Al-Lamki

Co-Author

Oman Medical Specialty Board

Email: n_lamki@yahoo.com