AIRMAN TESTING AND TRAINING STANDARDS ARC SURVEY RESULTS

What follows is a compilation of the response of the SAFE (Society of Aviation and Flight Educators) membership to a survey questionnaire based on four "scorecards" sent out by the Airman Testing and Training Standards Aviation Rulemaking Committee on October 7, 2011. As of October 16, 2011, 191 SAFE members had responded to the survey.

SCORECARD a: A prioritized list of up to five pilot and/or instructor certificates and/or ratings its work will address.

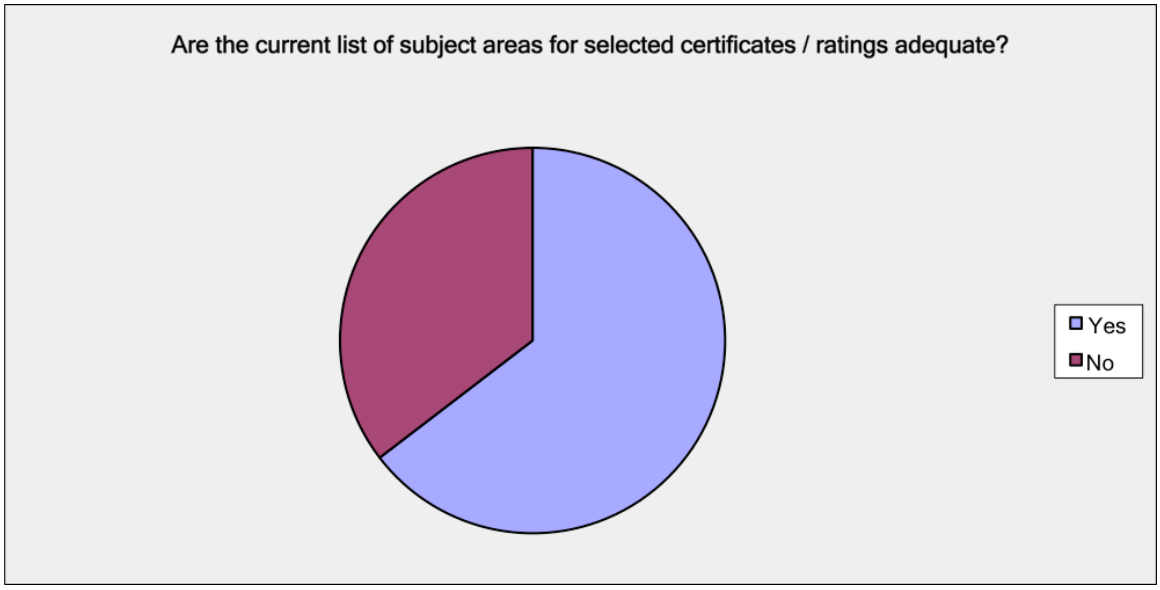
1. Private
2. Flight Instructor
3. Commercial
4. Instrument Rating
5. Sport Pilot

Pick up to five pilot and/or instructor certificates and/or ratings that the work group should address. Rank them for 1 for top prority to 5 for low priority

Answer Options	1 Highest	2	3	4	5 Lowest	Rating Average	Response Count
Certificate - Sport Pilot	23	23	26	21	34	3.16	127
Certificate - Recreational Pilot	1	8	4	11	35	4.20	59
Certificate - Private Pilot	65	52	35	13	5	2.06	170
Certificate - Commercial Pilot	11	23	26	53	24	3.41	137
Certificate - Airline Transport Pilot	6	3	17	13	26	3.77	65
Certificate - Flight Instructor	61	33	23	29	10	2.32	156
Certificate - Ground Instructor	1	9	7	10	17	3.75	44
Rating - Instrument	19	33	42	24	18	2.92	136
Other rating (please specify)							5
						answered question	188
						skipped question	3

SCORECARD b: 1;

Is the current list of subject areas for selected certificates / ratings adequate? If not, what topics, content, or specific subjects should be added?



COMMENTS:

There is no published criteria for the selection of questions. It appears that areas of knowledge and related questions are added to fufill only two implicit criteria: (1) a broad body of knowledge, and (2) that the questions are of sufficient dificulty to disciminate between test takers. There is no evidence that the agency tests the questions to see if the tests are reliable (that a test taker would get approximatly the same score in two different adminstrations of the test). There is no feedback mechanism to insure that the subject matter is relevant to some overall goal of the agency. For example, one might design the tests to make the questions safety-related, e.g. that high-scorers are less likely to engage in risky behavior or be involved in accidents. Alternatively, one might design the tests to increase knowledge of regualtion, to reduce the number of violations. As it is, the test bank generally is a broad-ranging trivia contest. A majority of the questions are not relevant to daily flying. Take for example a question I answered a couple of weeks ago: What is the difference between three and four digit VR routes? Subject areas and related questions that would help the pilot population include areas on which the documentation is sparse. The focus needs not be on the subject areas for the test, but the underlying documents. Take for example the Airplane Flying Handbook, whose explanation of the difference between side slips and forward slips is ... sparse. In the area of regulation, the questions should address areas that are ambiguous in the regulation and subject to inspector interpretation, but lead to daily problems for pilots, FBOs and FSDO inspectors. An aircraft used for instruction for hire is required a 100 hour inspection. Is a hundred hour inspection required for a practical test? Is a hundred hour inspection reuqired for rental to a sole pilot when no instruction is given? The problem lies not in the generation of questions, but rather, the selection of subject matter for handbooks and advisory circulars. Before an FAA author lays a finger on the keyboard, he or she should ask himself, "Will this section help new pilots (a) fly more safely, (b) without infraction, (c) respect the authority of the Agency, or (d) win agruments of trivia. The agency apparently has not considered

its own goals in developing its own expections of the outcojme of the FAA knowedge test process. In the short run, the test developers could accomplish a lot by reviewing the underlying materials and test questions for outdated material. Start in the AIM and flow through the library. There are a series of weather questions based on the Radar Summary fax, which is an outdated product, not particularlry useful, and hard to find on www.aviationweather.gov, which I believe is the source for most on-line briefings and Lockheed Martin. In short, the agency needs to make explicit a mission statement for the knowledge testing process, then abide by that statement before publishing new questions.

Learning Statement Reference Guide for Airman Knowledge Testing(http://www.faa.gov/training_testing/testing/airmen/media/LearningStatementReferenceGuide.pdf) AC 60-25F, Reference Materials and Subject Matter Knowledge Codes for Airman Knowledge Testing, dated 6/8/04, is canceled. Because Airman Knowledge Test Reports are valid for two years, AC 60-25F will remain available on this web site until September 30, 2009. Codes listed in this reference guide shall be used for exams delivered on and after September 28, 2007. Depth for Instructor Training

Use of GPS, all levels

VME demo

We need more questions/answers that will address glass cockpits (TAA).

Add Upset recovery training to Commercial Pilot Certificte Add Spin Traing to Commercial Pilot Certificate Add More IFR X-C and Actual IMC Training to Instrument rating

The current Airman Knowledge Tests include questions that cover equipment that the student pilot for private, recreational and sport pilots will almost never run into during flying today. The Advanced Avionics Handbook should be added to the study materials and real world questions should be crafted to ensure the basic knowledge level for the various certificates. Such questions like "which way a knob turns to aline a remote compass?" are to be avoided. Knowledge based in overall knowledge of items like: Common levels of menu structure; What is available in the ADS B services; The Modern FSS and Aviation Weather Services.

Flight Instruction is looked on as a stepping stone to the higher ratings and as a result, poorly prepared flight instructors are having an adverse impact on the baseline knowledge necessary for success.

get rid of out-of-date questions that no longer relate to any pilot

Emphasis areas should be included as subjects within the PTS areas of operation rather than having them buried in the front matter. Better yet, add an area of operation and include the special emphasis items there with a note that these cross all operations.

At least at the moment until more review can be done by the industry as to what has worked and is working the most effectively. We need hard data as to the effectiveness of any and all approaches.

GPS usage should be included.

Real world training scenarios such as aeronautical decision making, scenario based questions

GPS navigation, glass panel and other technically advanced topics. I'm not advocating that we

force technical topics on those who aren't likely to use them. But a means should be found to find an intelligent balance between not teaching/testing on those topics, and requiring knowledge that a pilot is never likely to use.

GPS is well into the walk stage and I have yet to see GPS fully integrated

More questions on the use of "glass" cockpits i.e. G1000, Avidyne, human factors, cockpit resource management, and more practical scenario-based questions. Additional weather-related questions with color or enhanced graphics more reflective of today's weather sources.

FAA-G-8082-17E has been replaced by FAA-G-8082-17F

In answering "yes" I would suggest this requires greater study than can be quickly answered here. The number and list of documents needs to be focused and succinct and rather than grow it just needs to be sufficiently encompassing.

glass cockpits

I would like GPS navigation and the new technology added to the source material and to the tests. Also should include scenario type questions to the test to help emphasize ADM in all phases of flight: learning as well as flying. Also the newer sources of gaining weather info should be added in (in other words, the FAA should become computer literate...)

Private PTS needs more emphasis on Risk Management and Decision Making, as poor pilot judgment seems to be the overwhelming cause of accidents. More questions on Night accidents, as these are out of proportion to the percentage of hours flown at night.
H8083-3 & 25 H8261-1

Upset Training for Instrument Pilots.

Weather references.

Update the weather information gathering and interpreting to include modern technology.

The documents listed above would seem to cover the basics.

Current practices and theory of learning for adults for all instructor certificates Affect of fatique- how it degrades both cognitive and motor skills along with it affects on judgement

Emphasize airmanship at private & sport levels, decision making. Increase weather information availability

Risk management, especially risk mitigation. Automation management Single pilot resource management

FAA-H-8083-2 Risk Management

Fighting Human Error Resources: Fiorino, F. (2006). Fighting Human Error. Aviation Week & Space Technology, Simulation And Training, 165(22), 47-47- 49. Kern, T. (2009). Global War On Error. Convergent Performance. Retrieved October 9, 2011 from http://www.convergentperformance.com/gwoe/default.asp Fatigue Countermeasure Training Resource: http://faasafety.gov/gslac/ALC/CourseLanding.aspx?cID=174 Scenario Based Training e.g. The FAA/Industry Training Standards (FITS) program Resource:

www.faa.gov/training_testing/training/fits/training/ NextGen Awareness Resource: www.faa.gov/nextgen/media/ng2011_implementation_plan.pdf Use of modern technology in the cockpit, such as the iPad. How to effectively use the web and technology for preflight, and post flight as well as training and updating own education. Spin training and upset recovery NTSB and accident/incident studies

I am answering "yes" to this question with reservations. Generally speaking, the above reference materials cover the pertinent subject areas. Whether or not those subject areas are covered adequately is an impossible question to answer. A better question to ask is, "Are flight instructors adequately covering the subject areas for their students?" The answer to that question would vary from student to student and instructor to instructor. The increasing amount of information that a flight or ground instructor is expected to convey makes it virtually impossible to insure that all information is covered "adequately."

Pilot Judgment needs to be expanded beyond the current "expanded acronyms" of the Risk Management Handbook at all certificate levels. Instructors need scenarios with good answers to give to their students, for example, AOPA's info of choosing a fuel stop at the halfway point, not one hour from the destination. Our business owner students, the ones who can afford to learn how to fly, need ideas like having the NetJets card in case they can't make the business meeting, NetJets can, or, they're the owner, conference call it. At the higher levels, the ATPs and commercial pilots need to know they must, absolutely must, adhere to sterile cockpit plus, be able to say "no" to the person that can fire them, if the flight is unsafe for some reason. These has to be in the curricula, it has to be a testing item. For the flight instructors, they need more information on how to recognize the "in it for the thrills" risk taker who will violate regulations, push it as far as they can go, and possibly kill themselves and others in the process. They need training in how to terminate that person's training and refer it to the FAA, to have the medical postponed until the person grows up. Next, all pilots should have a module on how to ask FAA for regulatory changes. Finally, for instrument pilots, we need a module on how to DETECT and RECOGNIZE instrument failure. "Compare the instruments and figure it out" kills pilots yearly.

1) AC 60-25F, Reference Materials and Subject Matter Codes, is more useful than the revision that came out in 2008! However, it was "cancelled". 2) The PTS's remain focused on component tasks. This has its place in structuring training and evaluation, at the risk of de-emphasizing the goals of scenario- based training (especially developing judgement). My impression is that DPEs evaluate the latter in the oral portions of their tests. 3) The Feds can't keep up with GPS or Aviation WX, either in their education materials or testing. That is not a criticism! Their revisions during the past decade have been valuable. It suggests, though, that the instructional community develop approaches for these.

Coverage of situational awareness, aeronautical decision making, and Technically Advanced Aircraft (TAA) are still lacking across the board. Questions should be written in a scenario, problem solving fashion rather than a rote based approach.

GPS

Revise existing publications and/or develop new publications to provide thorough and comprehensive resource on all pertinent areas regarding GA safety. the publication(s) should address: Aeronautical Decision Making Risk Analysis/Management Single-Pilot Operational Safety Cockpit Automation Management Fatigue (to include Fatigue Risk Managment)

Appropriate-Level of SMS Involvement Weather Decision Management Upset Recovery Awareness/Prevention Scenario-Based Training (re-vitalization of the FITS initiative)

The list is adequate. The EMPHASIS should be changed.

Risk management is addressed only in an academic manner rather than in a practical application manner...this has to be reversed and clearly emphasized. the program needs to be built around FITS.

additional focus for Sport Pilot

I would really enjoy seeing a Scenario Based Checkride listed in the PTS. Make the DPE to create checkrides based upon previous flights. Force students to show their weaknesses, or at least the ones that hide it well. Also, an expansion of the Aeromedical procedures to talk to the candidate about taking over-the- counter medication and using prescribed medicine as well.

First, the current subject areas are too broad. More specific areas would help both test preparers and takers better understand the required information. As many in the industry have noted, we need new emphasis on current technologies and on topics such as ADM.

Better written training materials, both printed and video. Most of the video training materials do not cover the topics in sufficient detail. Students today seem to get lost when studying the FAA and other written materials. While all these study materials have their good points, and from a technical standpoint the FAA materials are the best, and what I have my students study, they are challenging for today's students. Most students today can't read and study as well as they need to, probably since they were brought up on video. The video courses are often talking heads with diagrams and not in depth enough to prepare the student for a safe and professional approach to flying. I don't have the answers, but I think a great deal of research on teaching methods (both study and in the cockpit) for today's students would be in order
Human factors; Pilot decision-making;

More scenario-based training, less emphasis on ADF, more emphasis on GPS.

More practical application work and less on WWI maneuvers. Can the applicant "apply" the maneuver elements to situation?

Add low power hight lift training to all certificates

What topics, content, or specific subjects should be deleted?

Filing of flight plans, at the Sport level.

We need less question/answers about the NDB/ADF... Plus, I remember seeing a PPL written exam question that had two identical answers.

Remove Lazy 8s, Chandells, & 1080 Spirals from Commercial Pilot Certificate. Remove requirement for a complex airplane from Commercial Pilot Certificate, ASE Rating

The old weather charts must be removed immediately. Current and up to date services should be included in the study requirements and question pools. The older navigational equipment like loran and microwave landing systems and the NDB should be removed from the question pool and the AIM. I had one test that there were 6 NDB questions. Really.

Any question about outdated NAV aids such as NDB/ADF, questions on Time and Distance to a station, any topic that is not likely to be used in real life flying

Gliders do not use VOR's which are tested on the commercial knowledge test

Should we really ask specifically about flight after scuba diving? Certain subjects are listed in the task to be specifically tested, but other important subjects are not specifically listed. There is no consistency.

Need further evaluation!

Radio magnetic Indicators, ADFs, compasses slaved to HSI, (for instrument) Time to station and distance to station computations (for commercial), as well as the same topics for CFIs.

ADF/NDB usage should be deleted.

Horrible weather charts, difficult to read graphs, tables, etc.

"Old" topics that are seldom used. ADF navigation, for example.

For heaven's sake, delete the questions relating to fixed-card ADF on the private knowledge exam! Delete old outdated FAX graphics from weather questions. Include easier to read, higher clarity charts, and graphs.

I'm not sure that anything should be deleted or removed, but obviously we should place more emphasis on ADM, single-pilot operations, etc.

Outdated ADF/NDB questions as well as the other outdated Nav info that no one uses anymore. Also the weather maps that are so hard to read should be improved for clarity. In this day of digital images, there's no excuse for such poor reproductions. The LAA (local airport advisory) info and questions should be deleted. Is there any such place left in the USA anymore?

NDB and ADF receiver information could be deleted from Private knowledge test. This should be in the Instrument knowledge test instead. Knowledge tests contain too many questions which merely test whether the candidate can interpolate. They should cut the number of these types of questions by half.

Any questions that do not have a truly correct answer. The "most correct answer" approach does not allow for real knowledge testing- especially with mathematical items. If there is no correct answer, there will always be a need for test prep memorization rather than diligent study of knowledge areas to be covered.

ADF

Those old weather charts.

There's too much emphasis on out-of-date "math" problems that ignore the existence of GPSes and moving maps.

Not being involved with airman testing at this level I can not think of any subjects to be deleted.

Replace the old Wx formating charts with current internet products. Emphasize the use of internet Wx products to gain the big picture prior to calling the FSS briefing or DUATS

ADF VOR rules of thumb anything to do with Flight Service & weather

Anything related to ADF.

Too much on runway incursion. Too much on NDB procedures, that should have been fixed a long time ago. Too much on technology and not enough on airmanship/flying (and that does NOT mean ADM).

FAA is shutting down NDBs. Eliminate that from the curricula. S-Turns across the road can be covered by traffic patterns and turns-about-a-point.

Some antique IFR procedures (turn 90 degrees from course, fly, calculate time & distance to station...).

ADF/NDB information

Outdated avionics

Too much of the testing process is aimed at "gotcha's" testing minute and arcane knowledge that has no application to real world flying. The overall subjects tested are not necessarily bad, but the test must measure the candidate's ability to operate safely in the airspace and system as it exists today, not the one that existed 30 years ago

I don't know, I want there to be more.

Current tests include questions about such procedures and wingtip bearing change, overly precise flight-planning problems that suggest computing speeds and fuel burns to several decimal points or takeoff distances to nearest foot means you've prepared adequately for flight. We must test the applicant's ability to plan flights and make basic computations, but many of the questions emphasize the wrong conclusions.

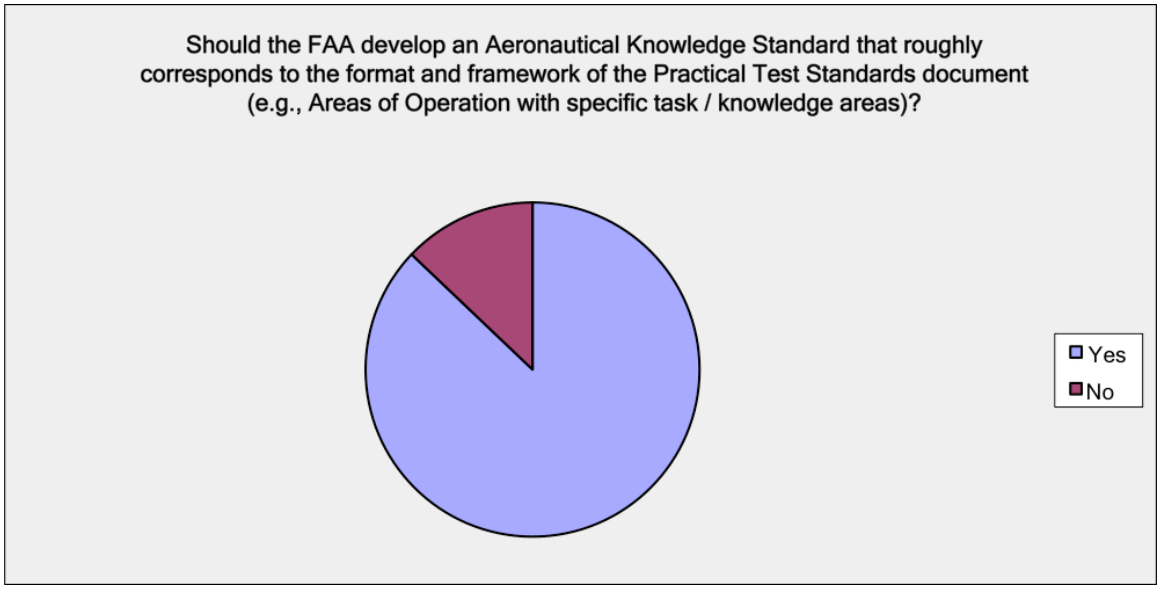
All the detail on ancient obsolete stuff (and I'm old enough to have flown and remember fixed card ADF) needs to be removed except for a quick historical look. Let's teach them what they need to know for today. FARs and AIM need to be dramatically cleaned up and simplified so that pilots can be trained for the world they will fly in.

Night cross country requirement in mountainous area.

ADF

SCORECARD b: 2;

Should the FAA develop an Aeronautical Knowledge Standard that roughly corresponds to the format and framework of the Practical Test Standards document. (please specify alternative ideas)



COMMENTS:

Minimum acceptable tolerances. Emergency operations: How to handle post- emergency procedures. For example, should the emergency landing happens, does the pilot leave the accident site.... I am the only CFI that I know who talks about what if something happens.... it is important.

Commercial Plot Certificate should become more like ATP Certificate, but with a lower experiece level required

There are a variety of good texts by various authors. Government standards end up like the proverbial assembly of a horse by a committee that ends up looking like a camel.

THERE ARE MANY REFERENCES TO AERONAUTICAL DECISION MAKING AND RISK MANAGEMENT; YET THERE ARE NO KNOWLEDGE QUESTIONS INCLUDED IN ANY OF THE TEST BANKS I HAVE SEEN THAT DEAL WITH THESE SUBJECTS. MORE EMPHASIS ON THIS ASPECT OF FLYING SHOIULD BE TESTED IN KNOWLEDGE AND PRACTICAL TEST SCENARIOS.

Expand the PTS if necessary

A single, uniflying PTS for each license or rating is preferable.

A sample test question representative of each actual test question should be made available for study by the student prior to actually taking the test. 06/13/2011 Bank: (Recreational / Private Pilot) Airman Knowledge Test Question Bank This only has 252 questions which does not cover

all of the topics included in the knowledge test for Private Pilot. There should be no surprizes. The current FAA study questions are all lumped together for airplane, helicopter, glider, etc. It would be better to have a seperate set of study questions for each category. My preference would be for ALL test questions to be published as they were a few years ago.

Some emphasis should be stated that common sense is hard to teach but should candidates should be aware of.

as technology changes, we have quicker and easier access to information such as weather online. One of the major concerns I have is, at what point is the available resources legal to fly with.

The "yes" to a PTS counterpart is a tentative one, but it seems to make sense.

More scenario based questions.

FAA people fly in the real world...why doesn't the training and testing material reflect this?

However, I truly believe that correlated material should be asked on knowledge tests, with some expansion of the effort to practical tests. We should be training pilots to think and not simply regurgitate.

Right now all knowledge is based upon memorization. The goal I hope is to enforce learning, not just @ the rote level, but all the way to the correlation level. The current tests only seek out memorized knowledge.

Do away with required hours for a rating and replace with required proficiency.

FAA written tests are archaic in this age. The computer is capable of providing color, movement , sound, scenarios, live action. These capabilities are ignored and we have three answers and the same old pencil fill in the bubble answers. Learning is not only recall. I would expect that we would shoot for higher levels of knowledge to be exhibited by our students especially judgement. Levels of Learning have been around since the 1950's. Are we using these monumental studies in FAA Testing? I am afraid the answer is no and the FAA will resort to whatever is expedient.

PTS has done wonders for flight training standardization. A list of main objectives followed by sub objectives that are currently used in in the education system is vitial

Keep it all simpler. Let the instructor & DE's decide who has the character and ability to hold a certificate.

Tka current front material on risk mangement in PTS and integrate it at the task and objective level.

The cross country planning should include various scenarios, not just the simple out-n-back typical in most checkride.

I answered "yes" to this question, but with reservations. Clearly, today's pilots and flight instructors are required to be more knowledgable than in the past due to the increased complexity of the airspace system and the sophistication of the latest avionics. The reality is that there are many things that are not taught in the course of flight training simply because the information either doesn't pertain to the aircraft being flown or it isn't one of the required testable areas in the PTS. If an Aeronautical Knowledge Standard could be established in a way that would emphasis

those areas of most importance to keep all pilots safe (i.e., operational safety considerations, airspace rules, and aircraft performance), then I would be for creating such a document.

On the PPSEL exam, there should be a point where the examiner throws a towel over the cockpit instruments, and the pilot should be expected to fly the SEL or MEL piston just fine. We need more testing and training on cross-country procedures, especially on maximum range and endurance operations.

The FAA knowledge tests are, de facto, detailed knowledge standards. Private companies have done a very good job of developing materials that "teach to the test", with cooperation from the FAA. If new tests are developed, these companies will continue to develop useful materials (as long as the turnover rate doesn't get too high, which it shouldn't).

I believe that, although important, many topics are over-covered on the Private Pilot Exam. For instance we ask a large amount of questions about the Magnetic compass though the ONE important thing to know is: the mag compass is only accurate in straight and level flight.

re. 5. above: analyse/develop PTS framework to adequately cover safety topics addressed above

Tasks to be performed in an area of operation should be as close to real world as possible. For instance, rather than have a candidate fly a rectangle around some field (getting harder to find these anyway) to demonstrate that he can fly a traffic pattern and adjust for winds the test procedure should be to actually fly the traffic pattern. In today's flight world exactly what real world skill does a lazy 8 prove? Is there any employer that would approve flying a chandelle with passengers on board? I have no problem with the manuevers per se, just they don't relate well to the actual flying the candidate is seeking approval for and they certainly don't provide us an assessment of the candidate's ability to manage risk.

There should be no secrets to what is required. Adults learn by study and active involvement. Share all expected and all topics expected and allow an opportunity to learn.

Change the PTS to include the amount of flight time needed for that rating. List the time so that the student can see in plain language what requirements they need.

Everyone knows that knowledge tests are one just one part of the evaluation process. Applicants for new certificates and ratings will be quizzed during practical tests and must demonstrate proficiency in the cockpit. Throughout the review of the testing process, we should keep the purpose of the knowledge test in mind (and probably rethink it). The knowledge test should focus on core information and academic skills that pilots must bring to the cockpit (e.g., understanding of core FARs and recommended/expected procedures from the AIM; realistic, practical W&B, performance, and navigation calculations; key general features of aircraft systems and instruments). Using scenarios, the DPE will evaluate the applicant's ADM skills, practical ability to plan a flight, evaluate weather, communicate with ATC, use checklists and flows, and, of course, fly the aircraft and use the specific equipment installed in that aircraft. Finally, as noted below, we should ensure that test questions address deficiencies that continue to show up in daily operations, pilot deviations, incidents, and accidents. In other words, to the extent possible in a multiple-choice, national test, questions should address and test the applicant's understanding of key issues such as the use of GPS under IFR, flying traffic patterns, communicating with ATC (VFR advisories, clearances, etc.).

SCORECARD b: 3; Please list your top 10 changes, improvements, or priorities for this task.

1.

Mission statement for all knowledge tests

Concoradance between test items, standards, and tasks and the PTS or KT
Better define tasks for knowledge of electronic navigation.

Language format (some question are very difficult to understand)!

Commercial Pilot Cert ~ require Spin Training

Insure that the present Test Standards are NOT used as curricula.

Require senario based training

INCLUDE KNOWLEDGE TEST QUESTIONS REGARDING AERONAUTICAL DECISION MAKING

Ensure test questions tie to appropriate category and class

Only the ATP should require a medical.

Updating the study questions published by the FAA by adding many more questions.

Weather needs updating to include modern computer products

Clear graphics - i.e. B&W Radar Summary charts. They're hard to read!

Embrace, teach and evaluate use of technology (GPS, handhelds, datalink WX, iPads, etc.

increased instrument training required for night VFR flight privileges

decision making for weather conditions

eliminate outdated Navigation information and test questions (ADF/NDB)

Private Knowledge Test and PTS: Judgment and Decision Making: Add questions related to new research that shows glucose is consumed during decision making; Pilots need to bring food on trips or decision making deteriorates.

get rid of any no totally correct answer

spin instruction for private pilot ratings

Base testing on outcomes utilizing specific procedures employed by modern use of the computer.

Risk assessment

Follow current standards of instructional design to make a list of all desired objectives (set up

groups for each major area)

Focus on the primary cause of accidents, risk management and judgement

Fighting Human Error

Produce a straight forward standard available to all students and instructors

Expand judgment training with usable alternatives for pilots to prevent get-there- itis
GA pilot ADM

Get all questions reviewed by practical flyers and instructors

Scenario Based Training/Checkride

Review all questions (and the purposes for them) in light of today's flying environment and technology

Completely overhaul training materials

Heavily emphasize human factors training - especially for the initial CFI

2.

Institute tests of descrimination and reliability of tests

realize that the fundamentals taught at sport level are foundation for all levels.

Commercial Pilot Cert ~ require Upset Recovery Training

Include "Airmanship" in study materials.

INCLUDE KNOWLEDDGE TEST QUESTIONS REGARDING RISK MANAGEMENT

Ensure test questions correspond to PTS

Commercial pilots should be allowed to fly "for hire" without part 135 rules.

Seperate the study questions by category and class.

ADM needs increased emphasis

Questions relating to more real-world practical flying

increased angle of attack awareness training and evaluation

decision making for inoperative equipment

Include source info on GPS and new technology with relevant questions

Private Knowledge Test: Questions of fatigue. Recent data shows a tired person has decision making capability of someone with .08 alcohol blood level.

required GPS approaches for instrument ratings

Provide action procedures that involve a web of choices leading to unique occurences that the respondent initiates.

Additional requirements for controlling airplane with reference to instruments

Divide into sub objectives to define level of Blooms Taxomony desired

Fatigue Countermeasure Training

Expand cross-country procedures, especially fuel planning, maximum endurance, and maximum range operations.

awareness of operational safety

Have all questions reviewed by pilot candidates for clarity to remove ambiguity

Better Private Pilot Knowledge Test Questions

Focus on questions that have real-world applications

Simplify FARs and AIM and delete obsolete material

Integrate scenario based training for the flight tasks - not just maneuvers training

3.

Institute tests of relevancy of tests to the mission statement

Commercial Plot Certificate ~ remove reuirement for a Complex Airplane for ASE Rtgs

Require instructors to have more than a rudimentary knowledge of aerodynamics.

Flight Instructors should be required to do spins.

GPS navigation should be included

Scenario based questions

increased training on the importance of rudder coordination

update weather information to include computer sources

Private Knowledge Test and PTS: Add test question on Night flying issue. Make clear that Private pilot may not be capable of handling some night conditions (e.g. JFK accident)
Utilize written answers other than fill in the bubbles.

Change the definition of Complex airplane to 200-hp or more, not more than 200 hp

Agree on learning objectives across the board

Scenario Based Training e.g. The FAA/Industry Training Standards (FITS) program

IFR pilots need to know a simple, can be used under extreme stress, procedure for recognizing instrument failure

risk analysis/management

More realistic times for training, not just the minimums

Focus on testing understanding of general principles and key information, not trivia such as reading a text radar report or abbreviations in a NOTAM

Encourage the integrated training approach for PRIVATE/Instrument

4.

Review the underlying documents for relelvancy

Recreational Pilot Cert ~ remove requirement for Medial Certificate

Add slipping turns to flight maneuvers.

ALL tests should concentrate on common sense, pilot "stick abilities", and decision making (plan b in every case).

ADF/NDB navigation should be deleted.

Design questions with proper sentence structure and easier to read

increased decision-making training and evaluation

Vastly improve weather graphics used in testing

Private Knowledge Test and PTS: Add questions related to Night illusions, especially somatogravic illusion on takeoff and black hole approaches to a landing.

Each group write questions on agreed upon objectives (not the FAA the groups set up in step one)

NextGen Awareness

Recognize that the critical skill pilots need to day is...critical thinking (ADM)...not the ability to memorize and answer trivia questions

Overhaul Practical Test Standards

5.

Regularly review subject matter for relevancy in light of new technology and regulation

Sport Pilot Cert ~ merge with Recreational Pilot Certificate

Private Pilots should be able to get IFR rating immediately.

Utilize more up to date graphics i.e. HSI, altimeters, etc.

increase weather traniing and evaluation, especially obtaining inflight weather and limitations of inlfight weather sources and equipment

Have a review committe set up to keep objectives current with changing technology

Use of modern technology

Create Knowledge Test Standards documents

6.

Sport Pilot Instructor ~ Merge into regular CFI Certificate

ALL flight instructing, and flight time, should count for higher ratings. NO starting over for Sport, or Recreation Pilots

Add more color to charts, graphs - make easier to read
increased training and evalaution of fuel management techniques

Spin training and upset recovery

7.

Sport Pilot Cert ~Increase weight limit to 1800 lbs

ALL enforcement action should be educational, unless premeditated safety issues are involved.

NTSB and accident/incident studies

8.

Comercial Pilot Certificate ~ Change PTS to be more like ATP PTS

ALL CONTROLERS M U S T be current IFR Pilots.

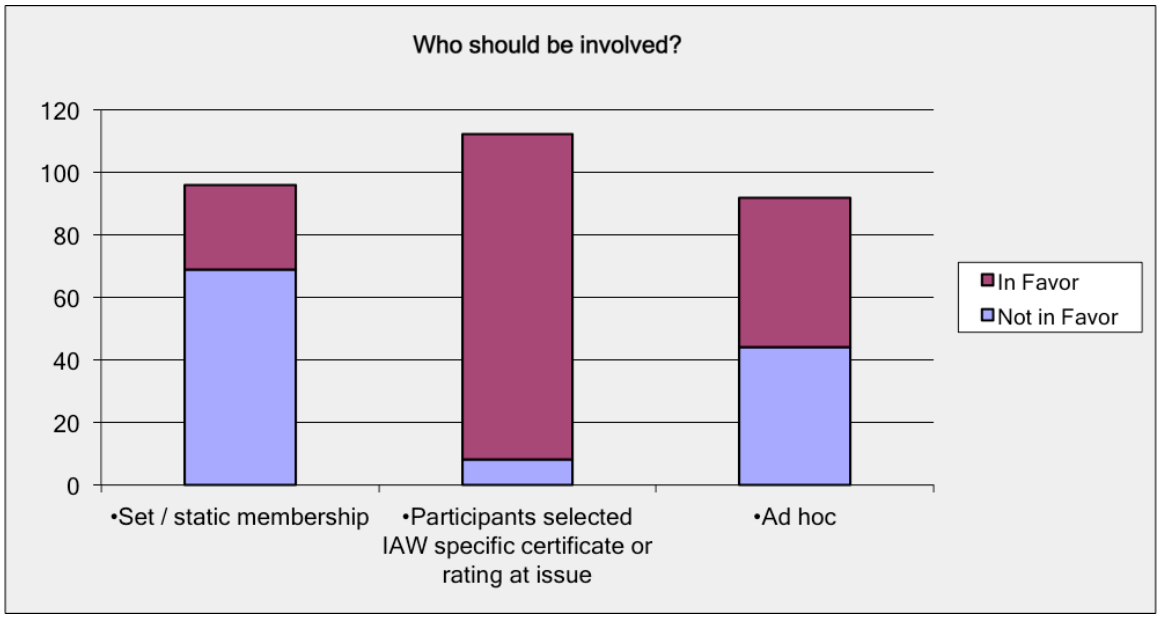
9.

Instrument Rating ~ Require Actual IMC experience

10.

Instrument Rating ~ Require more time spent in Actual IFR X-C flights

SCORECARD c: 1; Methods for regular industry participation in the planning, development, production, and review of technical information (e.g., training handbooks, knowledge test guides, and supplements) intended to convey the elements of the knowledge standard. Who should be involved?



COMMENTS:

The framework for the overall knowledge base and question bank should be a static membership with a professional staff of test designers. Individual subject areas in the Handbooks and ACs should be subject matter experts, whose responsibility is to develop both the texts and the test questions based on their immediate work. This must be tightly coupled.

Could it be modeled after the kind of process in ASTM standard development but not necessarly through ASTM.

Representatives from organizations that in turn represent a broad base of the pilot and instructor community: AOPA, EAA, SAFE, NAFI, FAA

SAFE

Rotate participants from different segments of the training industry

AOPA, EAA, NBAA, HAI

ALL decisions on Pilot and flight rules should be made by committies made up of TEN (10) industry people (GA Pilots, EAA, AOPA, NBAA, etc.) to ONE FAA member.

I don't know the advantages of each.

Flight Instructors and DPEs should be involved.

I find this section "Questions/Rcommendation C" rather poorly stated and the questions asked, to the point that I'm not even sure how to answer much of it. It seems "typically" government'ese. Perhaps that is an indicator of the underlying problem with the larger topic being addressed.

Individuals with the breadth and depth of knowledge to address the subject matter

I'm glad SAFE is involved! There should be a standard that invites participation.

The people involved in the real world of flying should be included: the FAA, CFIs, DPEs, and perhaps a representative sampling of pilots from all the ratings, including current students. Get the student's feedback to see how well they feel they're being educated and trained.

SAFE Team members recommended by President.

SAFE, NAFI and Master Flight Instructors

Organizations like SAFE

Industry subject matter experts, such as Master FI's should dominate the membership, with GA organizations balancing this.

Paid volunteers specialized in the fields to be addressed

Just because you're a member/officer in NAFI or SAFE shouldn't get you on the committee but the FAA wants to work with people it can control and alphabet groups have too much in the fire to be contrary to FAA wants and needs; therefore nothing gets fixed.

Fixed membership will "freeze" development!! Will discourage innovation, contribution & development by minor but highly valuable constituents.

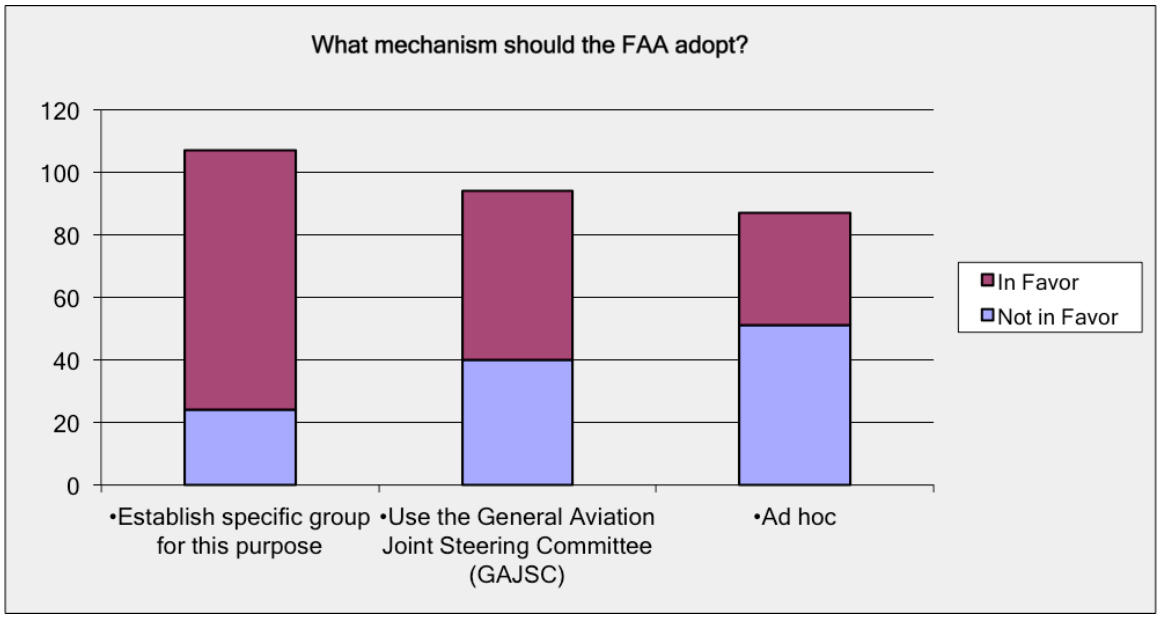
Teaming of training, manufacturing, HF SMEs, and industry professionals to develop the new materials.

You need to have those that just fly 50 hours per year who have a private pilot to help. What they learned in the following year is what needs to be included.

50% Core group formed plus 50% ad hoc

Make sure it's field level participants with CURRENT AND ACTIVE CREDENTIALS in flight training. Active members who are presently engaged in flight instruction, aviation training, human factors training, etc.

SCORECARD c: 2; What mechanism should the FAA adopt?



COMMENTS:

SAFE

Use various alphabet groups i.e. AOPA, EAA, SAFE, NAFI

There is some merit for a group that has continuity but the option of the GAJSC may have the benefit of involving all stakeholders

organizations like SAFE

Paid volunteers specialized in the fields to be addressed

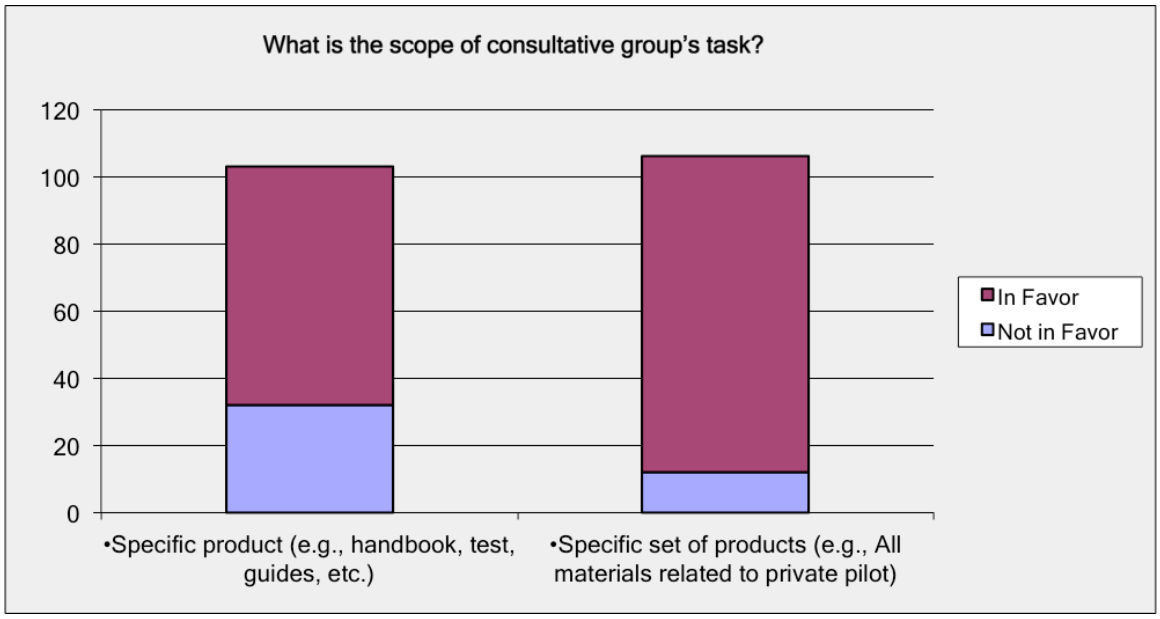
Solicit / invite participation.

Unless they group is very fluid not much will work.

It takes a mix to get it right. Stagnant membership creates problems.

Keep the politics out of this.

SCORECARD c: 3; What is the scope of consultative group's task?



COMMENTS:

Do not separate knowedge areas by certificae type. The current arrangment of n-thousand questions applied to all grades of certificate is resonable. A Glider pilot with a self launch endorsement is no less a pilot than a Private ASEL.

Products must match

ALL RULES and REGULATIONS that affect Pilots, and aircraft owners.

the group should decide on what's most needed and work from there, but realistic goals should be set. can't be too broad or too narrow.

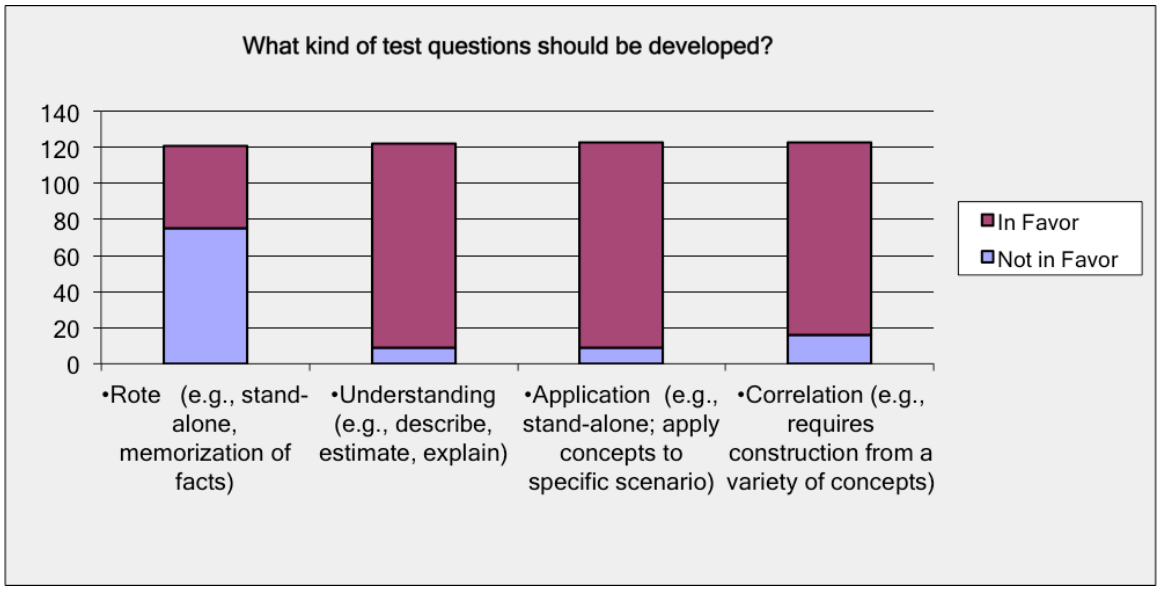
Oversee and give direction to the FAA. Do not let the FAA dictate the agenda.

include hands on feedback

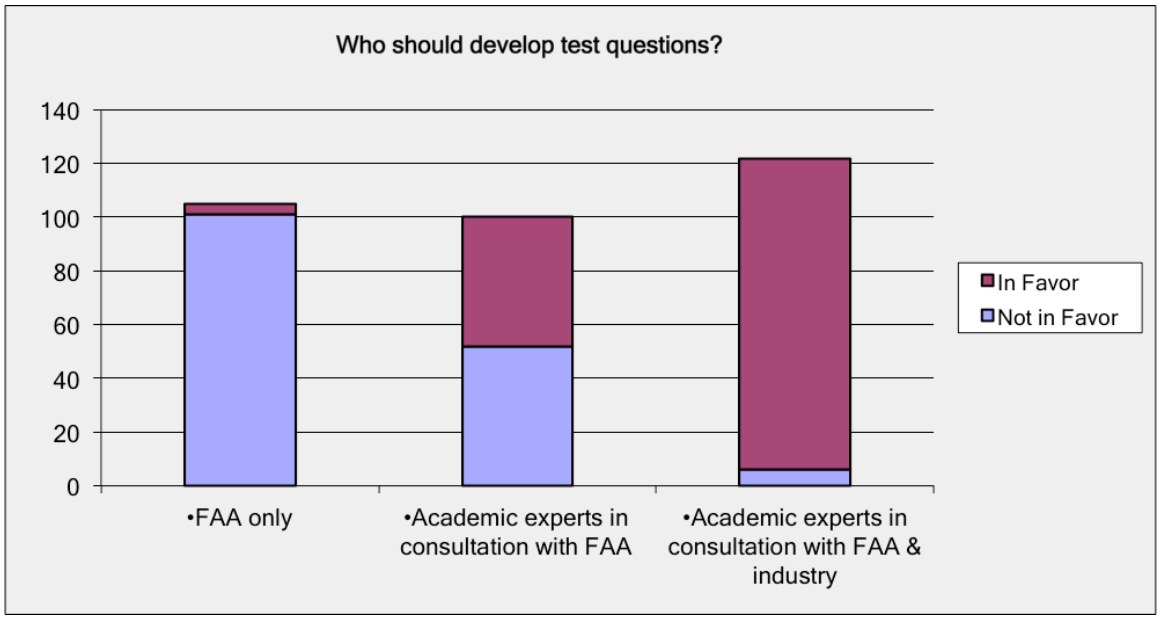
They should establish the goals and _coordinate_ the evaluation of the products- - not evaluate themselves, but send to groups (e.g SAFE, ASI) for review.

SCORECARD d: Precepts for development and appropriate review of updated knowledge tests that will accurately and reliably measure the airman's mastery of the aeronautical knowledge standard. This task should include recommendations on types of questions to be included.

SCORECARD d: 1; What kind of test questions should be developed?



SCORECARD d: 2; Who should develop test questions?



COMMENTS:

EAA, AOPA, NAFI, SAFE nominate experts in actual training to work with inspectors, examiners

AS BEFORE, TEN to ONE GA people to FAA.

I would prefer that the FAA develop questions and validate questions as part of the process of adding/deleting questions into the test bank. I would also like to see the general aviation represented as part of the consultation process.

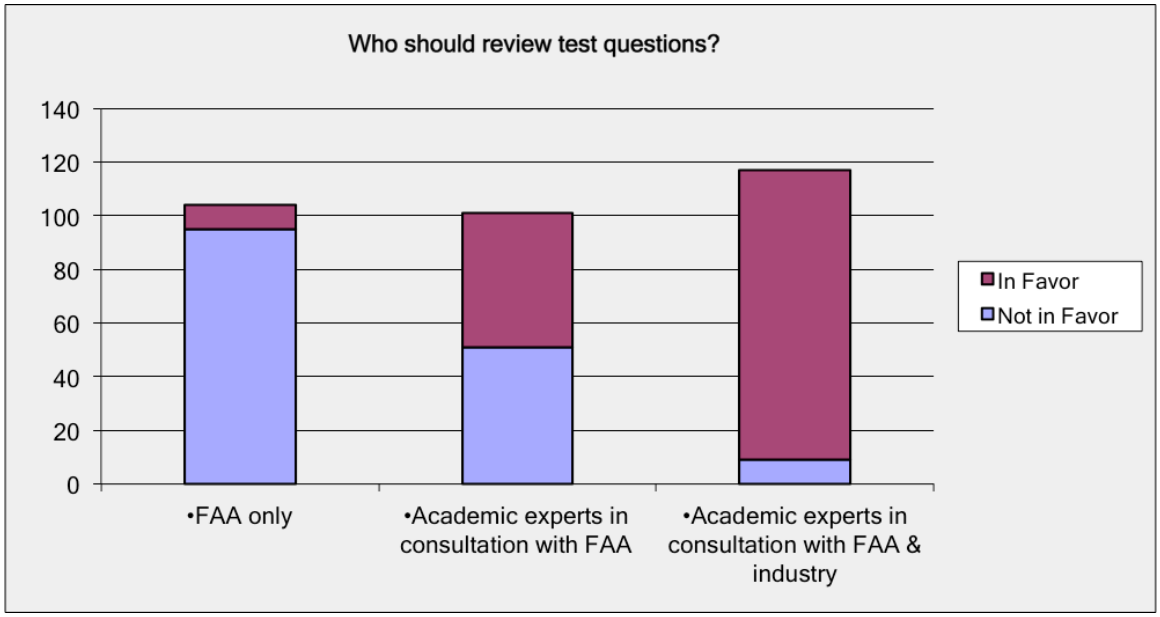
Academic 'experts' are too often out of touch with reality. Test questions should be developed only after consulation with industry, those who are involved in the actual training/testing of airmen, who know what subject/knowledge areas need to be addressed on a written test.

Organiztions like SAFE

Academic experts? SAFE, NAFI, Master Flight Instructors

Academics are great, but they shouldn't be the only test question writers. We need people in the trenches, who are instructing every day, to write the questions. Look at the core of CFI of the Year and ASC/Volunteer of the Year. Many of them have questions, multiple choice and open answer.

SCORECARD d: 3; Who should review test questions?



COMMENTS:

FAA, who hires professional test developers ON STAFF, not by contract.

Acedemic institutions; e.g., Embry Riddle

Above including Flight Instructors Ground Instructors and organizations like SAFE

see above (d.1)

AS ABOVE. (d.1)

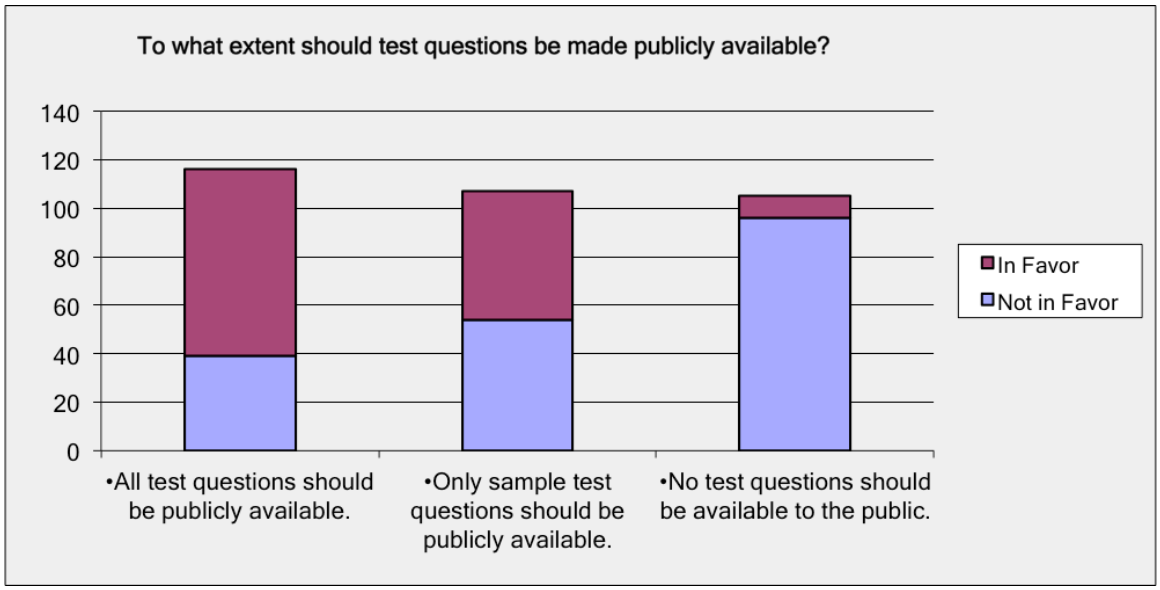
Review should be by the FAA in consultation with industry.

Also there should be test groups of pilots and students to rate these questions for how well they correspond to real life aviation, and to how well they are specific and clear in what they're asking.

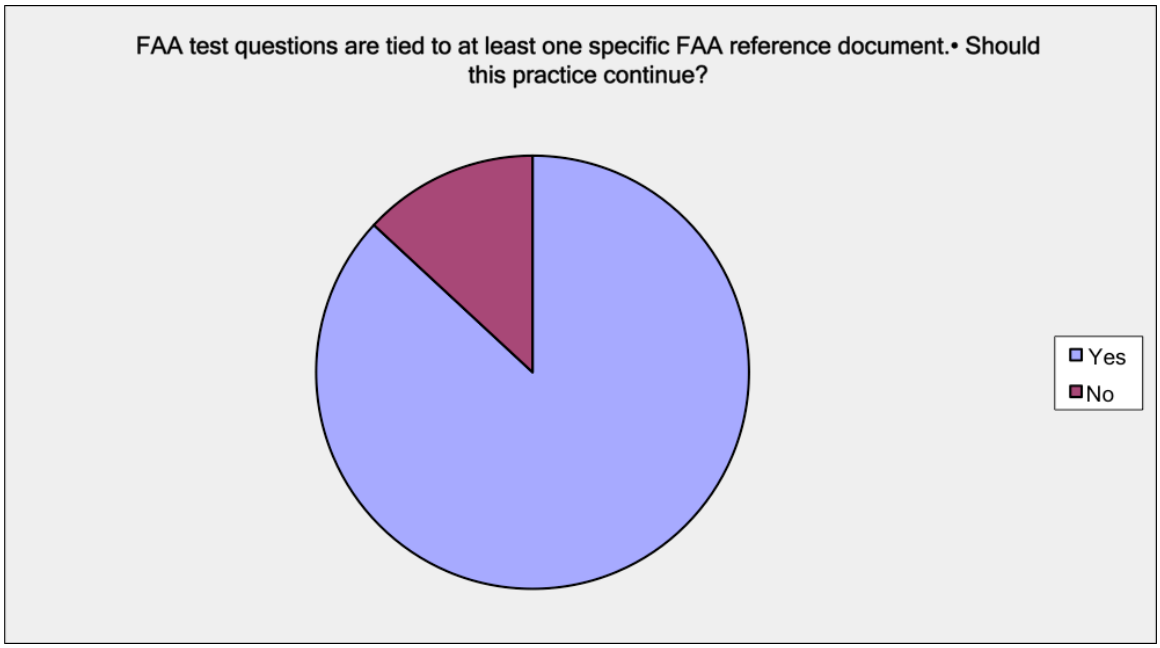
Organiztions like SAFE

Academiams often are not current practitioners but as long as practicing pilots (that's how I'm defining your word "industry") are involved I think the process will work.

SCORECARD d: 4; To what extent should test questions be made publicly available?



SCORECARD d: 5; **FAA test questions are tied to at least one specific FAA reference document. Should this practice continue? If not, how should it be modified?**



COMMENTS:

But the reference documents need to be up-to-date in terms of technology and actual current pilot practices. We need to test what we will really be doing.

If the concept is important enough to test, it should be referenced in multiple documents.

Create a document/supplement that will be easy to use. Some of the charts in a current supplement are not clear enough, or maybe too small.... Especially the weather charts... All students have trouble reading those...
It is very important to know where to find regulatory information. Rote level questions to the documents should cover real world occasions to use the documents included.

Many make no sense--only used to pass test of NO practical use--outdated..

Non-FAA reference materials may be substitued by reference where appropriate.

Questions should be based on prior failures in the Aviation Community. Accidents, Incidents, Observations of Examiners, etc. To tie a question to a single reference produces an unnecessary limitation.

Review industry standards that have been used successfully by Part 141 flight schools (such as Jeppesen manuals) may be approved.

I am answering "no" but with qualifications. It really depends on the nature of the question. (In

question 11 above, there was no comment box to explain why I marked my answers as I did, so I am elaborating on my answers here.) I believe all four levels of questioning should be continued on the FAA exams, but that more questions should require application and correlation. In other words, to answer those higher level questions, the applicant must have a working knowledge of all FAA reference documents. However, to answer a lower level question (i.e., rote or understanding), the applicant may only need to know factual information from one specific publication.

Don't pretend that an FAA Knowledge Test _can_ be a comprehensive test of required knowledge. However, they provide excellent tools for education and evaluation. The statement is somewhat misleading. Some of the best questions on the Instrument knowledge test, for instance, are those requiring applicants to go through detailed flight planning exercises. They are not merely regurgitating details from a sentence in a handbook.

Sometimes the question comes from the chart. Judgment questions can not be tied to one single reference.

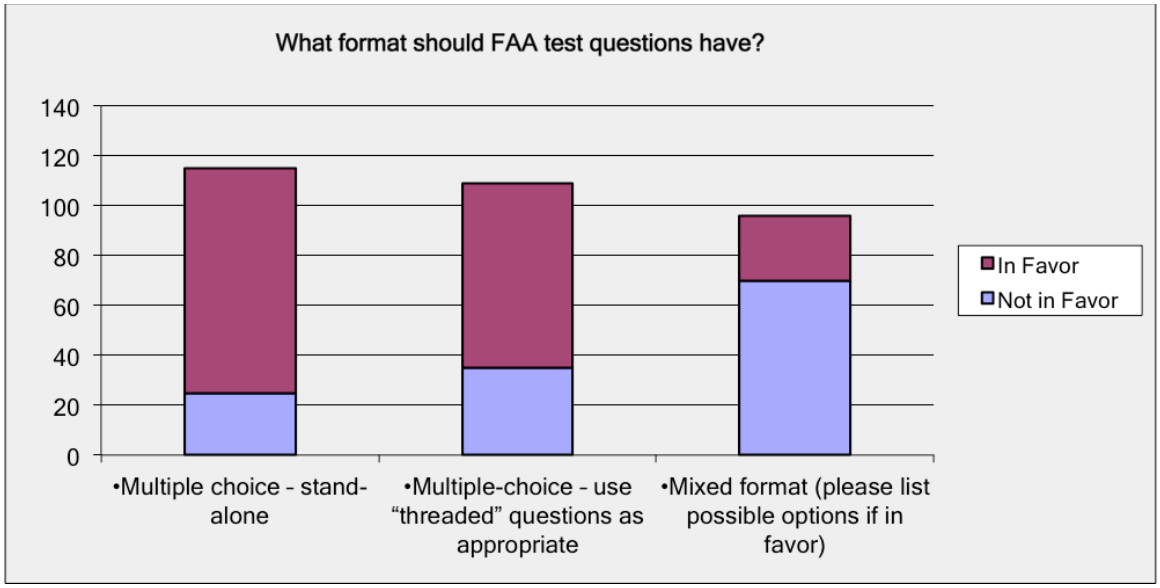
Applicable test questions need to be sourced from a multitude of publications.

Include industry documents as well.

Most good, knowledge revealing, questions are broader than a single reference. References should be cited, but the broader the source-base for each question...the better. Machines "do" facts. Humans correlate.

there are other sources beyond FAA documents.

SCORECARD d: 6; What format should FAA test questions have?



COMMENTS:

The FAA should use adaptive testing. If a candidate is answering every question correctly, there is no reason to (a) keep on answering simple questions, (b) keep him or her in the testing room for hours, or (c) fail to use the power of the computer to create a more disciminatory test to

measure more precisely the achievement of the performers on the tails of the distribution.

MC alone points toward rote and understanding. Higher levels more difficult to get to. Some ideas may be in the FASST on line courses using media and options. There are some models of a set of questions and a matrix of answers avaliable to use for the set.

Choose from a list Which item does not belong? Connect items from List A with items in List B

I favor a combination of multiple choice, short answer, and open-ended. The problem with multiple choice only is that it shows one small concept that the test taker either knows or doesn't know. Open-ended gives the test taker an opportunity to show what s/he actually conceptualizes. For the multiple choice, I also favor 4 choices rather than 3. From the time students are in 3rd grade, they take multiple choice standardized tests with 4 choices. Shouldn't an adult taking the test for a pilot's license be able to handle 4 choices?

All questions/answers should be very clear. Currently, some of those are very confusing. Plus, on the actual test, we get some 'surprise" questions, that are not included in a written exam book at all. It happened on my ATP and instrument ground written exam. They did not affect the final score (I got 100%). why do we have those questions? And those were extremely hard to answer....

"MATCHING" QUESTIONS; TRUE/FALSE QUESTIONS;

Stop the "TRICK" questions. Ask relevent questions with answers that do not have to be correct down to .000 Any answer that is within 1-2 % is OK. Do not try to fail a student, unless it is obvious they do not have a grip on the basic understanding of the situation.

Multiple-choice, matching

Iam not sure the format!

True and false

Essay answers to scenario questions with variable credit based on the wisdom of the choices for the question would be ideal if the resources necessary to score them can be found.

computation questions rather than multiple choice for flight planning and W&B

Questions requiring full explanations in an "essay" format.

what are 'threaded' questions? Don't understand. They should be multiple choice but with maybe four options instead of three. True/false are too easy to get right just by chance. can't have essay 'cause too hard to grade scientifically. Please, please, please, avoid trick questions or 'gotcha' type questions.

The format should match the desired level of learning- which will vary according to the topic. For an example question on the use of the E6B should be simple multiple choice with a choice that includes setting the problem up on the E6B backwords. Howvever the answer to a specific question should not be based on the answer to a previous question- e.g. do not find the TAS on one question and then use this TAS to find the ground speed of another question. TEST each one individualy to determine the knowledge of the learner.

I understand the reasons why the FAA and industry might want to get away from a test consisting

of only multiple choice questions, but the problems inherent in trying to use other types of question formats loom large. Obviously, essay questions are not appropriate because there is too much subjectivity in grading essay questions, not to mention the time it would take. Using multiple choice "threaded" questions may work, but I would suggest they be used on a trial basis first. In other words, include some of them on one or two FAA exams, but don't actually count those answers into the final scoring until the validity of that question format has been proven over time. Many national certification tests for various professions do this, but the applicant is never told which questions count and which don't.

Groups of multiple test questions should be built around specific scenarios.

multiple choice, fill in the blanks, comparisons, lists, labels of diagrams, and true or false

The written tests are only, and should only be expected to serve, as _part_ of the education & evaluation process. The multiple-choice format works very well for this. There are very good reasons why DPE's spend an hour or more with the oral part of exams!

Adaptive testing should be used, where the questions become harder the more that are answered correctly. Look at Microsoft for their testing practices. Some of the questions need to be fill-in-the-blank, which will help to prevent rote memorization. Also, for the multiple guess questions, of which there needs to be several thousand available but only 1000 or so used for the test, make the database available to the public with the proper answer. Let it be "leaked" by the industry, but known those are the correct answers. Yes, pilots will flock to the leaks, but they'll be learning the material, which is what we want, right?

Scenario-based with clear, valid, and logical answers (no "close-second" confusing answer choices)

Fill-in-the-blank can be graded objectively (usually, and if well constructed) and such questions are far more revealing of an applicant's true knowledge. I've encountered darn few "multiple choice" questions in the cockpit....but lots of fill- in-the-blank and untold essay questions (but those are, of course, not practical in this application).

Keep the FAA out of the test writing business. The tests should be REALISTIC in content, fair, and easy to understand. this is not a test to see how well an applicant can catch traps in wording. It should be a test that allows the applicant to apply the actual learning and subjects without fear of failing due to poorly worded questions.