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FORUM

DESIRABLE FACULTY QUALIFICATIONS AS ASSESSED BY STUDENTS IN THE AERONAUTICAL SCIENCE PROGRAM AT EMBRY-RIDDLE AERONAUTICAL UNIVERSITY

James E. Lewis and Donald E. Smith

ABSTRACT

Over 89% of the sophomore aerodynamics students (182 out of 207) at Embry-Riddle Aeronautical University were surveyed during Spring Term 2003 to explore student preferences relative to instructor qualifications in the Aeronautical Science Program. The study was initiated because of the great difficulty that particular department, as in many aviation-focused universities, has had recruiting PhD credentialed faculty with significant professional or military flight experience. To perhaps aid in the hiring process, a tough question was asked: Do students prefer PhD level faculty with limited flight experience or Masters level faculty with significant professional or military flight experience? Results indicated that although students would like to see both PhD credentials and significant profession or military flight experience, when given a choice they prefer faculty with significant professional or military flight experience, even if the faculty member has only obtained a Master's degree. It is speculated that the reason might relate to the evidence that shows, "... students engaged in pursuing collegiate aviation programs are 'different' from traditional college students. Aviation students are not searching for a career; they have found one and are taking steps to realize their dreams. They approach learning as an adult." (Brady, Stolzer, Muller and Schaum, 2001).

Aeronautical Science students from Embry-Riddle Aeronautical University graduate with a Bachelor of Science degree in Aeronautical Science and a Commercial Pilot's license with multi-engine and instrument ratings. Most also have flight instructor credentials. It is said an Embry-Riddle graduate occupies one of four cockpit seats in the airline industry. These Aeronautical Science students arrive their freshman year focused and remain that way. They are much more conservative than students at traditional universities. They know what they want to do with their lives and they appreciate the various courses that pertain to their professional future. It was concluded by (Brady, Stolzer, Muller and Schaum, 2001), "... students engaged in pursuing collegiate aviation programs are 'different' from traditional college students. Aviation students are not searching for a career, they have found one and are taking steps to realize their dreams. They approach learning as an adult."

the value of the academic credentials of their instructors compared to the value of the flight experience of their instructors. An opinion survey was conducted of 207 Aeronautical Science students in seven sections of a relatively technical Aerodynamics course. 182 students (87.9%) completed the survey. They are predominately sophomore year students.

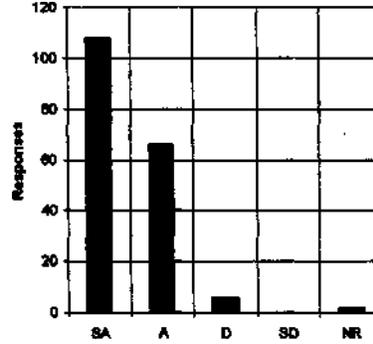
We thought these students also might feel differently about

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The Questions and Responses

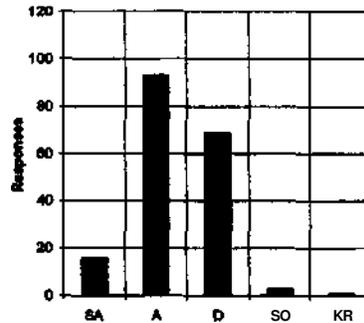
1.1 prefer that my professors have significant professional/military flight experience.

| Answers | Response N |
|-------------------|------------|
| Strongly Agree | 108 |
| Agree | 66 |
| Disagree | 6 |
| Strongly Disagree | 0 |
| No Response | 2 |



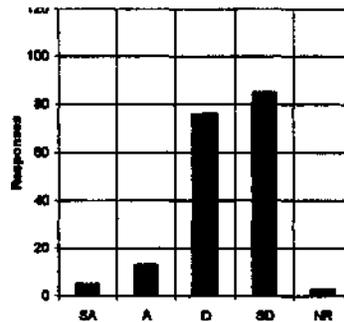
2.1 prefer that my professors have significant research experience including holding a PhD or EdD.

| Answers | Response N |
|-------------------|------------|
| Strongly Agree | 16 |
| Agree | 93 |
| Disagree | 69 |
| Strongly Disagree | 3 |
| No Response | 1 |



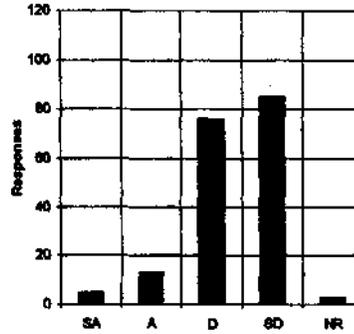
3. Given the assumption that it is extremely difficult for Embry-Riddle to recruit professors with BOTH significant flight experience AND significant research experience (including PhD credentials), I prefer that the department hire PhD level faculty, even if they have little or no flight experience, rather than Masters level faculty with significant civil or military flight experience.

| Answers | Response N |
|-------------------|------------|
| Strongly Agree | 5 |
| Agree | 13 |
| Disagree | 76 |
| Strongly Disagree | 85 |
| No Response | 3 |



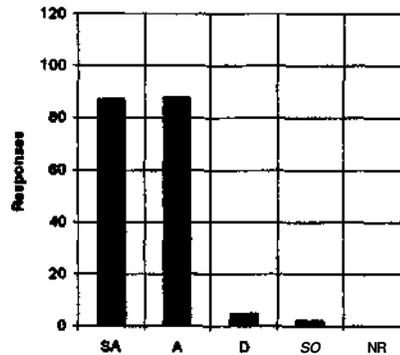
4. *Embry-Riddle has primarily been a teaching-focused university. During recent years there has been a trend toward hiring more research-focused faculty as found at many larger universities. I feel this is a good trend, even though there will likely be less focus on teaching.*

| Answers | Response N |
|-------------------|---------------|
| Strongly Agree | 5 |
| Agree | 46 |
| Disagree | 99 |
| Strongly Disagree | 30 |
| No Response | 2 |



5. *Most current Aeronautical Science faculty are truly devoted to teaching.*

| Answers | Response N |
|-------------------|---------------|
| Strongly Agree | 87 |
| Agree | 88 |
| Disagree | 5 |
| Strongly Disagree | 2 |
| No Response | 0 |



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Randomly Chosen Student Comments

One aerodynamics section, out of the six sections surveyed, was picked at random in order to show examples of typical student comments. All comments from that particular section are included below.

1) I prefer that my professors have significant professional/military flight experience.

"Having an instructor who can relate to real life experiences and help us with problems and help us learn from mistakes that they have made rather than a bookworm who knows the theory rather than the experience"

"A key for teaching aero sci"

2. I prefer that my professors have significant research experience including holding a PhD or EdD.

"Experience beats PhD. every time!"

"Many pilots who are very knowledgeable and capable pilots and teachers have not had the time or option of getting a PhD because they were piloting"

3. Given the assumption that it is extremely difficult for Embry-Riddle to recruit professors with BOTH significant flight experience AND significant research experience (including PhD credentials), I prefer that the department hire PhD level faculty, even if they have little or no flight experience, rather than Masters level faculty with significant civil or military flight experience.

"Practical experience is worth more than PhD"

"Having experience is an education in itself, you learn more from people who can relate what you are learning to real-world applications/experiences. We are a flight school - it distinguishes us"

"I don't want a teacher that has no real experience in what they are teaching"

"I would much rather learn from someone with experience .. they tend to be better teachers and someone I can learn from more easily"

"Your program is as strong as it is because your teachers

have real-life experience!"

"Hire a military guy"

"I value active flight experience much more than just book-learning because I appreciate real-life examples of aeronautical principles"

"Faculty w/ hands on experience can give real life examples"

4. Embry-Riddle has primarily been a teaching focused university. Dunne recent years there has been a trend toward hiring more research-focused faculty as found at many large universities. I feel this is a good trend, even though there will likely be less focus on teaching.

"The key is to teach so that students learn! It does no good for the university if students don't learn because of poor teaching"

"SATs and other programs like it help our university get more money and recognition"

5. Most current Aeronautical Science faculty are truly devoted to teaching.

"Professors & are very well versed in knowledge and experience and that is great"

"They dedicate their time and effort beyond what is required"

"You have some of the best in the biz"

Analysis of Responses

1. I prefer that my professors have significant professional/military flight experience. Of those responding, 95.6% strongly agreed or agreed with the statement. This implies a real appreciation for hands on aviation experience. These students, at this point in their college career, have experienced instructors without aviation experience and those with various levels of flying experience. Their response is informed.

Desirable Faculty2. I prefer that my professors have significant research experience including holding a PhD or EdD.

The responses were mixed for this statement with 59.9% agreeing or strongly agreeing and 39.5% disagreeing or strongly disagreeing. This could be interpreted as the students wanting to have it all - flight experience and strong academic and research credentials. The next question sheds more light on the issue as students were asked to make a choice.

3. Given the assumption that it is extremely difficult for Embry-Riddle to recruit professors with BOTH significant flight experience AND significant research experience (including PhD credentials), I prefer that the department hire PhD level faculty, even if they have little or no flight experience, rather than Masters level faculty with significant civil or military flight experience.

Of those responding, only 9.8% agreed or strongly agreed with the premise of hiring academics in lieu of experienced aviators. 88.5% would prefer experienced aviators with a Master's Degree education level. These results don't nullify the previous question but do indicate the student preferences when faced with a choice. The choice is very real too. Faculty searches yield virtually no experienced aviators with doctorate level educations and the few that do have the credentials have either an EdD or a PhD in an unrelated field.

4. Embry-Riddle has primarily been a teaching focused

university. During recent years there has been a trend toward hiring more research-focused faculty as found at many lamer universities. I feel this is a good trend, even though there will likely be less focus on teaching. The students did not warm to this notion with 70.9% disagreeing or strongly disagreeing with the statement. There is likely a perception among the students that becoming a safe and effective pilot is more likely to occur in the classroom than in a laboratory, especially when the instructor has "been there".

5. Most current Aeronautical Science faculty are truly devoted to teaching.

Embry-Riddle Aeronautical Science faculty, for the most part are there to teach. Most applied for the job because it involved teaching aviation subject matter to future pilots, not because it opened doors for research opportunities. The result of that dedication to teaching is reflected in the responses to the above question; 96.2% agreed or strongly agreed with it. At an institution with a strong dedication to research, it is not uncommon for the students to have virtually no interaction with the professor. Student assistants teach the classes, administer the exams and grade the papers. In the Embry-Riddle Aeronautical Science Department there is daily interaction between instructors and students in the classroom and in the office. The students' responses reflect an appreciation for that interaction.-f

James E. Lewis holds a Masters of Aeronautical Science Degree and a Bachelors Degree in Aeronautical Engineering (Summa Cum Laude plus President's Award) from Embry Riddle Aeronautical University. He was an aerospace engineer for fifteen years before joining Embry Riddle fifteen years ago, working on the XFV-12 A (vertical takeoff fighter), B-1, and Space Shuttle, with 8 years experience in product and process research. He is currently a tenured full professor at Embry Riddle teaching aerodynamics, aircraft performance, and aircraft accident investigation related courses. He flew both helicopters, with over 1100 hours in combat in Vietnam, and airplanes with four years active duty and seventeen years in the Ohio National Guard. He was an aviation safety officer and instructor pilot for most of his military career.

Donald Smith holds a Master of Science Degree in Aeronautical Engineering from the United States Naval Postgraduate School and a Bachelor of Science Degree in Naval Engineering from the United States Naval Academy. He is a graduate of the National War College and the Navy Top Gun Fighter Weapons Course. He is currently an Associate Professor of Aeronautical Science with tenure at Embry-Riddle Aeronautical University where he serves on the Senate Faculty Development and Benefits Committee and on his department's Curriculum, Tenure and Strategic Planning Committees. He is a coach of the Embry-Riddle Crew Club. He was the first mayor of the city of DeBary, Florida. His flying experience includes twenty years with the United States Navy flying fighter aircraft and first officer on the Boeing 727 with Eastern Airlines. He also served as the Defense Attache' to eight West African countries for two years where he piloted a Beechcraft Super KingAir on diplomatic missions.

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REFERENCES

Brady T. and Associates (2001) A Comparison of the Learning Styles of Aviation and Non-Aviation College Students. Journal of Aviation/Aerospace Education & Research. 11 (1), 33-43.