

A MASTER'S DEGREE IN PUBLIC
ADMINISTRATION FOR AVIATION:
IS THERE A NEED?

by

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ABSTRACT

This paper describes the need and structure for a masters degree in public administration with an aviation administration concentration (MPA-A). The paper was suggested by an on-going effort to establish such a degree at Southern Illinois University at Carbondale. This effort has focused on the fact that the U.S. aviation industry consists of 2,107,190 employees, including over 110,000 civilian government jobs related to aviation. With this many people working in the field, there would be a need to improve the quality of future, entry-level employees as well as current employees of public aviation agencies.

The degree format suggested for the MPA-A includes the following components: (a) a core public administration curriculum (15 hours); (2) an aviation administration/decision-making curriculum (12 hours); (3) an elective course (3 hours); (4) a research report (6 hours); and (5) and internship (6 hours). This degree is expected to be used by graduates to gain employment in such agencies as the Federal Aviation Administration, state aeronautics agencies and local airport authorities.

Introduction

The purpose of this paper is to describe the need for an aviation-related public administration graduate degree. This paper was suggested by the on-going effort to establish such a degree at Southern Illinois University at Carbondale. This effort was begun in 1985 and is still underway. It was discovered early in the process that the University Aviation Association was ". . .not aware of any other graduate program of this type that is currently offered in the U.S." (Kiteley, November 20, 1985). This lack of other similar programs was of some concern as well as some reassurance to SIUC. The concern grew out of the fear that there was something wrong with the concept since no other institutions were offering an aviation related public administration master's degree. The reassurance was provided by the fact that there would be no overlap with an existing program. However, both the concern and reassurance pointed to the need for justification of this new degree for the aviation community.

In order to address the question of the need for a Master's in Public Administration in Aviation, or MPA(A), this paper will first describe the size of the public or government portion of the aviation industry. Next, the potential industry needs for, and uses of, such a degree will be explored. This will be followed by a discussion of the evolution of the MPA(A) concept. Then, a possible structure of an MPA(A) degree will be presented followed by conclusions and recommendations.

Size of the Aviation Industry Segment to be Served

One of the key arguments in favor of offering the Master's in Public Administration (Aviation) degree is the overall size of the public sector of the civilian aviation industry.

In a paper presented last year to the University Aviation Association, it was noted that 110,838* of the total of 2,107,190 aviation industry jobs in America were in government. The government figure represents 5.3 percent of the total (David A. NewMyer, UAA 1985 Proceedings, pp. 38-39). The following major categories of aviation-related civilian government employment are present in America (NewMyer, p. 43):

Federal Aviation Administration	45,877
National Aeronautics and Space Administration	33,000*
Other Federal Agencies	10,000
State Agencies	2,000
Local Governments	<u>20,000</u>
	110,873

*NASA figures not included in the original 1985 estimate.

With a combined total of 78,873 employees, the Federal Aviation Administration and the National Aeronautics and Space Administrations dominate civilian government aviation employment. This number represents 71.1 percent of the total. Local governments, which primarily own and operate airports, are the other major civilian aviation government category with 20,000 employees or 18.0 percent of the total.

Potential Aviation Industry Uses of the MPA(A)

There are three key ways in which the MPA(A) can be used to improve the performance of the government portion of aviation industry:

1. To improve the caliber of new, entry-level employees of public aviation agencies;
2. To improve the caliber of existing employees in public aviation agencies;
3. To meet the overall educational goals of an agency or a national group of aviation professionals.

While there is no particular support for the idea that a master's degree is needed for entry-level employment within the aviation industry, it is increasingly clear that a bachelor's degree is becoming a minimum credential for employment. This move toward requiring at least a bachelor's degree for employment will put more value on a master's degree.

Since 1983, the Federal Aviation Administration has been involved in the development of an Airway Science Curriculum. A key goal of this curriculum is to prepare future employees of the Federal Aviation Administration. As noted in 1983, the FAA's current work force is too focused on their occupational area:

The FAA is composed of a work force in which technical professions such as air traffic control and electronics technology predominate (Figure 1). Individuals in these occupations may possess limited educational backgrounds in that, for many, formal academic training concluded with high

school (Figure 2). As a consequence, some FAA employees are narrowly focused in their occupational area.

The breadth of knowledge or commitment to aviation may not extend beyond the task at hand. These limitations can have serious implications for employees' ability to perceive their role within the total system and to progress to supervisory and managerial positions with the necessary leadership and human relations skills.

Of equal concern is the adaptability of such employees to an increasingly technical and automated environment such as is envisioned within the NAS Plan. Over the next 20 years, FAA jobs will evolve from a preponderance of direct interface with operational equipment to an interface characterized by sophisticated automated controls and diagnostic devices. Thus, the skills and aptitudes to today's work force will need to be enhanced since an advanced skill level and skill mix for which there is no direct or immediate preparation will be required. Employees will have to possess the broad-knowledge base, perspective, and flexibility to accept and cope with this transition in the workplace.

(Federal Register, March 18, 1983, p. 11672)

In addition to this existing narrowness of the FAA work force, the FAA is also an agency with a fairly limited amount of formal education among its existing staff. In fact, only 15.4 percent of its employees, or 7,064 people, had bachelor's degrees in 1983.

(Federal Register, March 15, 1983, p. 11673)

Airway Science Curriculum graduate projections for the next three fiscal years (FY) indicate that 190 total graduates will be available in FY 1986, 381 in FY 1987 and 630 in FY 1988. This means that FAA hopes to improve upon its percentage of agency employees with bachelor's degrees by hiring some of these Airway Science graduates over the next two or three years. Such hiring of bachelor's degree holders will place further pressure on the agency to continue to support graduate education for its existing staff. Therefore, while a master's degree is not required for most entry-level positions in the FAA, a master's degree will increasingly become the key credential to be obtained by those who want to be promoted within the FAA once they are working there.

The Federal Aviation Administration has clearly stated its need for a "public administration" type of degree for the purpose of upgrading the education levels of FAA employees. 1983 figures noted that the FAA as a whole had only 2.2 percent of its employees, or 1,009 employees, had master's degrees (Federal Register, March 18, 1983, p. 11673). Another way to explain the need for graduate education for the FAA staff is to note that the FAA's Management Training School will continue to train large numbers of new management personnel throughout the 1980's and into the early 1990's (Donald Higgins, telephone conversation, May 26, 1986). This continuing internal management training effort of the FAA is evidence of the need to enhance the capability of FAA's management staff. If all of FAA's managers already had graduate degrees, the internal training needs of the FAA would move from the basic management focus to a more

advanced management focus. Hopefully this change in focus will increase the capability and productivity of the FAA staff.

Outside the FAA, the American Association of Airport Executives (AAAE) has adopted the bachelor's degree as the minimum academic standard of eligibility for their professional membership requirements. "Executive Candidates must be at least 21 years of age, of good moral character, and possess a four year college degree" (AAAE, Professional Membership Requirements, March 1984, p. 1). The AAAE professional membership requirements also mandate a written examination, the preparation of a thesis (or research paper) and an oral examination. Upon the successful completion of all of these requirements, the Executive Candidate becomes an "Accredited Airport Executive" or "AAAE." The similarity of this process to graduate education has encouraged many airport managers to pursue a master's degree because of the minimum additional effort involved beyond the accreditation program.

The pursuit of minimum educational goals of various public agencies has meant that master's degrees have been increasingly important as an educational credential for public agency employment in general. In the aviation industry such statements of educational goals have not been wide spread. The FAA made such a statement of future educational goals in 1983:

Over the next 20 years, FAA jobs will evolve from a preponderance of direct interface with operational equipment to an interface characterized by sophisticated automated controls and diagnostic services. Thus, the skills and aptitudes of today's work force will need to be enhanced since an advanced skill level and skill

mix for which there is no direct or immediate preparation will be required. Employees will have to possess the broad-knowledge base, perspective and flexibility to accept and cope with this transaction in the workplace. (Federal Register, March 18, 1983, p. 11672)

The FAA's managers were also mentioned in the plan:

Attention has also been focused on the FAA's supervisory and management training program. The mandatory aspects of initial training for individuals newly selected for such positions have been reinforced and the content reoriented to a greater emphasis on human relations, leadership, accountability rather than on procedural requirements. More funds have been allocated to the training function in general, and more managers and supervisors have been urged to enroll in supplemental management training. For other employees, the agency is recommending preparatory training courses to enhance potential for first-line supervisory positions. (Federal Register, March 18, 1983, p. 11673)

Since then, Administrator Helms requested a master's degree in 1983, it can be assumed that such a degree is still part of the educational goals of the FAA. As with many of the ideas from that time, there is great difficulty in obtaining FAA funds for such goals. Thus, little movement has been made toward meeting this goal. A state-level official agrees that this need for a master's degree in aviation is broad-based:

Most airport managers and government personnel were former military personnel who loved aviation and became managers and administrators because they were familiar with the 'territory.' Today, the airport manager, administrator, or government employee has to be versed in a variety of fields; not just snow removal, operations, etc.

Although AAAE began certification several years ago to increase the overall quality of airport managers, no real movement to upgrade the governmental employee qualifications was made. The Airway Science program was a step in the right direction, a master's program is a necessary complement. (James V. Bildilli, in a letter dated November 6, 1985)

An airport manager stated the need for the master's degree in a more historical perspective:

It is our understanding that the Political Science Department of Southern Illinois University is considering the development of a degree program entitled 'Masters of Public Affairs in Aviation.' This master's program could be beneficial to the airport management profession. Twenty years ago universities such as SIU assisted in the development of the Airport Management Profession by creating undergraduate degree programs in Airport and Aviation Management. It now seems appropriate to expand this academic involvement by establishing a Master's Program. . ." (James E. Johnson, A.A.E., in a letter dated November 1, 1985)

The Evolution of the Public Administration (Aviation) Concept

In 1983 then-Administrator of the Federal Aviation Administration J. Lynn Helms wrote to the nation's aviation-oriented post-secondary institutions to ask their support of a new aviation curriculum. This new curriculum, "Airway Science," was envisioned by Helms to have both an undergraduate facet and a graduate facet:

There are two other facets of the Airway Science Program which are equally important. These are bachelor's and master's degree programs for existing FAA employees. . .

The master's program will be similar to a master's in public administration on the human and financial side of management.

This statement was made in the context of an appeal for post-secondary aviation university and college assistance in dealing with the huge training and education burden associated with upgrading the National Airspace System (NAS). Since that original appeal, over 30 separate institutions have received approval from the University Aviation Association Airway Science Curriculum Committee to offer from one to five separate concentrations of the undergraduate Airway Science Curriculum. However, there has been limited response to the request for a new master's degree in public administration related to the FAA's needs. It should be noted, however that there are four institutions already providing aviation-related master's degrees in such areas as aviation safety, technology, and business administration.

One of the reasons for the lack of response is that there is little direct incentive for such a development in terms of FAA supported student placement, FAA financial assistance, or any other

institutional support mechanism. Although the FAA never really followed up on its original idea for a master's degree, faculty and administrative staff at Southern Illinois University at Carbondale have carried the idea forward as a major institutional, programmatic goal. The pursuit of this goal resulted in the unanimous approval of the "New and Expanded Program Request" for an Aviation Administration concentration in SIUC's existing Master's in Public Affairs by SIUC's Graduate Council. While only an initial step in the approval of the proposal as a new offering of the university, this initial approval did indicate that the graduate faculty of SIUC were convinced of the need for this program.

A Possible Structure of the MPA(A)

Based on the fact that an MPA program was already in place, SIUC has proposed to offer an MPA(A) in Illinois. The components of the proposed program are: 1) the core curriculum (15 credit hours), 2) the additional curriculum (12 credit hours), 3) an elective course (3 credit hours), 4) a research report (6 credit hours), and 5) an internship (6 credit hours). The description of and rationale for each component follow.

The core curriculum consists of the courses required of all MPA students. Its purpose is to provide students with the body of knowledge central to the study of public administration and to the work of public administrators. This curriculum has evolved with the MPA faculty's continuous study of the standards of the National Association of Schools of Public Affairs and Administration (NASPAA), the practices of other highly regarded MPA programs, and the values and needs of the community of practicing public administrators. The five courses in this curriculum are:

- (1) Seminar in Public Management
- (2) Public Budgeting and Fiscal Management
- (3) Public Personnel Management
- (4) Program Analysis and Evaluation
- (5) Organization Theory and Behavior

This core curriculum has been developed with special attention to NASPAA standards. These standards specify the theory and skills which must be imparted in all MPA programs. The core

curriculum of the SIUC MPA program was approved in the 1979-80 NASPAA review and has since been altered and enhanced (1984-85) to take account of new or modified standards. We are confident that this curriculum is in conformance with national standards and that it is indeed appropriate to all MPA students, regardless of concentration or career goals.

The additional curriculum consists of two components: 1) quantitative techniques for decision-making, and 2) aviation policy and administration. The student will be required to take one course in the first component and three in the second. The courses available (and from which the student may choose) in each component are:

(1) Decision Making

- (A) Operations Research; or,
- (B) Forecasting and Decision-Making Models; or,
- (C) Management Information Systems; or,
- (D) Policy Analysis; or,
- (E) Topical Seminar in Public Administration (Tools and Techniques).

(2) Aviation

- (A) Aviation Law and Regulation
- (B) Issues in Civil Aviation Policy
- (C) Advanced Airport Administration
- (D) Advanced Aviation Safety

The requirement of a course in "Quantitative Techniques for

Decision Making" rests on the assumption that aviation administrators, regardless of their specific tasks, are all concerned with the highly-complex work of air traffic and safety. This requires an understanding of computer-based data management, simulation, modeling, and analysis. In all five courses in this component, students will be allowed to use aviation data in individual projects.

The second component of this curriculum, "Aviation Policy and Administration," provides the substance of contemporary administration in the aviation field. All four courses will give attention to recent research and literature and important case analyses, and they will be structured in such a way as to require application of theory and skills required in core courses.

In both components of the additional curriculum, it is important that some choice among courses is allowed. This will enable students to choose courses best suited to their respective career goals and academic backgrounds.

This curriculum has been developed after study of the general NASPAA standards regarding concentrations and specializations, and the structure of the curriculum is consistent with these standards. There are no NASPAA standards specific to an MPA concentration in aviation administration. However, standards

specific to other concentrations (i.e., public works administration) have served as a guide.

Students not required to take an inferential statistics prerequisite will have allowance for one elective course within the 30-hour coursework requirement. This elective requirement may in many cases be fulfilled by taking the remaining aviation course in the additional curriculum. In other cases, however, the student's career goals may be best served by an additional course in an area such as administrative law, statistics, or operations research. In all instances, the choice must be made after consultation with the faculty advisor.

Each student will be required to conduct a research project and write a research report. This requirement is common to all MPA students. The major objective of the requirement is to provide students with a supervised research experience, in which it is expected that analytical and critical skills important to a public administration career will be sharpened. A three-person faculty committee will be appointed to supervise and evaluate the project, with the committee's chairman acting as the student's research advisor.

An attempt is made to accommodate the research report to the applied, terminal nature of the MPA degree and to the mid-career status of many MPA students. The report may be applied

and it may utilize methodologies such as the case study, participant observation, and comparative analysis, as well as the more theoretical and quantitative approaches commonly associated with contemporary social science research.

The standard requirement of the research report is that it be a systematic and scholarly study of some issue, problem, or concept in public administration. In the case of the Aviation Administration concentration, the expectation is that the student will research some administrative issue or problem in the aviation field.

The MPA program requires an oral examination of all students. The examination is scheduled upon completion of coursework and the research report. It is administered by the student's three-person committee and gives attention to both coursework and the research report. The student is especially expected to defend the methodology and findings of his or her report and to demonstrate understanding of the relationship between the report and relevant public administration theory and practices.

The MPA program has an internship component. Students admitted to the proposed program as pre-entry students will be required to serve an administrative internship in a public or quasi-public organization in the aviation field, unless they request

and are granted permission to substitute coursework.

An effort is made to place all MPA students in internships that are closely related to their respective career goals. For example, students committed to a city management career intern in one of the positions available in several cities. The attempt to match career goals with the internship is considered especially important in a formal program concentration like aviation administration. Interns would be placed only in an aviation organization, and a further attempt would be made to match the internship with more specific career goals (i.e., Airport Management).

MPA internships are for a period of either one semester (4.5 months) of full-time work or two semesters (9 months) of half-time work. The intern's stipend is negotiated with the host agency. An attempt is made to keep stipends consistent with the graduate assistant rate of the University.

Concluding Remarks

As the aviation industry continues to grow and evolve, changes in aviation education are required. One key change will be the addition of more graduate aviation education programs to meet the technological and managerial needs of the aviation industry and its work force. An integral part of this industry and its work force is the public sector, or government agency, presence. People working in this segment of the industry have less specific choices for aviation-related graduate education. With over 110,000 people working in public sector aviation, not counting the military it is apparent that there is an unmet need. The fact that the largest single employer included within the 110,000 employees (the Federal Aviation Administration) has asked for a master's degree in public administration to serve its needs is an indicator of need and interest in this area.

The fact that a university is now in the middle of attempting to propose the MPA(A) degree is an indicator of interest in responding to the FAA's request. It is also an attempt to meet an even broader aviation industry need including those at state and local government agencies as well as within private aviation businesses with extensive public agency contact.

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