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The academic side of applied aviation research: A commentary on Trafimow (2016)

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Trafimow's (2016) paper promoting a classification system to help aviation researchers realize the contribution of our work is, while not completely appropriate for our field, an insightful look at how someone in the academic community at large views aviation research. While I imagine this paper may be interpreted as a slight to researchers in the field of aviation and the quality of our work, I feel this is neither the intent of the paper nor that there is no valuable information we can glean from it. In fact, I appreciate the suggestion of a framework that helps me conceptualize the contribution of my research, though I also feel there are several aspects of the nature of the field of aviation research that may be unknown to outsiders. In this reaction paper, I will try to clarify some of the context in which aviation research is conducted, and I hope to establish equilibrium between the value of Trafimow's (2016) suggested taxonomy and a more accurate reality of the research environment than his paper suggests.

We should first consider that that the author is not from the field of aviation, and while this in itself does not invalidate his perspective or commentary, it is worth noting because aviation research is a unique field that combines academia with a traditionally technical skill set. And although we can certainly deduce that the author has, in his capacity as the editor of a journal, seen submissions related to aviation, we should be aware that this has probably influenced the kind of aviation research he has experienced. Absent examples of the kind of research topics the author has been exposed to, as an aviation researcher myself, I can reasonably suggest that Trafimow (2016) has most likely seen a sample that does not represent the body of research in the field. This is especially probable because as the editor of a journal in a heavily theory-based field, the author has most likely seen attempts to conform aviation research to the expectations of the field of psychology.

In fact, aviation is quite a young field both as a higher education discipline as well as an area of applied research. So, one might wonder, who exactly is conducting aviation research? The answer to this question is not likely to be known to academics from an outside field, yet has the greatest impact on the relevance of Trafimow's (2016) classification system to aviation research.

There are essentially three kinds of researchers in aviation, and this cross section of researchers is one of the defining qualities that makes the research in aviation unique. The first (group A) are ex-pilots, mechanics, dispatchers, managers, etc. (often military), who had long, fruitful careers in the aviation industry. For one reason or another, perhaps a change of interest, a desire to go back to school, or in some cases a medical disqualification, they returned to higher

education as adult post-industry students to study higher education degrees. These individuals have an intrinsic understanding of the aviation industry; they have experienced the stress of an engine failure personally or led an accident investigation team. Perhaps with greater relevance to Trafimow's (2016) field, I might say that these are also individuals who have developed close personal relationships in the cockpit, and been a part of the unique culture that forms around an environment of operating multimillion-dollar machines at high altitudes around the world on a daily basis. Their expertise is undeniable, and, critically important to the success of applied research in aviation, these individuals have something that groups B and C do not: unfettered access to the aviation industry. Although they are more likely to be less experienced in the traditional research process, their contribution to the aviation research community both in terms of their wealth of personal experience, and facilitation of accomplishing research itself, is immense.

The second kind of researcher (group B, which includes myself), are individuals with an aviation background that have technical skills in aviation, but who have little to no experience in the actual industry. The author may be surprised to find out that the majority of new aviation Ph.D.s are issued to graduates in their twenties who are perhaps pilot license holders, or airframe and powerplant (A&P) mechanics. Unlike other fields, aviation is at its core a technical industry, hence, a technical background is valued. I doubt this is commonly the case elsewhere, especially in social sciences (it is certainly undeniable that this quality is a double edged sword, and I will return to this notion later when I make comments about my own community of aviation researchers). Although members of group B have specific aviation expertise, we have also been highly exposed to the research process with heavy emphasis on methodology. Most members of this group also, depending on the requirements of their university, have a "minor" or "cognate" area outside of aviation. Most of these areas are traditional theory-rich research fields of social sciences, including psychology, communication, sociology, political science, and education.

The third kind of aviation researcher (group C) is an individual who was trained in another field of expertise, such as one of the cognates mentioned above. These individuals have defined themselves as "aviation researchers" not through their technical expertise or background, but through the application of their research. Stated more plainly, they "grow up" in a different field and for whatever reason, usually interest or opportunity, conduct substantial research in an aviation environment. These individuals are often highly trained in their original field of study, with a strong theoretical background, and are well versed in research methodology.

Trafimow (2016), as an outsider to aviation, may be aware of the possibility that these groups exist, but may be unaware of the composition of researchers in the field. In fact, the third group is by far the smallest population of researchers in aviation. Not only are they the smallest group, but they often have the least amount of credibility in the aviation community. For better or for worse, aviation is the kind of field that values industry and technical experience, even in academia.

It is actually the first group (A) that is arguably the largest, though this will soon change, as group B is most certainly the fastest growing. The past ten years have seen strong growth in the

development of post-graduate programs in aviation, which has further distinguished itself as an independent field of study.

Trafimow (2016), poses the question, “what is being applied to what?”, followed immediately by his suggested answer that it is indeed a theory being applied to solve some kind of practical problem. I think this answer is (understandably) biased to his field, and relies on the false assumption that most researchers in aviation are in Group C (in fact, the smallest group). It certainly does not resonate with me personally in all cases, and I doubt it resonates with the larger aviation research community. In fact, in the field of aviation, I think the more likely response to the question, “what is being applied to what?” would be, “methodology that I have learned in academia is being applied to problems/situations/processes that I understand intrinsically in aviation.”

Beyond who is conducting the research in aviation, consider the field itself with respect to academia. Aviation is a very young research environment that has had little to no theory development. I myself occasionally (but not always) use organizational communication theory to guide my research, and in the rare instances that theory makes an appearance beyond mention in a literature review of research in aviation, it is highly likely to be from the social sciences. But let us make note of one final consideration – the application aspect of aviation research. Aviation research is intended to very directly impact the aviation industry in a practical way: by improving training, pilot scheduling, an aircraft maintenance cycle, more appropriate medical restrictions, etc. Theory-based research is applicable to only a small part of the industry, which depends more on those with aviation expertise rather than academics. This industry summary and description of the categories and behaviors of the three types of aviation researchers has been building to a single point that I wish to make with respect to the taxonomy described by the target article: it overvalues the importance of theory to aviation research. More importantly, it suggests that research should be divided among the four categories, yet the vast majority of aviation research would fall into Category IV (whether it makes a genuine contribution is, of course, a different issue). So, with regard to the proposed taxonomy, I can say that a more helpful classification system would perhaps break down the fourth category into different aspects of theory-less contribution to the field. This would hone in on what most of aviation research is trying to accomplish and would be much more beneficial to aviation researchers realizing the value of their work.

With this in mind, I must admit, that Trafimow’s (2016) points regarding the potential aimlessness of our research are nonetheless valid. He offers us a set of categories to help us evaluate the contribution of our research, because his experience has seen research that fails to make a substantial contribution to science. Although I have described above why his experience may not be representative of the research at large and how his measurement of “contribution” may not be perfect, it would be foolish not to recognize his urge to make this suggestion. Even if, as I described above, this taxonomy is not the most useful for our field, surely not all of the research in aviation falls into Category IV. And, even if it did, is that our community’s goal? It would hardly be a balanced field. As aviation researchers, we must remember that we ought to be equally straddling the border of aviation and academia. But, due to the composition of

researchers and nature of the field, it seems that we are often sitting on the edge with our feet dangling in the pool of academia, rather than wading through it. I appreciate that Dr. Trafimow offered this taxonomy, even if it is not completely applicable to aviation.

There are insightful, fascinating theories from a multitude of areas, and many of them can still have direct practical significance if applied correctly to the field of aviation. Not only is it beneficial for us to avoid reinventing the wheel, but also it is our duty as academics to be fluent in the academic environment. That fluency includes a high level of awareness in the research process and familiarization with different theories and applied projects in other fields that may overlap with our own. We are the gatekeepers of a unique area that is high-risk, high-stress, intolerant of failure, cross-cultural, international, environmentally sensitive, weather-dependent, financially unstable, physically strenuous, and so much more. We can be doing more to reach out to the academic community and at least develop more collaborative research. It is in everyone's best interest and contributes to aviation being a credible, well-balanced field of research, one that is still result-driven that can directly impact the industry. This paper comes at the right time to the field of aviation research; if the description of researchers in aviation above did nothing else, it should at least have indicated that great change lies ahead in the aviation research community. We should be open to suggestions and criticism, and I encourage future discussion on the subject of how to better integrate our field with both the aviation industry and academia.

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Biography

Dr. Steven Leib is a Lecturer of Aviation at the University of South Australia in Adelaide, Australia. Originally from the United States, he holds an FAA commercial pilot certificate with instrument and multi-engine ratings and a doctorate from Purdue University. Dr. Leib also spent several years in mainland China conducting research and teaching in aviation, as well as studying Chinese culture and society. His research focus is primarily related to understanding the implementation of global aviation standards (safety, training, regulations, etc.) in multicultural contexts, and he typically conducts comparative studies regarding implementation differences and their relationship to culture.