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The Most Challenging Part? Selecting a Dissertation Topic for Aviation Research

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In the U.S., more than 50% of students who complete the coursework for a Ph.D. cannot complete the dissertation. Students fail to complete their dissertation, hence their Ph.D., for several reasons, but most of them are within their control. Many students start the dissertation process without a clear vision of a dissertation's actual purpose and what makes a successful dissertation. Specific technical areas, such as aviation, can be incredibly challenging to navigate during the Ph.D. process. The purpose of this study was twofold. First, we wanted to write a paper that describes several techniques to help Ph.D. students set realistic foundations to complete their Ph.D.; specifically, we focus on the mental shift, initial stages of the dissertation process, and selecting an appropriate dissertation topic. Second, through the use of a qualitative and phenomenological approach, we collected data from 12 active dissertation advising faculty members to summarize their insights on the dissertation process, specifically related to selecting a suitable dissertation topic. A discussion is provided for students to choose an appropriate dissertation chair (and committee), where to begin formulating a dissertation topic, assess the appropriateness of that topic, and recommend steps to complete before the prospectus writing stage. This paper aims to help provide students with a series of tasks to help them successfully identify and begin pursuing a dissertation topic.

Keywords: qualitative research; phenomenology; dissertation, topic selection, graduate education, aviation, research

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Within the last decade, aviation graduate education has continued to evolve and create new programs of study. Master's degrees offered in traditional resident format and online have proliferated university aviation programs. Still, until about ten years ago, a Doctor of Philosophy[1] program in Aviation was nonexistent. For those previously wishing to pursue a doctoral-level degree in aviation, this often meant needing to pursue related fields such as higher education leadership, public administration, technology, engineering, or some other peripherally related field. Now, there are several Ph.D. programs specifically designed for aviation, and one university has created a new category of a doctorate, a Doctor of Aviation (Av.D.).

As is typical with the growth of expanding disciplines, there are often some unexpected challenges. One of these areas identified is often seeing students struggle to select an adequate dissertation topic (Cone & Foster, 2010; Locke, Spirduso, & Silverman, 2007; Roberts, 2010). This challenge can arise in many areas. First, aviation and aviation research remains a very applied field. As a result, many students have industry experience, which drives their research interests (Bordens & Abbott, 2014; Leedy & Ormrod, 2016). However, this can pose challenges to incorporating strong theoretical underpinnings to their proposed topics. Second, as with many other industries, access to data and participants can pose challenges. Much of the aviation data is subject to proprietary restrictions, or contacting participants may be limited due to management or union limitations. Finally, and perhaps similar to other fields, students may wish to attempt and conduct dissertations on too large and cumbersome studies. While these ideas solve real-world problems, they present challenging issues from the onset, which will likely only worsen over time. At best, this results in a frustrating experience for the study or worse, it could develop into a fatal flaw which would require the student to start their dissertation over with a new topic.

This paper aims to guide both students and future dissertation chairs in the aviation field to select an ideal dissertation topic. In our experience mentoring dissertation students, we have not found a good resource which can be shared with students to help provide suggestions on how to conceptualize and develop not only topics which are good research topics but also good dissertation topics (and one does not automatically encapsulate the other as we will discuss later in the paper). We begin by using a qualitative method and a phenomenological approach to assess the perspectives of current dissertation advising faculty members to identify the common themes related to helping students successfully select a dissertation topic. Second, we discuss the mental shift moving from coursework to the dissertation and choosing a dissertation chair, while also considering the selection of the other members who will make up the dissertation committee. Next, background and techniques will be provided on how to help generate research topic areas; meeting program dissertation requirements; narrowing down the topic area; using a pre-proposal document to develop the topic further; and considering the tradeoffs that often occur when dealing with research.

[1] The term Ph.D. is used throughout the paper, but we feel these concepts can apply to many types of doctorate programs.

Methods

Participants

Thirteen participants responded to the questionnaire. One participant did not answer any questions after completing the digital consent form, resulting in 12 valid cases for data analysis (8 males and 4 females). The average age of participants was 54.00 (*SD* = 8.77) years old. Ten participants were Caucasian, 1 was Hispanic, and 1 was of Asian ethnicity. Participants worked at a range of universities based on size with the total student populations between 6,000 and 42,000 (*M* = 29,250, *SD* = 25,627, *MDN* = 24,500). Participants reported their doctoral programs consisted of an average of approximately 33 students, and 20% were resident only programs, 50% were online-only programs, and 30% were hybrid programs with both resident and online components. Lastly, participants reported they had chaired, on average, 3.92 (*SD* = 3.94) dissertation students and served as committee members on 11.08 (*SD* = 13.28) dissertations.

Materials and Procedure

Participants were recruited through an email sent out by the University Aviation Association. The email contained a link to the questionnaire, which was hosted by Google Forms ®. After signing a digital consent form, participants were asked a series of open-ended questions regarding their perspectives on serving as a dissertation chair in aviation higher education. A list of these questions can be found in Appendix A. Following these questions, participants were asked a series of demographic questions, debriefed, and dismissed.

Design

The study used a qualitative method and a phenomenological approach to collect data on the shared lived experiences of dissertation chairs in the aviation academic discipline.

Results

The findings of the study found some common themes which were identified by the researchers on how to help students select a topic for their dissertations. Two researchers reviewed the results independently, completed coding of the findings, and then compared their independent analysis to identify the common themes present in the results. A summary of the common themes follows.

Theme 1: Interest and Career Advancement

A common theme listed by participants related to helping students find their interests and developing a dissertation topic related to those areas. As stated by some participants:

> “Steer them into an area where they have intense interest or expertise already”
>
> “I ask them about their interests and ideas and based on that I try to point them in the right direction.”

A secondary area related to identifying areas which may help with student's career advancement and industry need, perhaps highlighting the applied nature of many advanced degrees in the aviation industry. Stated by some participants:

"Discussions; mainly based on career development"

"Students & instructor interest; industry need"

Theme 2: Narrow the Topic and Access to Data

After a topic area was selected, participants stressed the need to work with students to narrow the topic down into a meaningful and achievable research topic:

"Narrowing the focus"

"Narrowing the topic down and developing a research question with measurable elements"

"Students often think too broadly. They need to narrow the search."

Related to 'measurable elements' was the ability to gain access to the data:

"Failure to determine accessibility of data"

"…have a lot of vague ideas and have a hard time figuring out where to get the data…"

"…underestimate how difficult data collection can be."

Theme 3: Be a Guide/Mentor and Frequent Meetings

The participants stressed the need for the dissertation chair to serve as a guide and mentor for the student while working on their dissertations, along with frequent meetings to help keep the student on track:

"Be a constant advisor. Provide the student scaffolding as they move through the process."

"Guide them to resources, or certainly head them off before they track into a dead end"

"Weekly meetings for research directions and quality"

"…encouragement to stay on track"

Theme 4: Time Management and Perseverance

The last major theme identified by participants related to time management of the students and their perseverance to complete the dissertation:

"Energy, motivation, health, writing skills, attitude, time management, active learner"

"Perseverance; self-motivation; problem solving skills"

"Persistence and flexibility. Time Management. Writing skills"

"…time management skills and writing ability"

Discussion

A Shift in Thinking: Transitioning from Coursework to the Dissertation

As students move forward in their courses toward their dissertation, a mental shift must occur. Doctoral students have likely gained expertise as a practitioner in their field. During their

master's degree and the start of the doctoral degree, they gained expertise by taking different courses within their field of study. These courses are now complete.

Most students probably have a problem in mind that they want to research and solve through these experiences. Each student will now need to begin demonstrating this problem to be a worthy topic for dissertation research. However, there is a mental shift that must occur as they continue forward. As a doctoral learner, a student is aiming for the highest certification in their field. Through the classroom courses, each student gained a broad base of knowledge in their field; however, in the dissertation, students will select an area where they will become an expert. This expertise applies to all majors, whether you are studying business, education, psychology, engineering, or aviation.

This mental shift occurs because now each student needs to become an expert in an academic theoretical basis of their chosen topic. The emphasis here is on the word theory and not just the subject matter expertise related to a dissertation's proposed content. In accomplishing a Ph.D., each student moves away from being a practitioner/generalist to a theorist/expert. There will be a topic/problem/issue to investigate, but the theory will become the dominant part of your research. Put another way; a student needs to complete a dissertation based on an established theory; this is accomplished by investigating a problem within the theory's overall umbrella. For example, the theory of planned behavior, social learning theory, and Hofstede's cultural comparison has been used as a theoretical basis for successful dissertations.

We propose the following two points to consider when making the mental shift from the classroom to writing a dissertation.

Point #1: Know what has already been accomplished to know areas for future research. When students have not adequately read the literature before considering dissertation topics, they frequently come up with ideas that have already been investigated. So, students should begin reading often and early in your anticipated research areas to learn the existing literature.

Point #2: Each dissertation must add to or fill a void in the *theoretical* literature; in other words, each dissertation must make an original contribution to the body of knowledge. If the solution is already in the literature, this is not sufficient for a dissertation. Few, if any, Ph.D. programs would allow for a replication study as a dissertation. Search the literature early in the dissertation topic selection process to verify the gaps in the research field. This process continues throughout the dissertation as the literature review chapter is usually the longest in a dissertation for this reason.

Many sources can help achieve the two points listed above, such as the university's library system, Google Scholar, and research librarians. First, students should start with an area of interest. This recommendation was a common theme identified by participants in the study, along with working to narrow down the selected topic. Figure 1 provides a visual depiction of steps in narrowing down to a dissertation topic. Next, search the literature. The search needs to concentrate on peer-reviewed academic sources. Trade publications (such as magazines, books, etc.) may have useful information. Still, these publications have not been peer-reviewed by the scholarly community, so they are not ideal for a dissertation. The stronger the sources selected,

the stronger the case can be made for a proposed study. We suggest collecting peer-reviewed academic sources; the two best venues are the university's library system and Google Scholar. These platforms allow for selecting recent works (we recommend within the last five years) and limiting search returns to peer-reviewed sources. Every university also has librarians on staff, who are experts at searching and can assist with a dissertation topic. Remember, librarians do this all the time and are experts at making a student's life easier!

When identifying the problem statement, work to ensure that it is clear and concise. After reviewing the problem statement, the reader should be convinced that a problem exists, and finding a solution is necessary. The problem statement should also help identify the research question(s) that will be investigated in the dissertation and the associated hypotheses, if necessary, per the anticipated research design. For many studies, there are numerous research methods and designs that could be applied, so it is essential to consider these early to select the one that provides the best setup given the resources available to you for your study. After completing these steps, you should be very close to a defined dissertation topic.

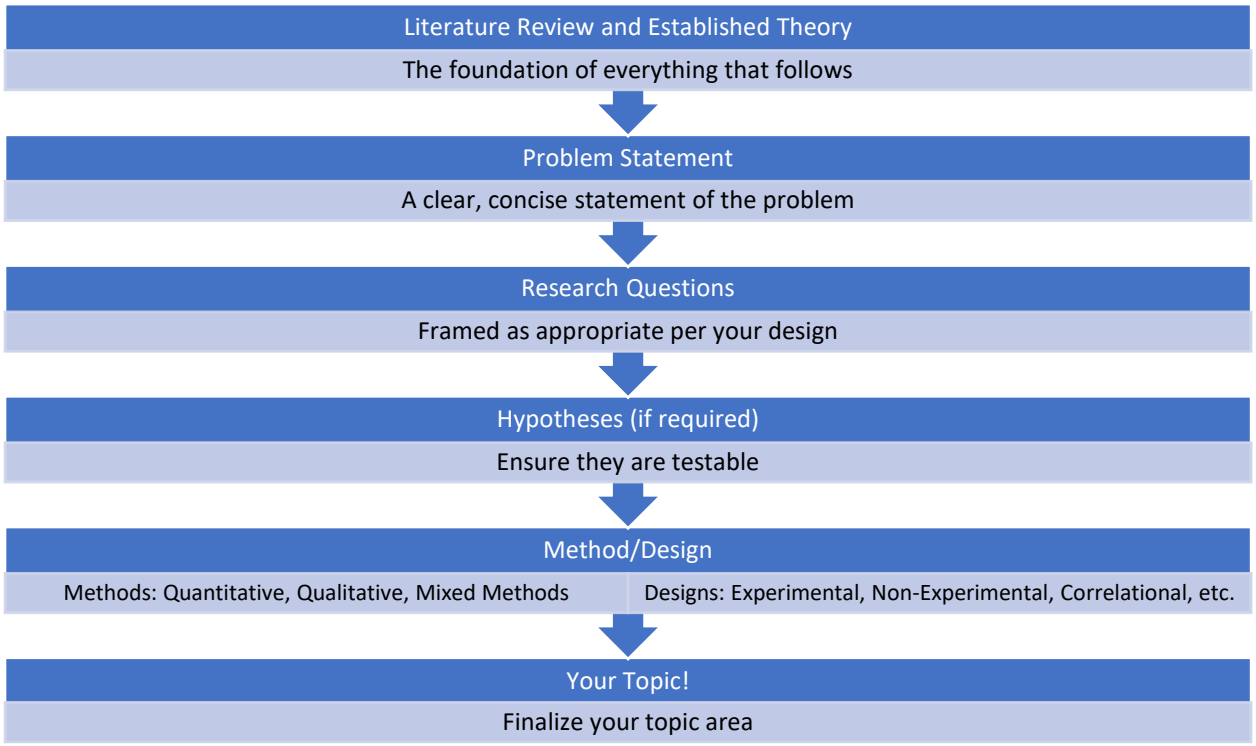

Figure 1. A visualized depiction of necessary steps to formulate a suitable research topic for the dissertation.

Notice all the steps that must be completed *before* arriving at your topic. This process can be a significant shift in thinking for students whether or not they entered the doctoral program with a problem in mind. Either way, the amount of background work that must go into formalizing the dissertation topic, and the actual design used to investigate the problem, occur after gathering information on previously conducted studies and possible theoretical groundings. By way of summary, there are a few crucial aspects to consider before you to proceed:

1. Do something new. Add to the original theory.
2. Look at previous studies to see what has been done, but do not merely attempt to replicate.
3. The work should be generalizable.
4. The student needs to transition into taking ownership of the dissertation. The chair and the committee can guide you, but the primary motivation for completing the dissertation must be intrinsic.
5. There will be setbacks and roadblocks, however, persevere and find a path forward. This may involve a series of steps and take many iterations. Successful students discover how and create a plan to do something unique. This is a great opportunity but requires a very different mindset. This is the shift that a doctoral learner needs to make to be successful.
6. There are excellent resources out there (advisors, committee members, other professors, etc.) for you to use.

This shift in thinking is critical. Without the change, a student may become one of the 50% of students nationwide who complete the coursework but cannot complete the dissertation (Cassuto, 2013).

Selecting a Dissertation Chair (and committee)

The selection of a dissertation chair can be varied depending on the type of Ph.D. program. In more traditional programs, a student may be employed by and working with a major professor for the entirety of their doctoral program, which could be between 3-5 years. This format is most commonly used in residential postgraduate programs. However, students may not select a dissertation chair in online and hybrid programs until multiple years into their program. Moreover, in an online environment, the student may never physically meet the instructor, possibly adding uncertainty.

Regardless of the format, students should be advised to consider a dissertation chair before applying to the program. Almost all faculty now have profile websites where students can review faculty member research interests and publications. Ideally, the student will identify a faculty member whose research interests are aligned with their own and seek out that individual as a possible dissertation chair (Cone & Foster, 2010). Students should play an active role in this process. Often, the earlier, the better both in managing faculty workload and establishing the research agenda early in a student's study plan.

Similarly, the student should consider other committee members who will add value to the dissertation (Locke, Spirduso, & Silverman, 2007). These faculty should be subject matter experts, have a desire to serve as a committee member, and have the time available to review documents, meetings, and consultations. Most dissertations take between 1-2 years, and a committee member should plan on this before accepting it. If the student intends to work through the summer term, it is also good to make this known to potential committee members at their recruitment.

A second challenge to selecting a dissertation chair can be the topic itself. When approached about being a dissertation chair, the first question a chair may pose to the student is,

"what is your research topic?" This aspect can create a challenging situation where it is unknown whether the topic or chair should be selected first. While we recognize that there is no definitive answer to this question, we pose two solutions. First, the earlier a student contacts a possible dissertation chair, the more time available to both of them to develop a topic. Furthermore, if the student gets involved with the dissertation chair's ongoing research agenda, topics may naturally flow as an extension of their work together. Second, we recommend that the student approach a dissertation chair with at least a research area or two, which would ideally fall within the chair's research specialization. From these research areas, the chair and the student could conceptualize and develop a more formal research topic, which could become the dissertation.

Where to Begin the Research Topic Generation Process?

Students have expressed a loss at how even to begin selecting a dissertation topic, which leads to challenges in determining the appropriate research design (Edmonds & Kennedy, 2017). While some students enter their doctoral programs with clear research goals in mind, there is probably an equal number of students who need help and guidance in identifying their research interests. Even for students who enter the program with a topic in mind, there is a high likelihood that this topic will, at a minimum, evolve throughout the early years in the program. As discussed in the previous section, working to identify a research chair early in the program can help students develop these interests (Locke, Spirduso, & Silverman, 2007).

There are a few other techniques that may be beneficial to students beginning this process. A first step in the dissertation topic generation is reading. Students need to invest time reading the current scholarly literature from the top journals in the field. This action does not mean reading a couple of articles but reviewing all articles over the last few years from all the field's journals. The point to emphasize is that the student should be reading *current* literature. Literature more than five years old may be outdated, especially considering that it may be another 3 to 5 years before a student's new dissertation is complete. This comprehensive review will help students see what current trends and topics are being investigated (Field & Hole, 2003) and what is being accepted in the form of publications in the field (Locke, Spirduso, & Silverman, 2007). In reviewing these articles, student's ideas may be triggered, methodologies may be learned, and even potential committee members could be identified. Of note, if a student identifies a research interest from an existing paper, a recommended best practice would be to reach out to the first or corresponding author of that paper to ensure they are not already conducting the follow-on or future research.

Students may wish to expand their reading and review similar fields as well. Aviation shares a lot in common with the medical field, and researchers have been known to conduct studies in both fields due to their similarity as high consequence industries. Similarly, aviation management and general business research areas may overlap. These related areas can be another source of helping students generate novel and original topics for their dissertations.

The Difference between a Good Research Topic and a Good Dissertation Topic

While it may seem counterinitiative, not all good research ideas may be good dissertations. We base this statement on the fact that a portion of the dissertation is just as much about showing the chair, committee, and program that you, as the student, understand how to conduct research properly as it is the actual topic that is researched. Similarly, not all great dissertation topics make for good research. Figure 2 depicts the interaction between these two areas. A topic that is not sound research nor a sound dissertation is relatively easy to discount. An example of this may be often referred to as a "solution without a problem." A topic like this fails to provide a valuable contribution to the scholarly literature nor meets the requirements of most, if not all, Ph.D. dissertation guides.

These studies may be ones that are very much related to a particular field or very applied. While this research may provide a valuable contribution, their inherent limitations may pose threats to the student being able to show the dissertation committee they know how to design and execute a research study properly. In these situations, we recommend the student still conduct the research topic, but after being awarded their Ph.D. Additionally, in these cases, the topic may not provide an original enough contribution, so while it would be a valuable contribution to the scholarly literature, it fails to satisfy a dissertation's requirements. Topics that fall into this section of the matrix may also lack the ability to satisfy program requirements to complete the dissertation.

The next case may be a scenario where the topic would be good for the dissertation, but not a good overall research study. This may be a case where the study is too narrow or while it meets the requirements of the dissertation guide; its value to the community would be limited, and its chance of producing a publishable deliverable would be unlikely. Some students, especially those working full-time while completing their doctorate, propose solving work-related problems as part of the dissertation. While there are certainly cases where this could be a good topic selection, there is the risk that the findings may not be relevant outside of the specific company. Additionally, students should be cautious when completing research with their employer as the student must be objective, and the findings may not always demonstrate favorable results toward the company.

The ideal topic is one that is both a great research topic and a great dissertation topic. These topics provide an original contribution to the field, meet the requirements of any dissertation guides, demonstrate to the committee that you know how to conduct research properly, and can be completed on time and within the program's constraints and available resources.

		Great Research Topic	
		Yes	No
Great Dissertation Topic	Yes	You may have something!	Likely not worth pursing
	No	Consider completing after your Ph.D.	Likely not worth pursing

Figure 2. The interaction between a great research topic and a great dissertation topic. Not all great research topics make for good dissertation topics nor are all great dissertation topics good research topics.

A *FAS* Topic Quick Check

After determining a possible great research topic and a great dissertation topic, we propose conducting a short FAS check. The FAS check stands for feasible, accessible, and scalable.

Feasible. The first quick check item is whether or not the study is feasible. Given the constraints that you must operate under, is it feasible to complete your study? Students may or may not be able to conduct studies on-site or in a lab environment; they may or may not have the funding or numerous other hurdles that must be cleared. All of these items should be considered at the very beginning of the topic generation. Often students may propose some type of experimental manipulation that would take an excessive amount of time. While the study may be valuable, studies in which a year or more of data collection may not be feasible to conduct due to demands and Ph.D. program time limits. This is not to discourage students from conducting meaningful research, but we strongly advise students to determine the idea's feasibility given their resources available. We also recommend students take however long they think a task will take, multiply that value by 3, and that is usually a closer number to the actual amount of time required to complete each task.

Accessible. Particularly within the aviation and other high consequence industries, gaining access to the data can be a challenge, so accessibility is the second component to the quick check. Data from companies may be protected, access to participants may be denied, and there are always risks when relying on others to provide or collect your data. We advise students to only conduct studies where they are "in control of their data." In other words, they can collect the data and get access at their discretion. Many publicly available databases may be useful sources and easily accessible. We have seen cases where students were promised access to data beforehand only to find out after writing the proposal that the data was not in the required format or the offer was rescinded, resulting in the student having to start completely over. In other cases, students were required to wait over one year to clear hurdles to gain access to the necessary data. If any of these scenarios present themselves at the onset of the topic generation, we direct students to consider a new topic. As a last point to consider, while the dissertation is one of the most important things to the student, it is likely one of the least important things to anyone in industry helping the student who is already busy with their typical day-to-day responsibilities. In

cases where the student insists on using protected data, at a minimum, we clearly explain the risks the student is undertaking, the understanding that if something changes the student will have to start over, and the requirement of a confirmation letter from the data owner stating the student can use the data.

Scalable. The last part of the quick check is whether or not the topic is scalable. Commonly, when students propose their dissertation topic, it is an incredibly large project, sometimes referred to as "saving the whales." While this initial topic may be too large to successfully complete as the dissertation, the topic can often be scaled down to a manageable size research idea that may be a great dissertation topic. Suppose the topic can be scaled to meet the feasibility and accessibility needs of the project. In that case, the student may be on an achievable topic. We recommend the student work to begin drafting a pre-prospectus outline to share with their dissertation chair to investigate the topic further.

A Pre-Prospectus Document

The last step we suggest before a student begins drafting their dissertation prospectus is to create and develop a pre-prospectus document. This pre-prospectus document can serve as a checklist of the key items required to complete the study. Items to address are the topic, problem statement, purpose statement, brief literature review, theoretical foundation (where applicable), research questions, hypotheses, methodology, design, population, sample, variables, data collection techniques, and planned data analysis. The crucial areas are the common faltering points for idea generation. If the topic passes the FAS check and the student can successfully clear all of these major areas in a pre-prospectus checklist, then the student may likely have a topic that will be a great research topic, a great dissertation topic, and they are ready to begin the development of the dissertation prospectus. The major advantage of using the FAS check and a pre-prospectus checklist is that these steps can be completed more efficiently than drafting a full dissertation prospectus. For example, students may prepare 2-3 pre-prospectus documents for review and consideration by the dissertation chair. After one is finalized, the student already has a head start completing the formal prospectus document, which usually follows the same key sections from the pre-prospectus document.

Final Thoughts and Summary

Choosing a dissertation topic requires a lot of thought but following time-tested guidelines may help the student be successful. This paper aimed to guide both students and dissertation chairs in the aviation field to select an ideal dissertation topic. A qualitative study collected insights and perspectives from faculty currently working with dissertation students, and four common themes provided suggestions to help students select a topic. The discussion offered techniques for choosing a topic area, narrowing the focus, and drafting a pre-prospectus guide.

Students are encouraged to remember a dissertation must (a) meet program requirements that are specific to each university program, (b) consider the tradeoffs between any competing objectives, and (c) give focus on the theoretical foundation early, especially when considering applied research studies. The early selection of a dissertation chair is an essential part of the process. Once the chair is selected, generating appropriate research topic areas and using a pre-

proposal document will help ensure a smoother transition into the dissertation process. Chairs suggested guiding students to their interest areas and frequent meetings to help students get started. Time management and perseverance were critical aspects noted by dissertation chairs to ensure students' successful completion.

References

Bordens, K. S., & Abbott, B. B. (2014). *Research design and methods: A process* approach (9th ed.). New York, NY: McGraw Hill Education.

Cassuto, L. (2013). Ph.D. attrition: How much is too much? *The Chronicle of Higher Education.* Retrieved on March 16, 2020 from: https://www.chronicle.com/article/PhD-Attrition-How-Much-Is/140045

Cone, J. D., & Foster, S. L. (2006). *Dissertations and theses from start to finish: Psychology and related fields* (2nd ed.). Washington, D.C.: American Psychological Association.

Edmonds, W. A. & Kennedy, T. D. (2017). *An applied guide to research designs: Quantitative, qualitative, and mixed methods* (2nd ed.). Thousand Oaks, CA: Sage.

Fields, A. & Hole, G. (2003). *How to design and report experiments.* Thousand Oaks, CA: Sage.

Leedy, P. D., & Ormrod, J. E. (2016). *Practical research: Planning and design* (11th ed.). New York, NY: Pearson.

Locke, L. F., Spirduso, W. W., & Silverman, S. (2007). *Proposals that work: A guide for planning dissertations and grant proposals* (5th ed.). Thousand Oaks, CA: Sage.

Roberts, C. (2010). *The dissertation journey: A practical and comprehensive guide to planning, writing, and defending your dissertation* (2nd ed.). Thousand Oaks, CA: Sage.

Appendix A – Open-Ended Questions

1. When working with dissertation students, how do you help them select a dissertation topic?
2. What are the greatest hurdles that you feel dissertation students have to overcome to select dissertation ideas?
3. In what way can the dissertation chair help the student navigate the dissertation process?
4. What skills have you noticed which have differentiated between students who successfully complete the dissertation and those who do not?
5. What other thoughts do you have about doctoral programs in the aviation field?