

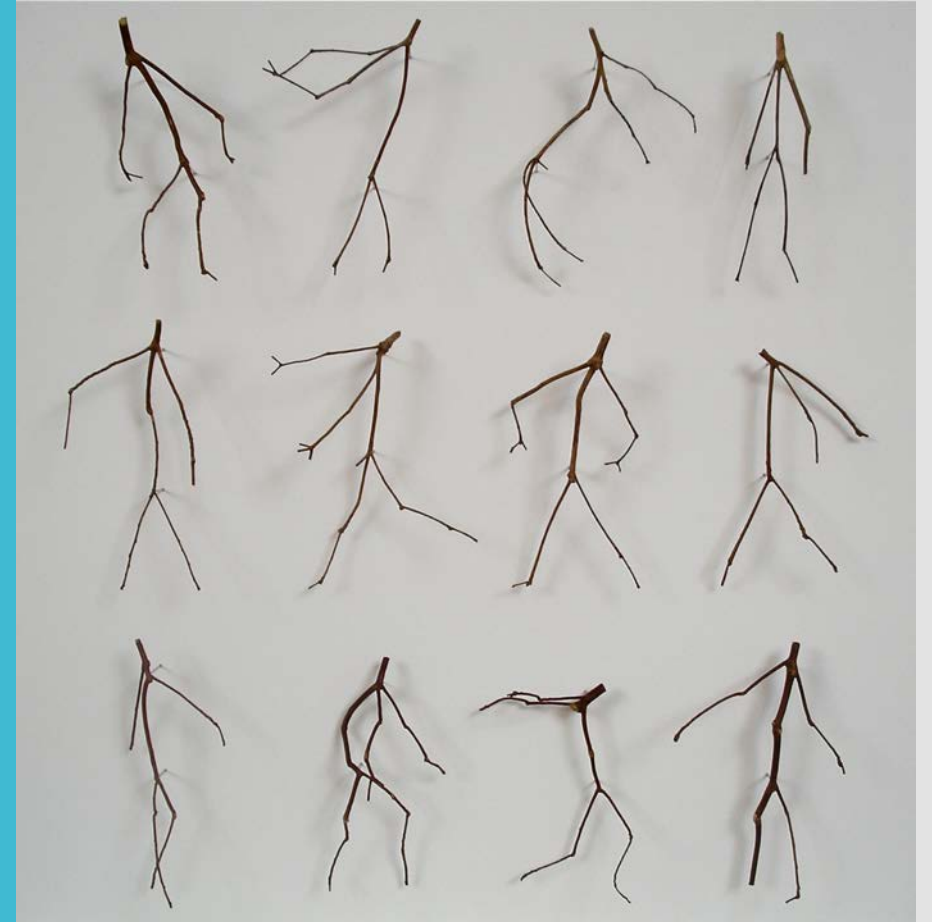
# TWIG

Technical Writing Initiative in Graphic Communications

PEARCE FACULTY FELLOWS

Dr. Carl Blue

Associate Professor in Graphic Communications



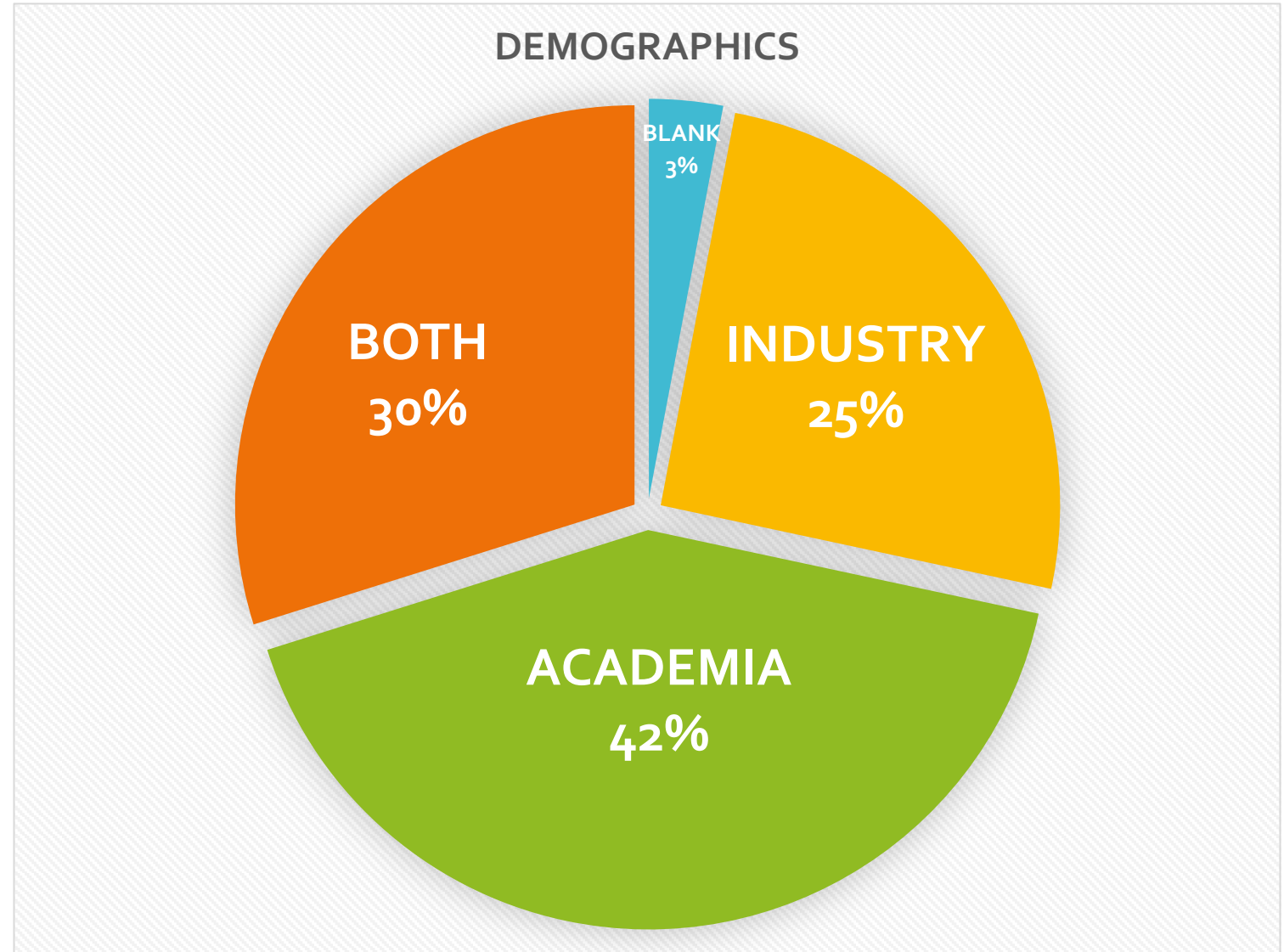
TWIG RESEARCH  
PROJECT:  
TECHNICAL WRITING  
INITIATIVE IN  
GRAPHIC  
COMMUNICATIONS  
DISCIPLINE FOR  
DEVELOPING  
COMPETENCY  
BASED LEARNING  
OBJECTIVES

ABSTRACT

- The TWIG, Technical Writing Initiative in Graphic Communications is an IRB-approved study designed to enhance technical writing education for students and instructors.
- This investigation integrates the Delphi method to obtain expert opinions and assess core competencies in technical writing.
- Research objectives include developing a supplemental resource for Graphic Communications based on survey results from over 120 academics and industry professionals.
- Ten topic areas were explored, such as terminologies, processes, proposals, and documentation.
- Participants assessed competencies' importance using a slider tool, with space for additional feedback.
- The outcome contributes to refining curricula, training initiatives, and professional growth opportunities in technical writing for Graphic Communications.

Respondents: 128  
Sample size: 67  
that completed  
survey.

- Sub-samples:
- Academics 42%
  - Industry 35%
  - Both 30%



# Goals of this research

## Goals of the Delphi Study:

1. Employ the Delphi method to gather expert opinions on core competencies in technical writing.
2. Achieve consensus on the essential skills and knowledge required for effective technical communication in Graphic Communications.
3. Utilize the consensus to develop a comprehensive supplemental resource for Graphic Communications majors and instructors.
4. Address ten key topic areas, including terminologies, processes, proposals, reports, abstracts, instructions, documentation, visuals, presentations, and business communications.
5. Facilitate a better understanding of the importance of various competencies within the technical writing domain.
6. Collect feedback on the identified competencies and provide space for experts to suggest additional competencies.
7. Enhance the quality of technical writing education for students and support instructors in their teaching efforts.
8. Foster a deeper connection between academia and industry, ensuring that the developed resource aligns with real-world expectations.
9. Contribute to the refinement of curricula, training programs, and professional development opportunities in technical writing.
10. Encourage the adoption of best practices and continuous improvement in technical writing education within Graphic Communications.

# Methodology and Findings

## Research Background

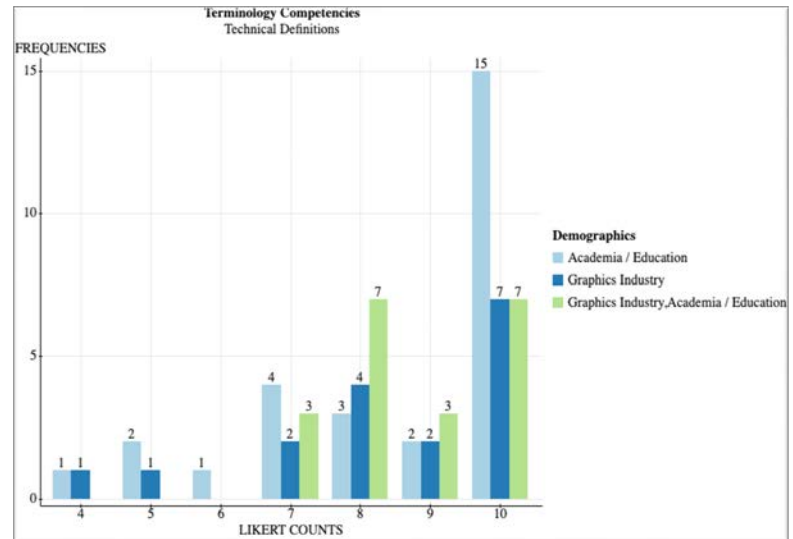
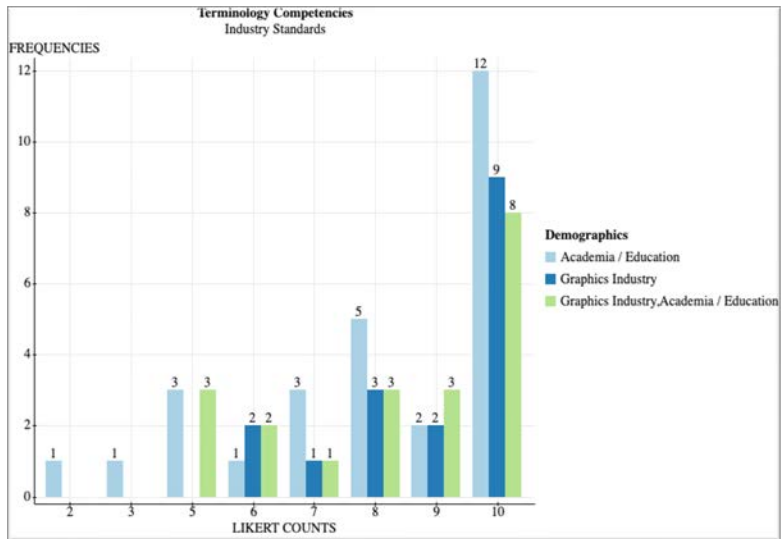
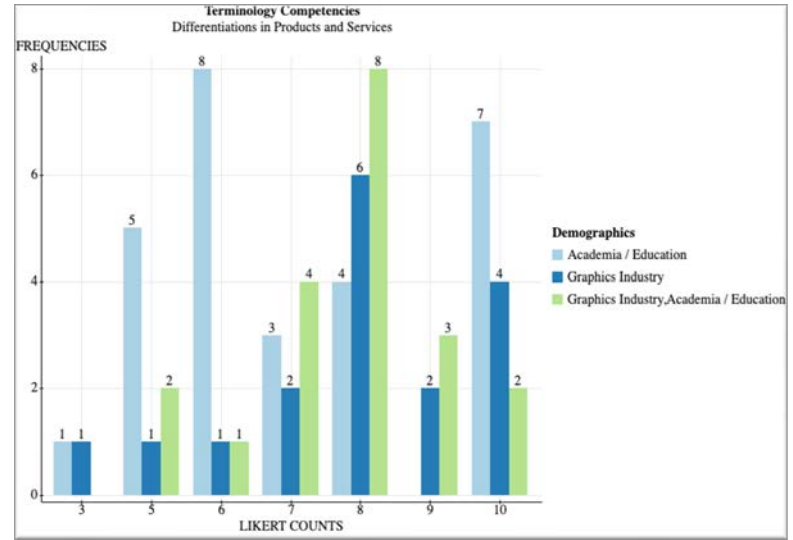
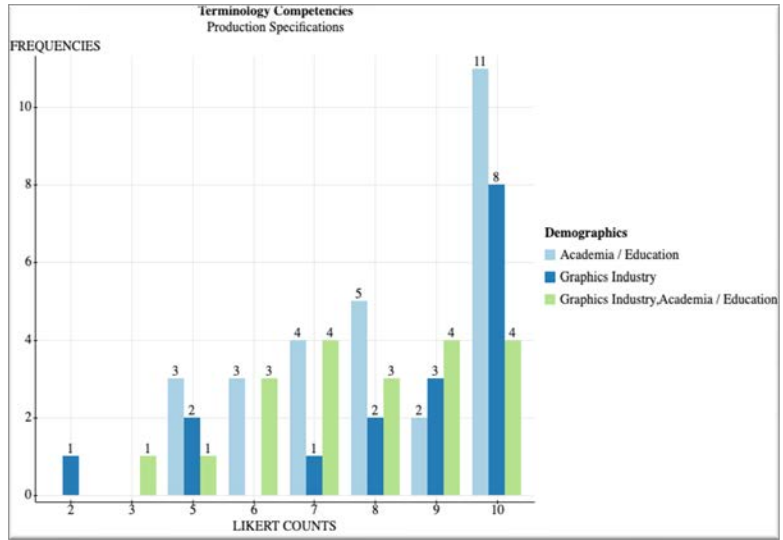
In the fall of 2021, I was awarded the Pearce Faculty Fellowship for the 2021-2022 academic year. The project that I am initiating is called TWIG: Technical Writing Initiative in Graphic Communications (GC). The need for developing this project stems from observing the scheduling and prerequisite of courses in the GC program of study. Students must complete the general education course ENGL 1030 English Comp before completing ENGL 3140 Technical Writing. The concern is that students lack an introduction to Technical Writing principles until reaching their upper-level classes. This project aims to develop a concise supplemental Technical Writing resource in CANVAS for lower-level GC Majors and instructors based on assembled competencies and best practices derived through a Delphi study of responses from academics and industry professionals in Graphic Communications.

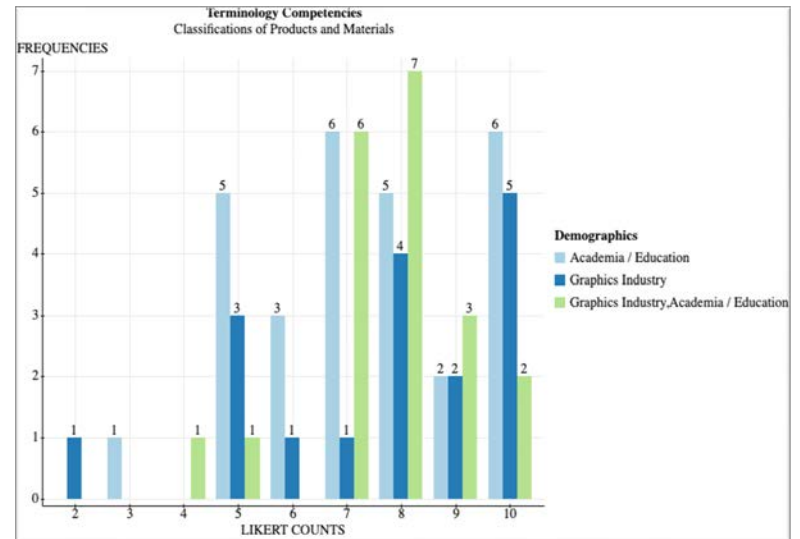
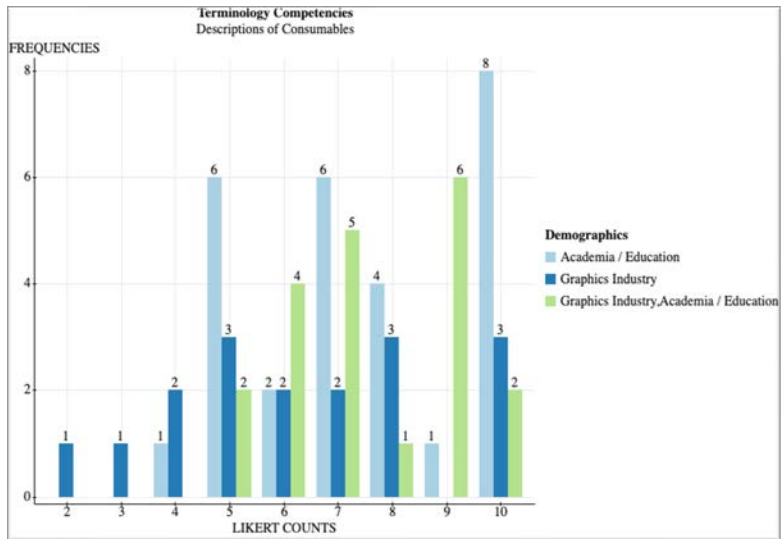
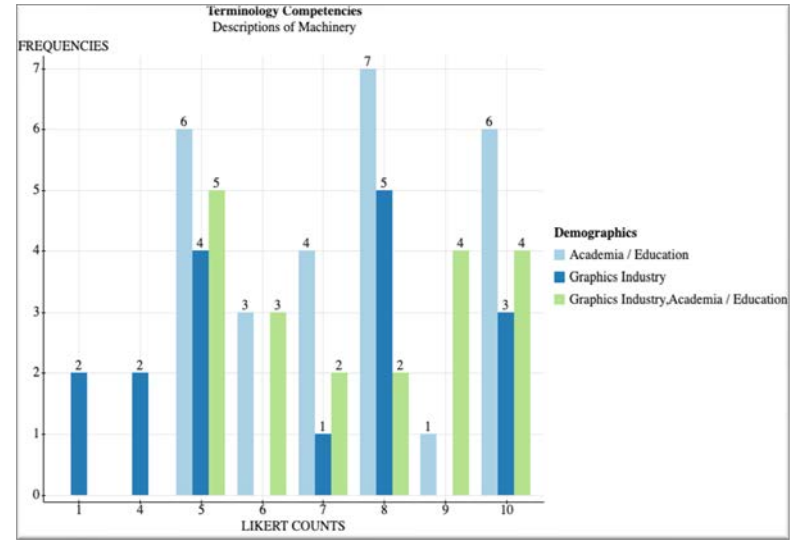
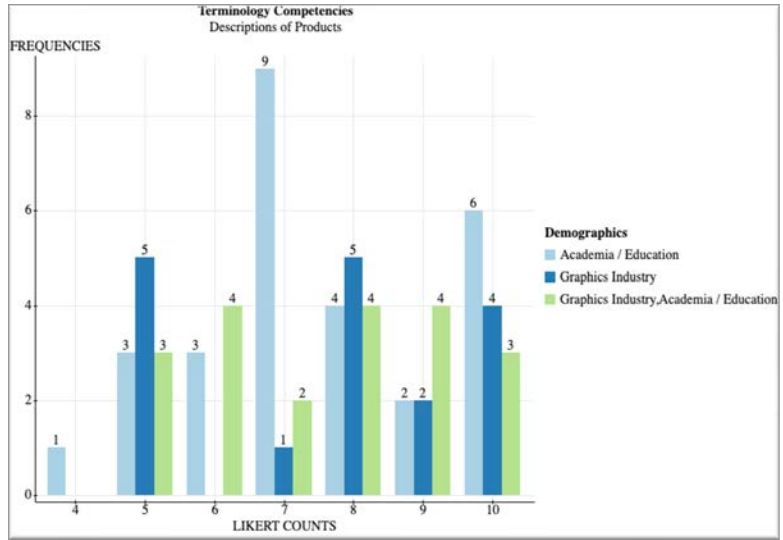
## Methodology

1. Fall 2021, Develop a Delphi survey with information gathered from available comparable course materials, research papers, and established textbook materials on developing a Technical Writing course.
2. Work with Clemson's Institutional Review Board for approval and distribution to academic and industry professionals for the collection of data.
3. Develop a Qualtrics based instrument for data collection following available support materials for creating a data collection resource that meets the best practices for deliverability and ease of use.
4. Upon completion of the initial data collection in the fall of 2022 of technical competencies, the next goal is to review the gathered information and organize the data into a resource for the next steps in the goals of a Delphic study.
5. Present findings.

TERMINOLOGIES in Graphic Communications (GC) includes a vast body of vocabulary used within technical applications unique to GC. Listed are several competencies for the topic of "Terminologies".

	Mean	Median	Mode	STDEV	Below 5 (%)	Above 6 (%)	Blank (%)
Technical Definitions	9	9	10	1.63	7%	93%	0%
Classifications of Products and Materials	8	8	8	1.89	18%	82%	0%
Differentiations in Products and Services	7	8	8	1.80	15%	85%	0%
Production Specifications	8	8	10	1.96	12%	87%	1%
Industry Standards	8	9	10	1.97	12%	88%	0%
Descriptions of Machinery	7	7	5	2.18	28%	70%	1%
Descriptions of Products	8	8	7	1.76	18%	82%	0%
Descriptions of Consumables	7	7	7	2.04	24%	76%	0%

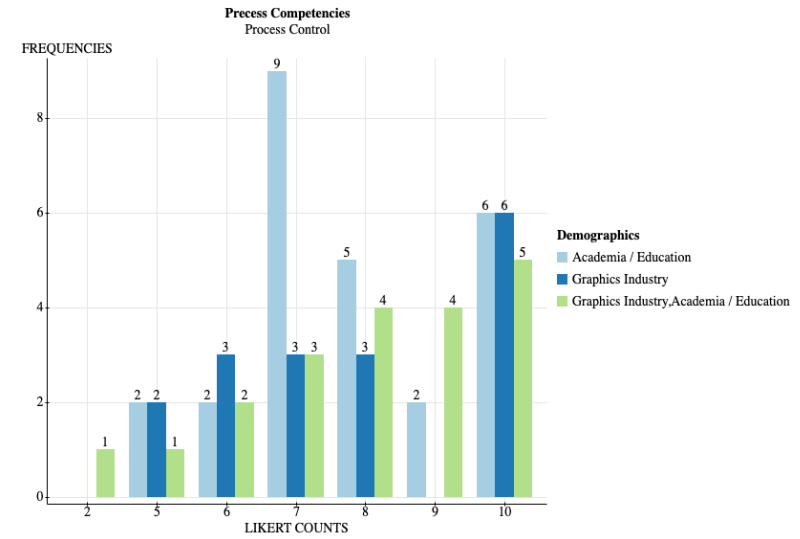
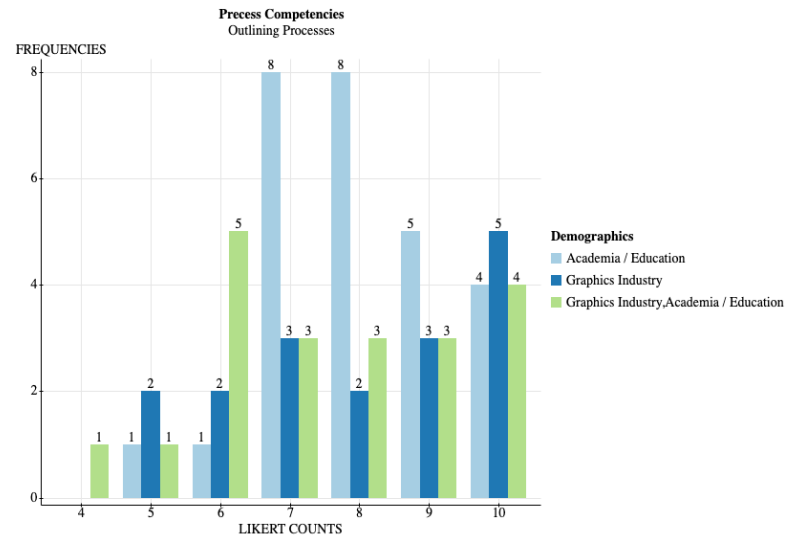
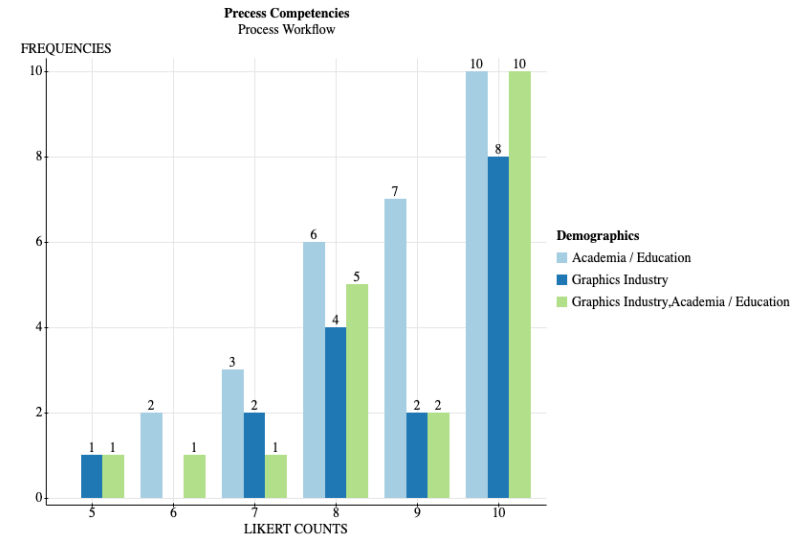
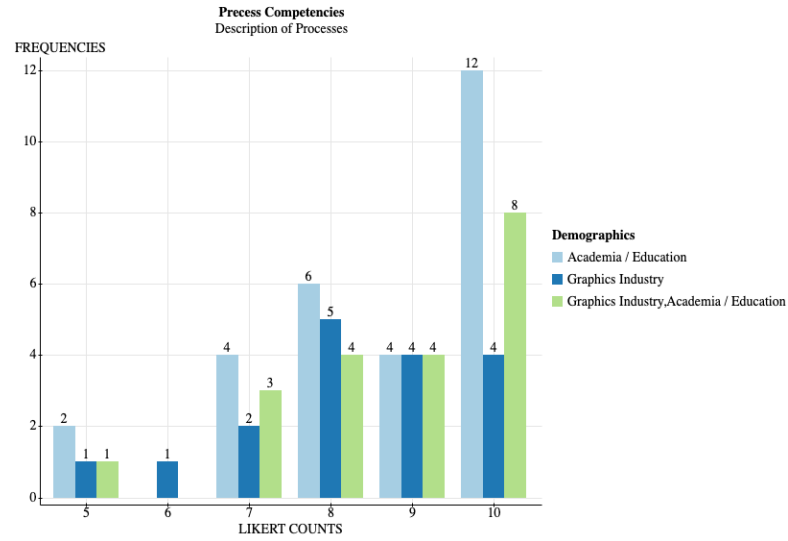




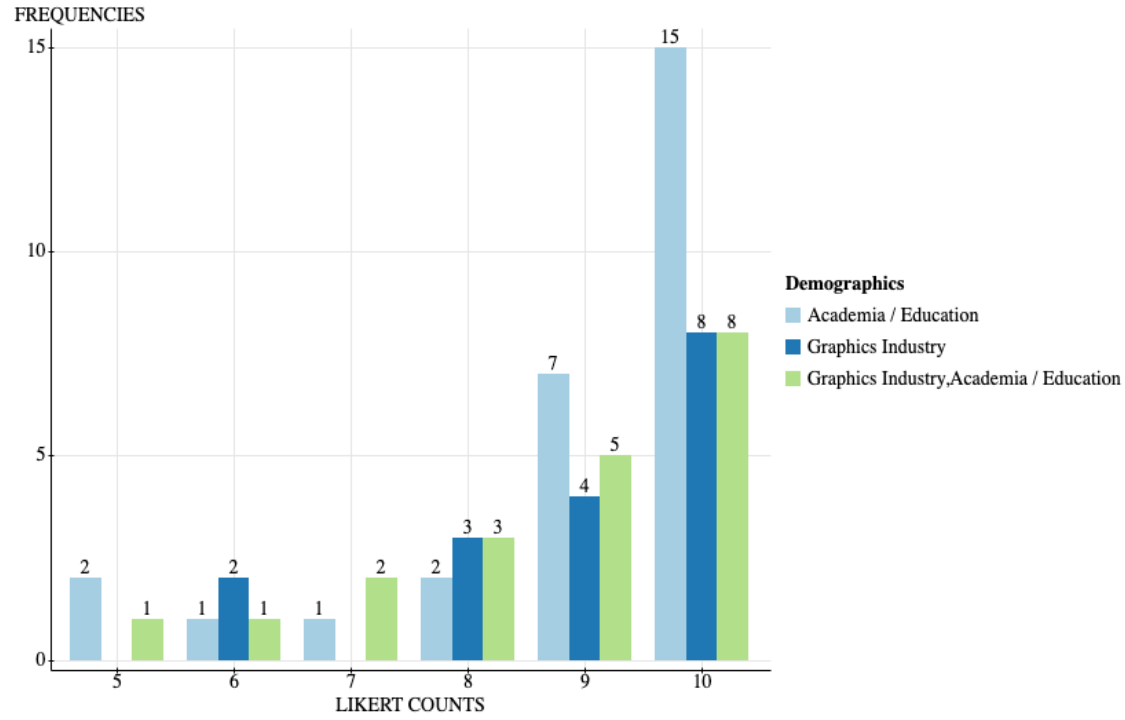


**PROCESSES** are a series of actions or steps taken to achieve a particular result. In Graphic Communications (GC) students learn processes to perform a series of mechanical or digital operations on equipment and devices to change or preserve a desired outcome. Listed are several competencies for the topic of "Processes".

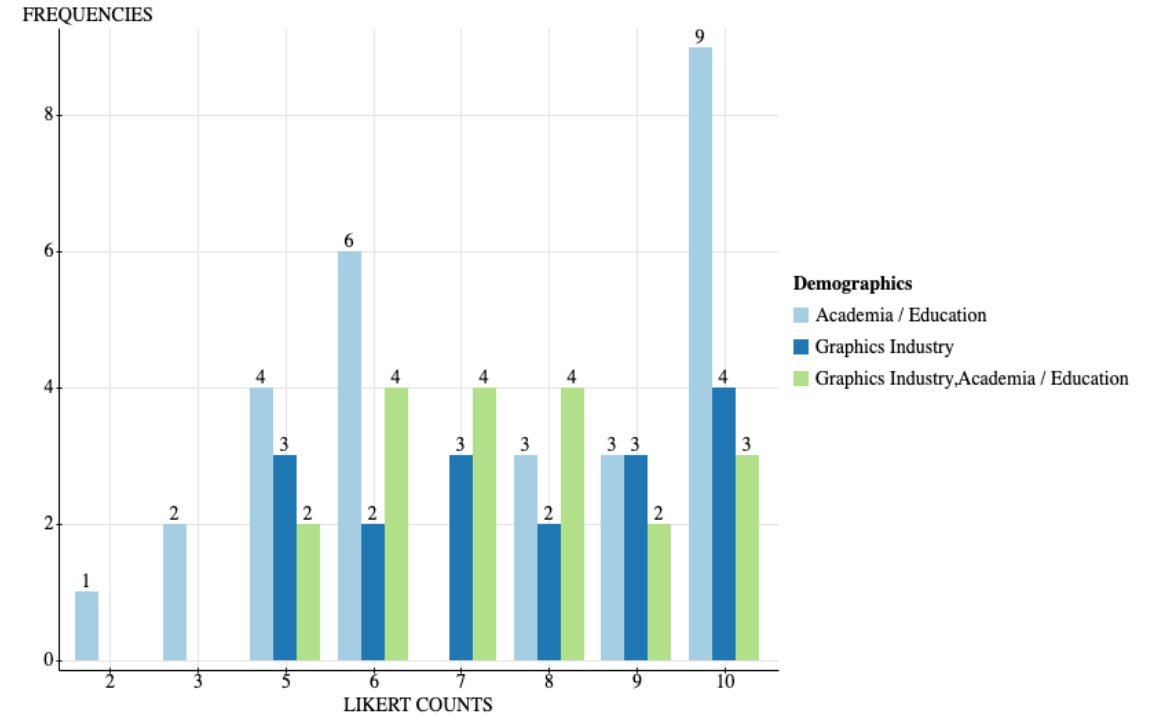
	Mean	Median	Mode	STDEV	Below 5 (%)	Above 6 (%)	Blank (%)
Descriptions of Processes	9	9	10	1.44	6%	84%	0%
Outlining Processes	8	8	8	1.57	7%	91%	1%
Process Workflow	9	9	10	1.37	3%	97%	0%
Process Control	8	8	10	1.76	9%	88%	3%
Ideation Process	8	8	10	2.07	18%	81%	1%
Problem Solving Process	9	9	10	1.45	4%	96%	0%



**Process Competencies**  
Problem Solving Process

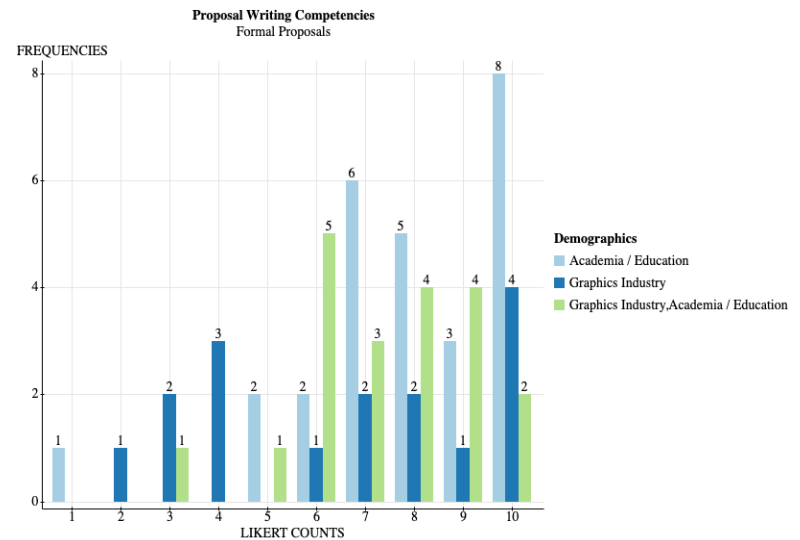
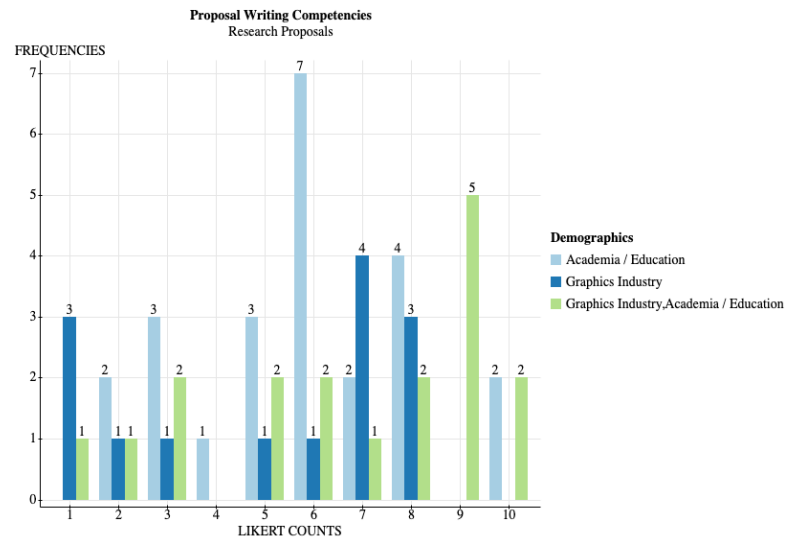
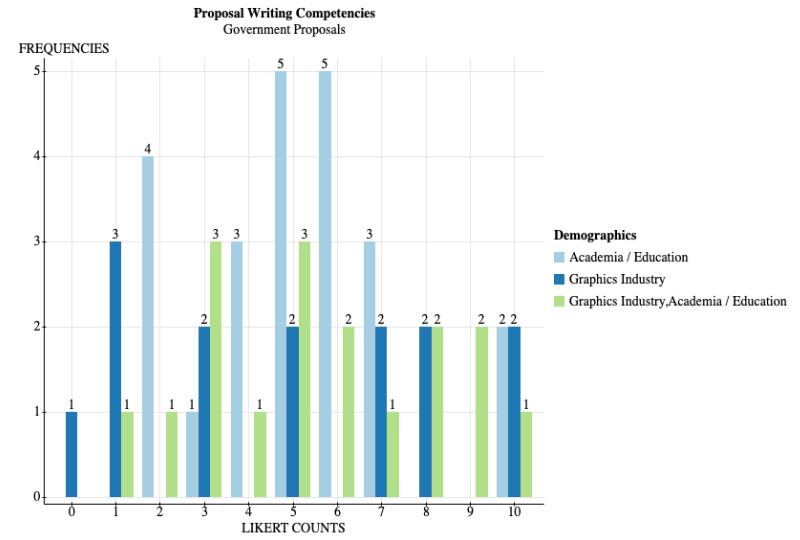
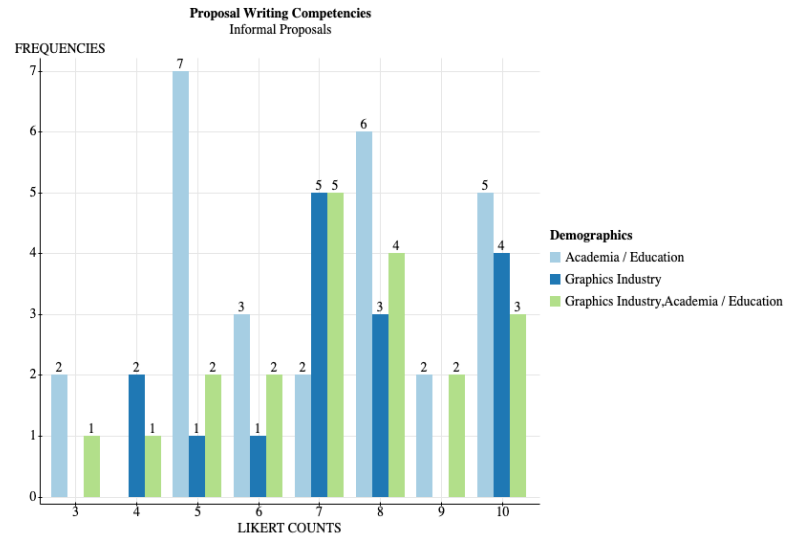


**Process Competencies**  
Ideation Process

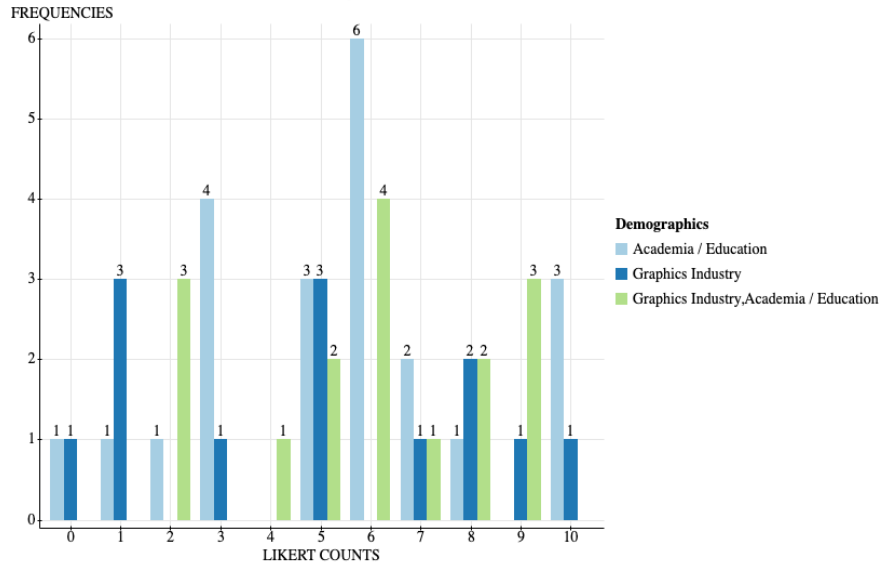


**PROPOSALS** are plans or suggestions, especially a formal or written ones are compiled and developed and put forward for consideration or discussion by others. Listed are several competencies for writing "Proposals".

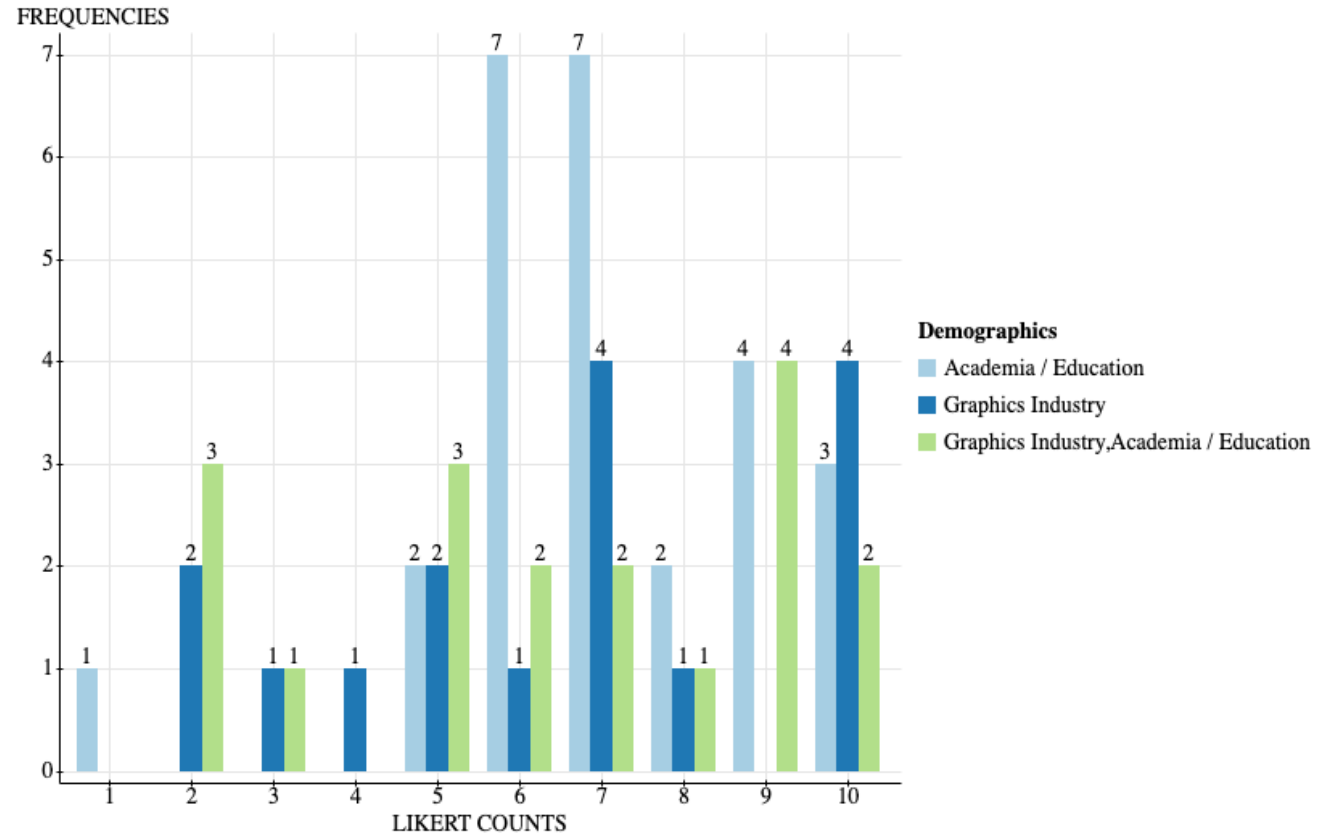
	Mean	Median	Mode	STDEV	Below 5 (%)	Above 6 (%)	Blank (%)
Formal Proposals	7	8	10	2.25	16%	81%	3%
Informal Proposals	7	7	8	2.03	24%	73%	3%
Governmental Proposals	5	5	5	2.73	45%	39%	16%
Research Proposals	6	6	6	2.67	31%	55%	13%
Cover Letters	8	8	10	2.27	12%	81%	7%
Team Writing	7	7	7	2.45	24%	69%	7%
Grant Writing	5	6	5	2.78	37%	42%	21%



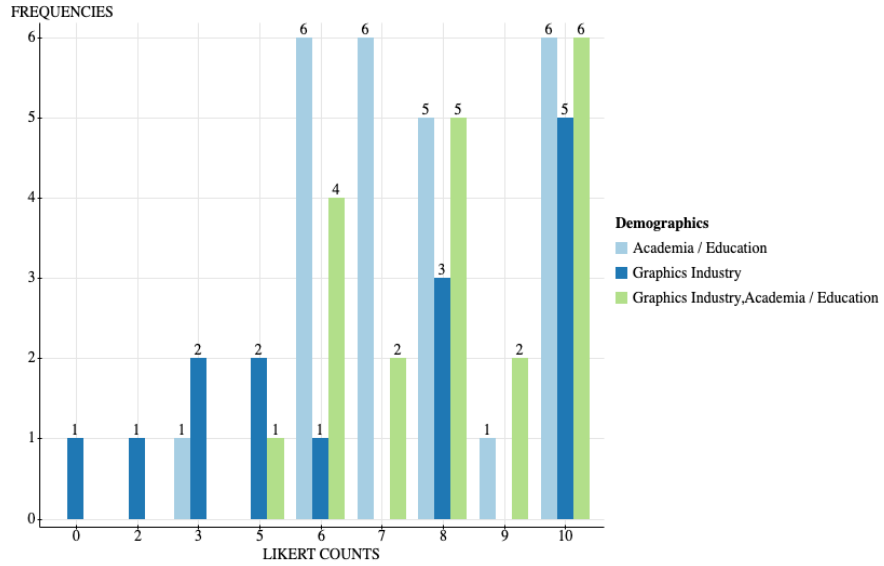
**Proposal Writing Competencies**  
Grant Writing



**Proposal Writing Competencies**  
Team Writing

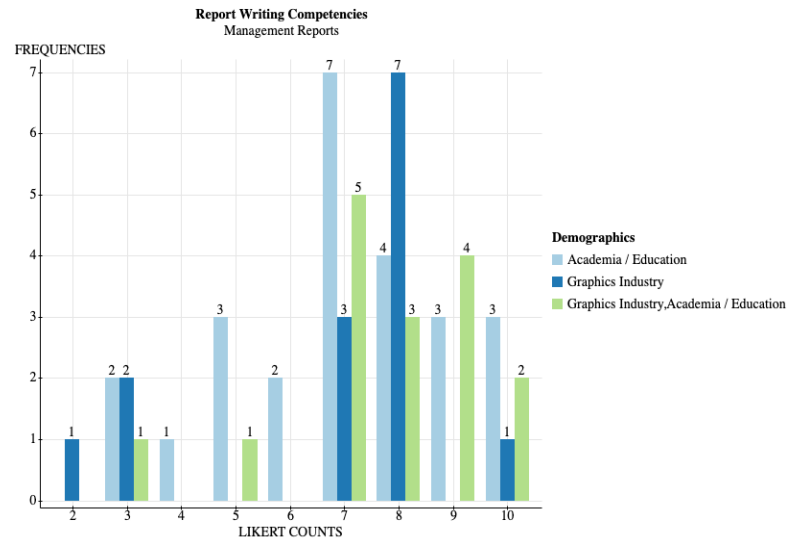
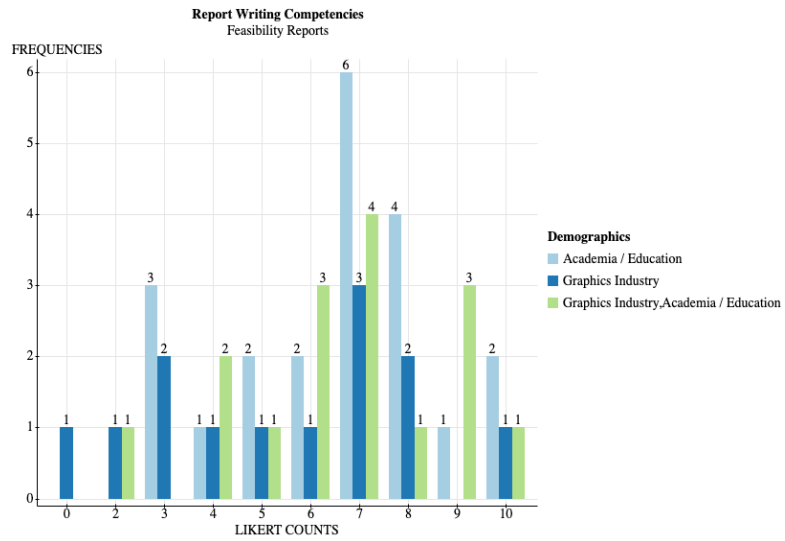
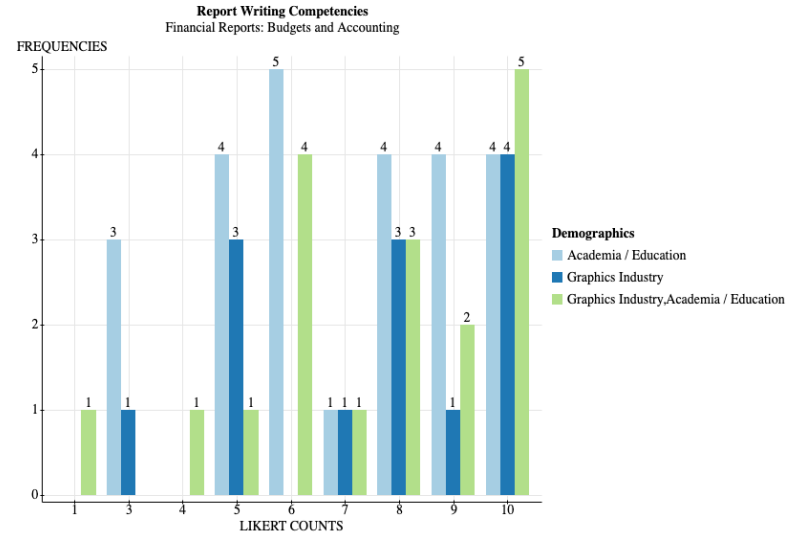
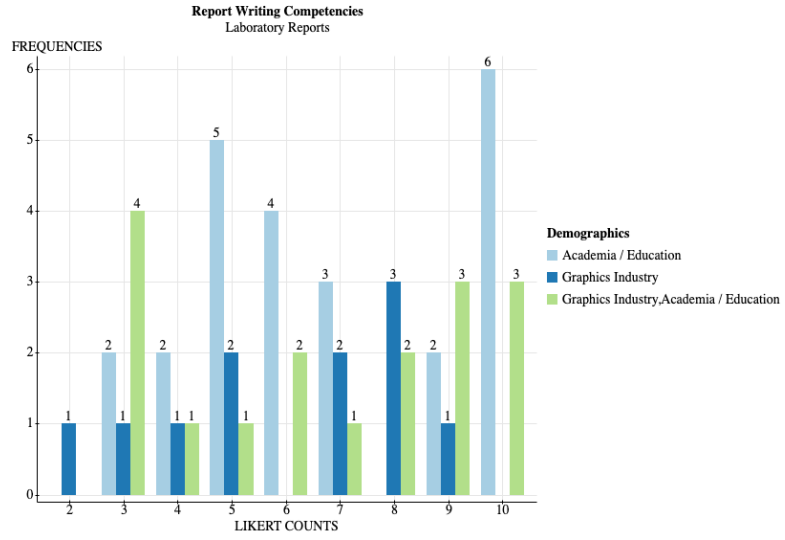


**Proposal Writing Competencies**  
Cover Letters

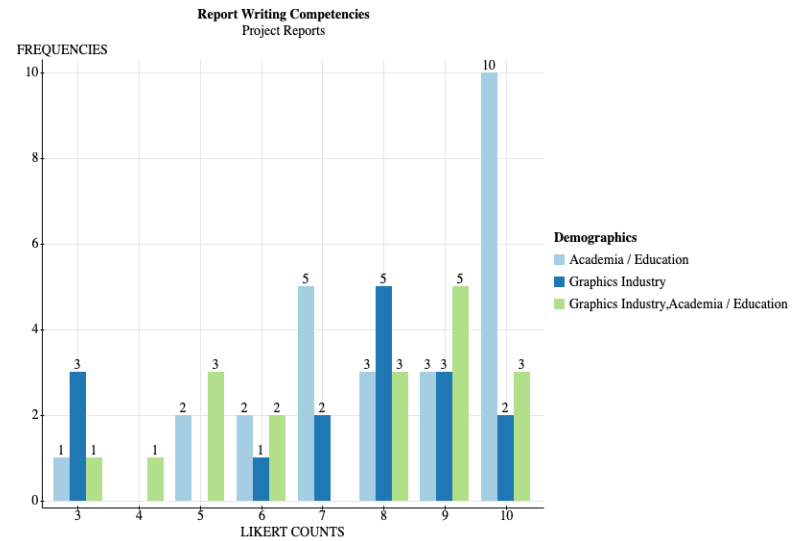
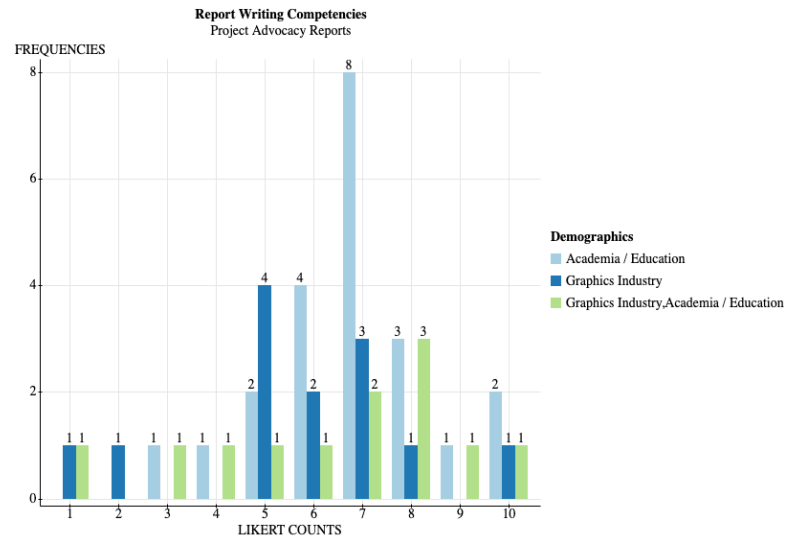
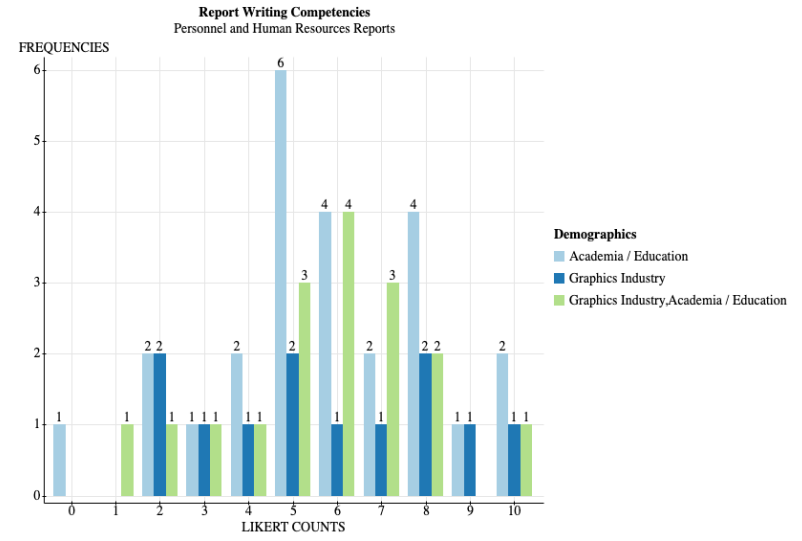
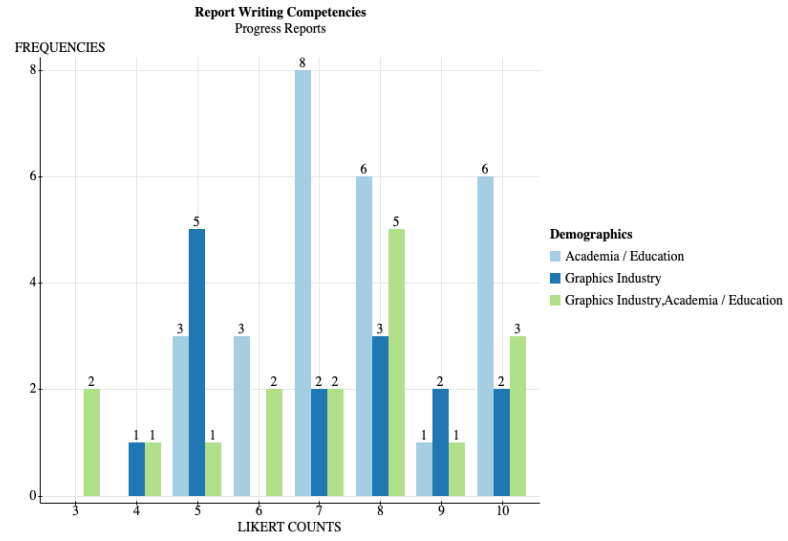


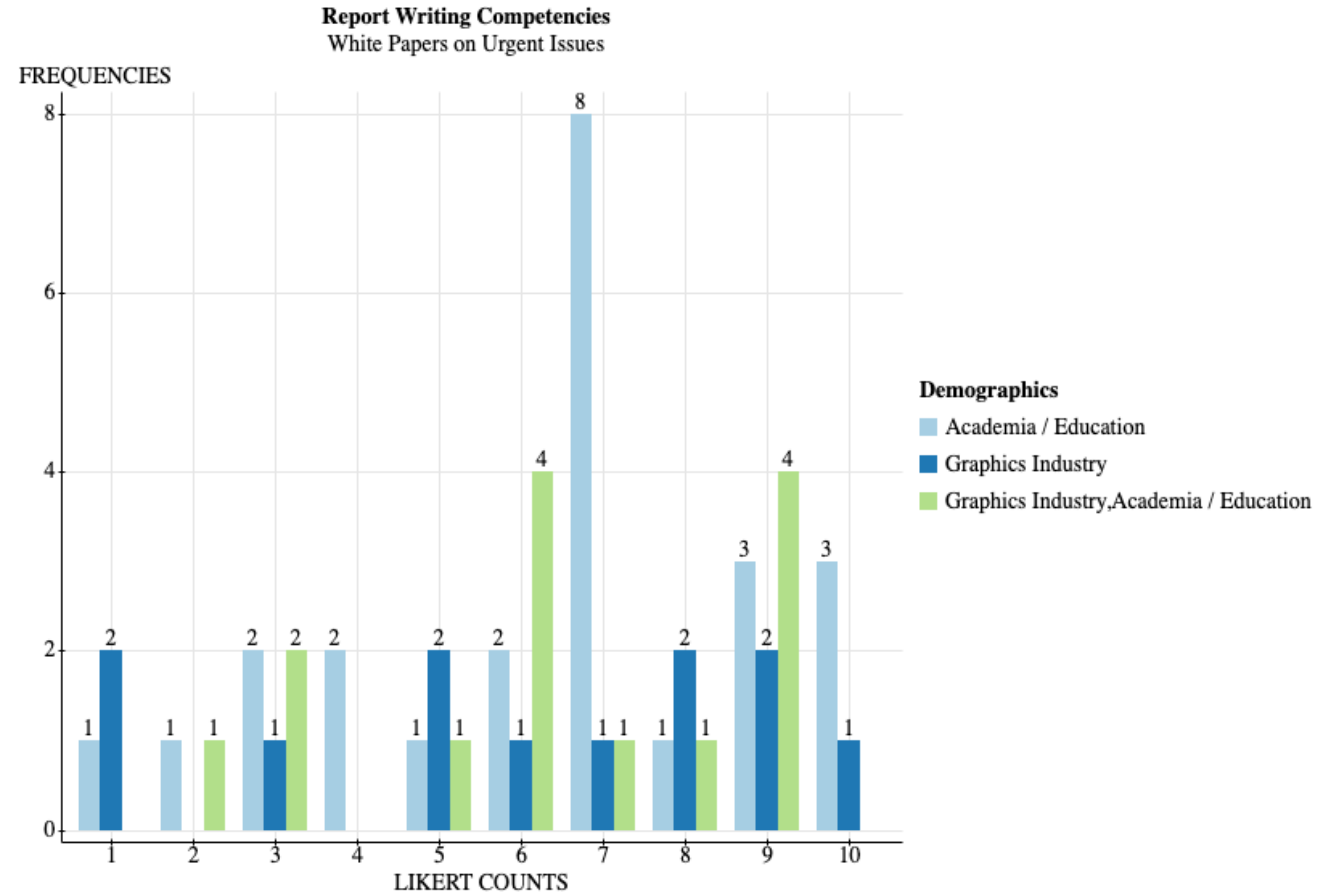
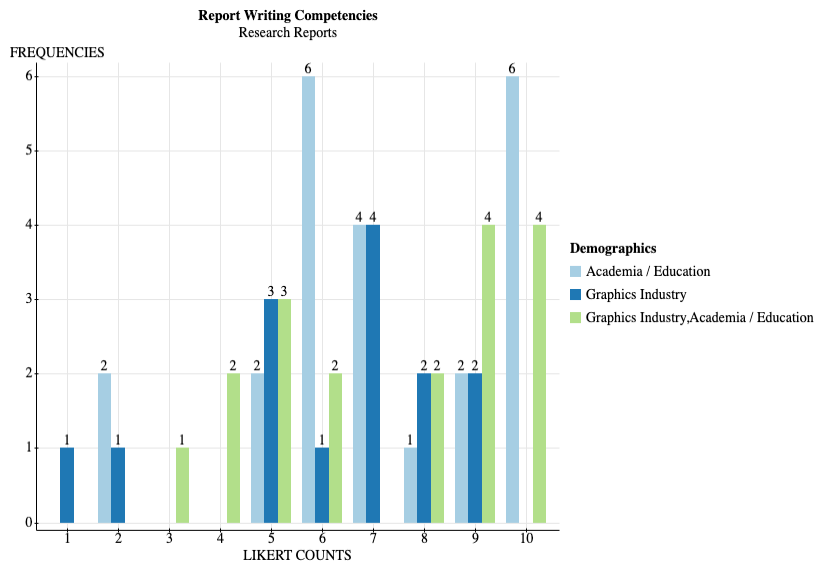
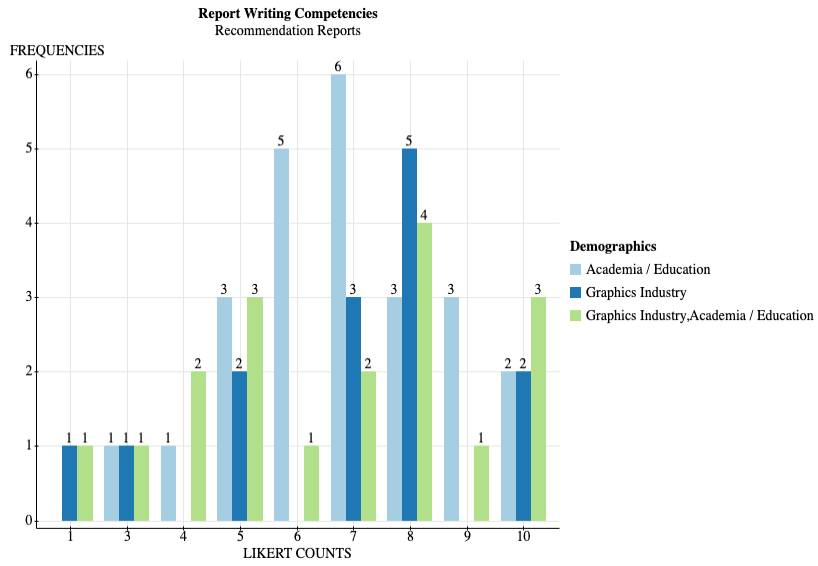
**REPORTS** give a spoken or written account of something one has observed, heard, done, or investigated. Present oneself formally as having arrived at a particular place or as ready to do something. Reports are an account given of a particular matter, especially in the form of an official document, after thorough investigation or consideration by an appointed person or body. A piece of information unsupported by firm evidence that the speaker feels may or may not be accurate. Listed are several competencies for writing "Reports".

	Mean	Mode	Median	Below 5 (%)	Above 6 (%)	Blank (%)
Feasibility Reports	6	7	7	24%	54%	22%
Financial Reports: Budgets and Accounting	7	10	8	21%	66%	13%
Laboratory Reports	7	10	7	30%	51%	19%
Management Reports	7	7	8	16%	69%	15%
Personnel and Human Resources Reports	6	5	6	39%	45%	16%
Progress Reports	7	8	8	19%	72%	9%
Project Advocacy Reports	6	7	7	21%	52%	27%
Project Reports	8	10	8	16%	76%	7%
Recommendation Reports	7	8	7	24%	63%	13%
Research Reports	7	10	7	22%	61%	16%
White Papers on Urgent Issues	6	7	7	24%	54%	22%



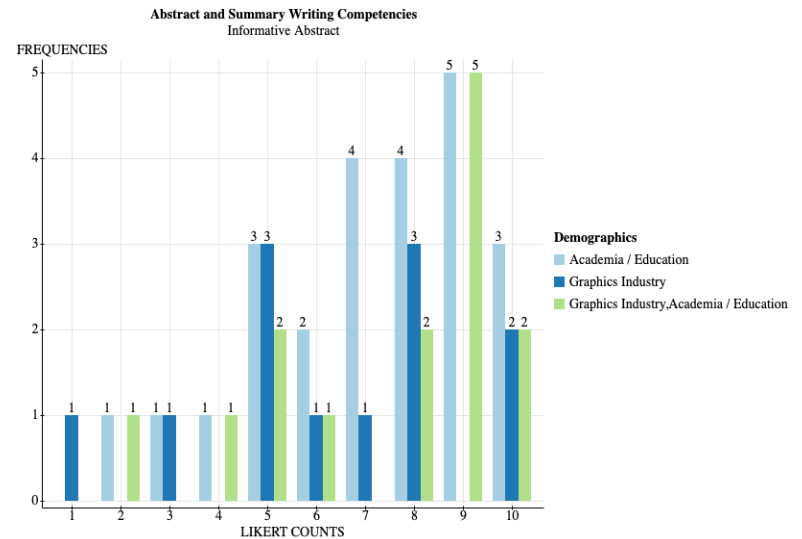
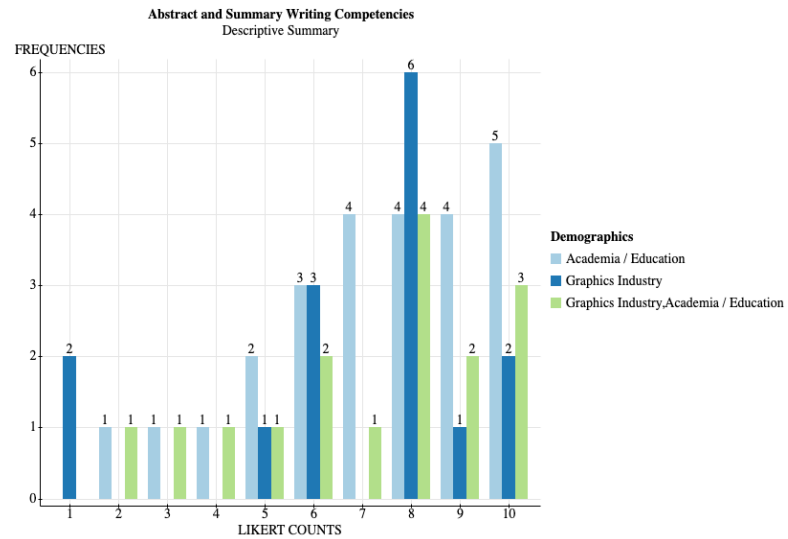
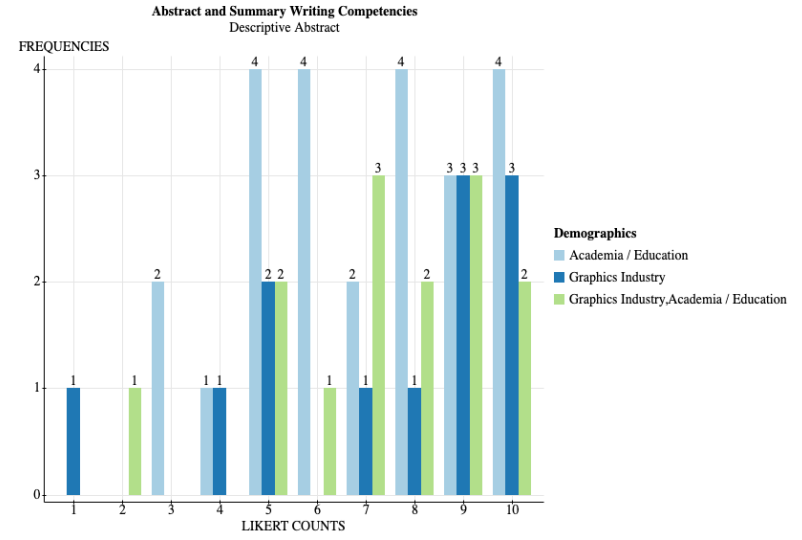
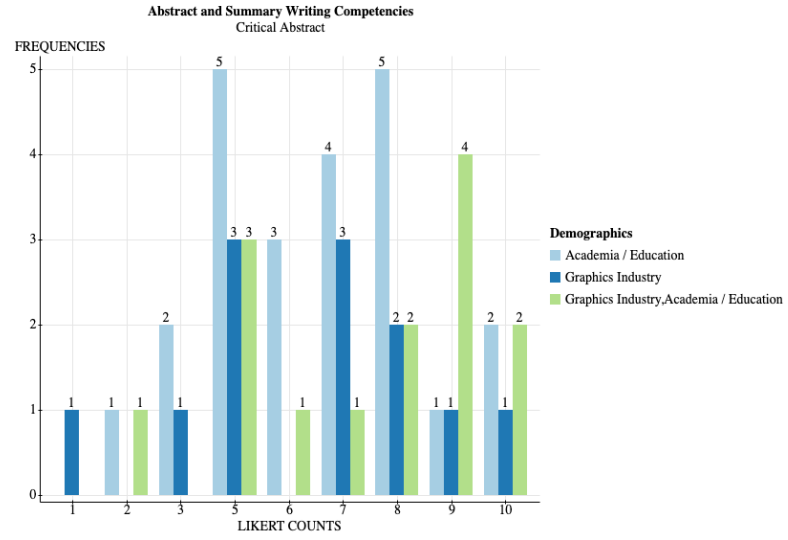




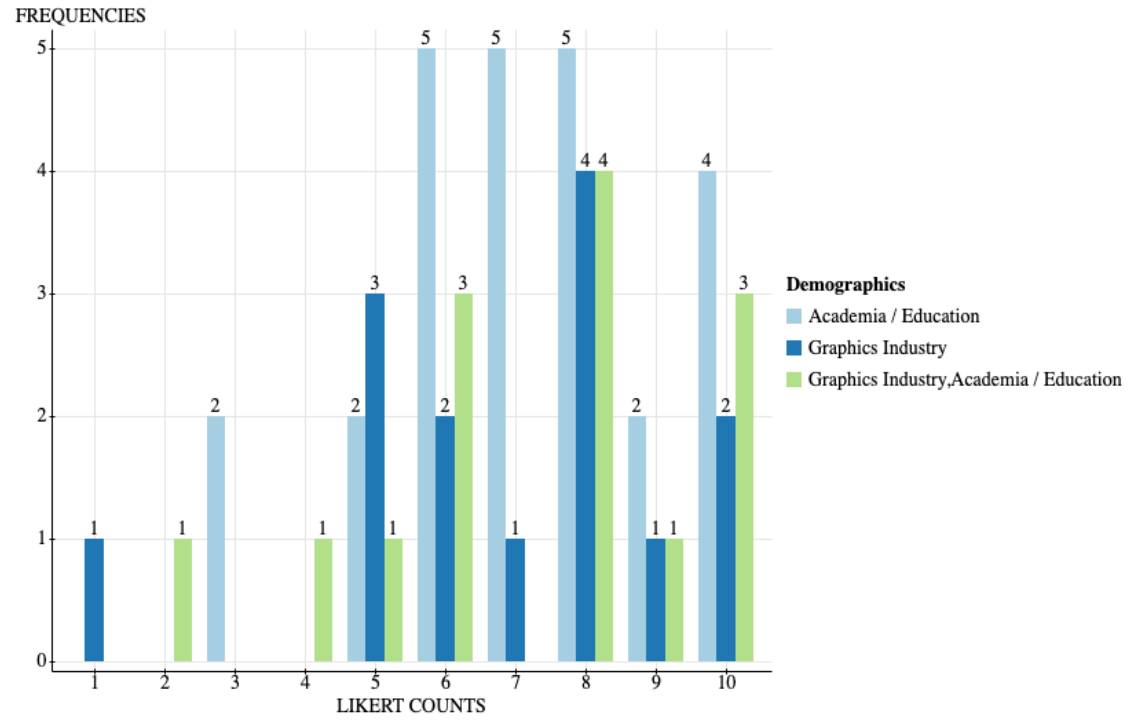


An **ABSTRACT** is a concise summary typically found at the beginning of a research article. A **SUMMARY** is a brief statement or account of the main points of a longer work. There are three types of abstracts: descriptive, informative, and critical. There are two primary types of summaries: Descriptive and evaluative. An executive summary provides an overview of a larger document or research. "Executive" summaries will analyze a problem, draw conclusions, and recommend a course of action in a complete but brief synopsis. Listed below are several competencies for writing "Abstracts and Summaries".

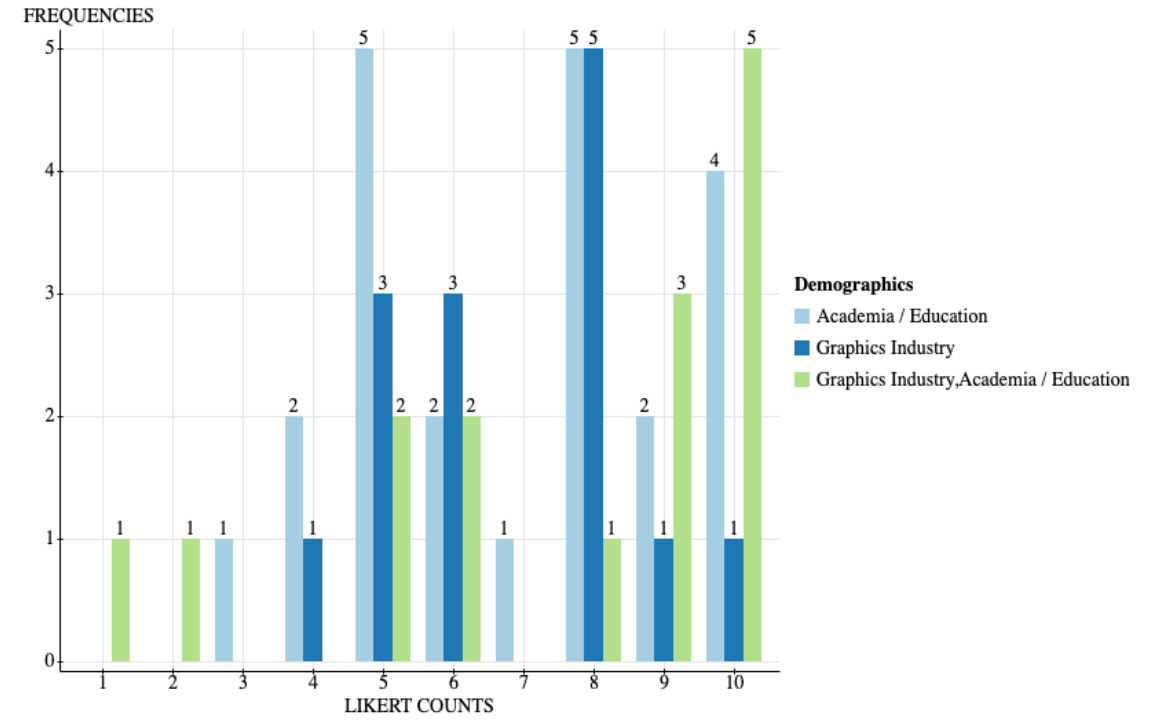
	Mean	Median	Mode	STDEV	Below 5 (%)	Above 6 (%)	Blank (%)
Descriptive Abstract	7	8	9	2.34	21%	55%	24%
Informative Abstract	7	8	9	2.39	22%	54%	24%
Critical Abstract	7	7	5	2.30	25%	49%	25%
Descriptive Summary	7	8	8	2.43	18%	67%	15%
Evaluative Summary	7	7	8	2.16	16%	64%	19%
Executive Summary	7	8	8	2.34	24%	54%	22%



**Abstract and Summary Writing Competencies**  
Evaluative Summary

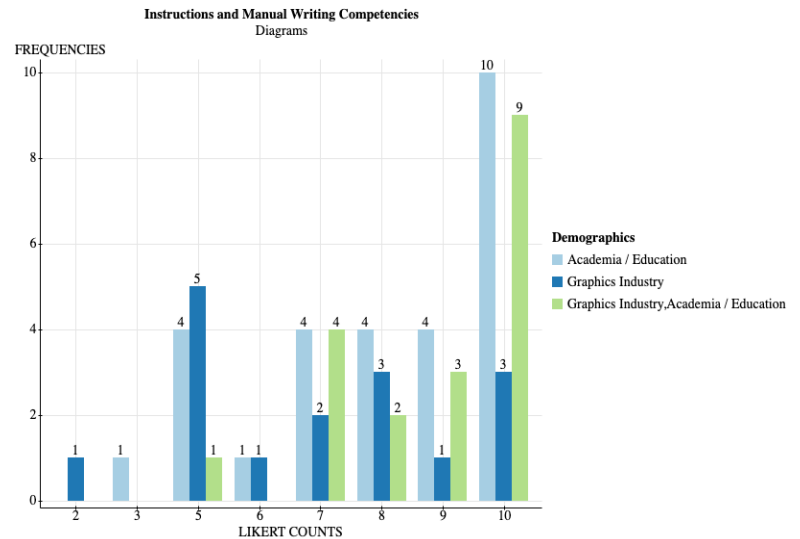
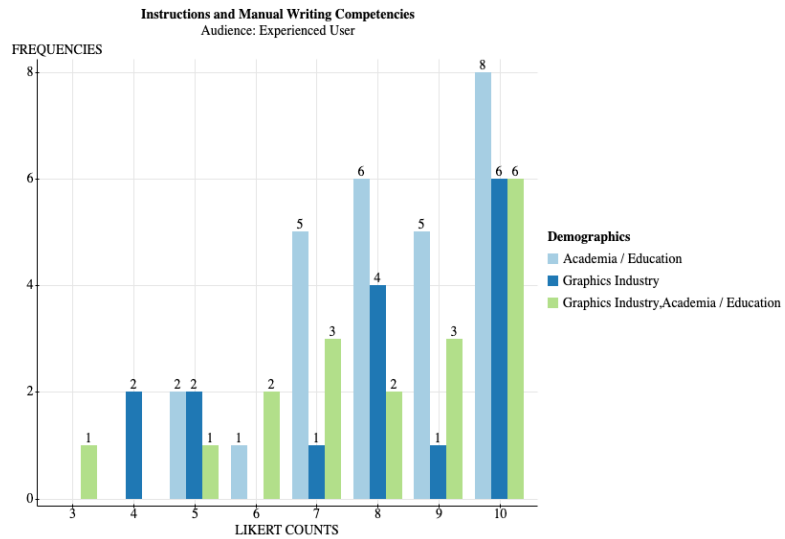
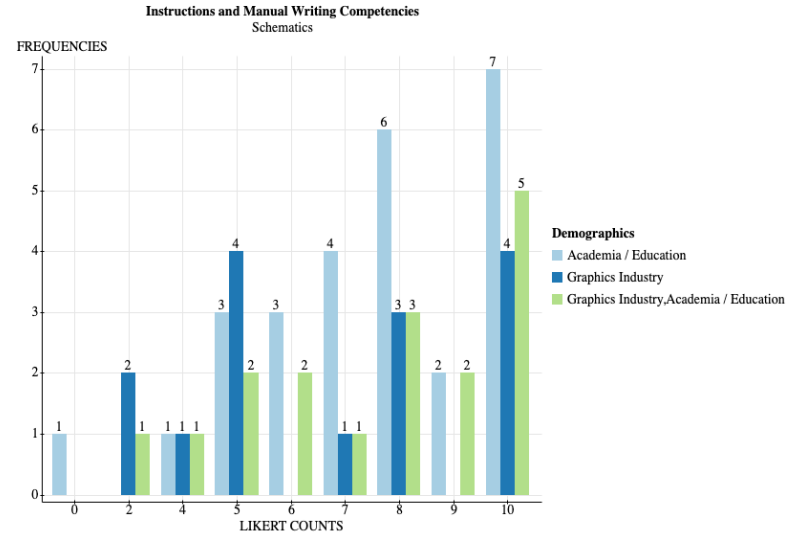
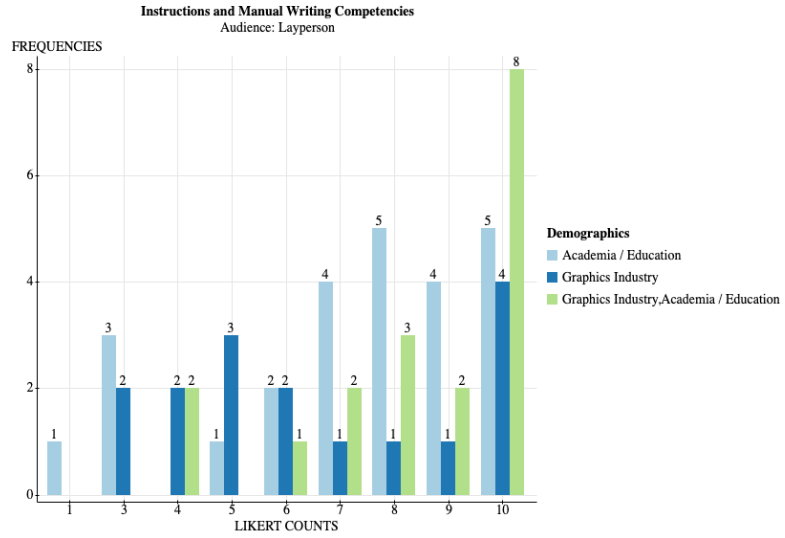


**Abstract and Summary Writing Competencies**  
Executive Summary



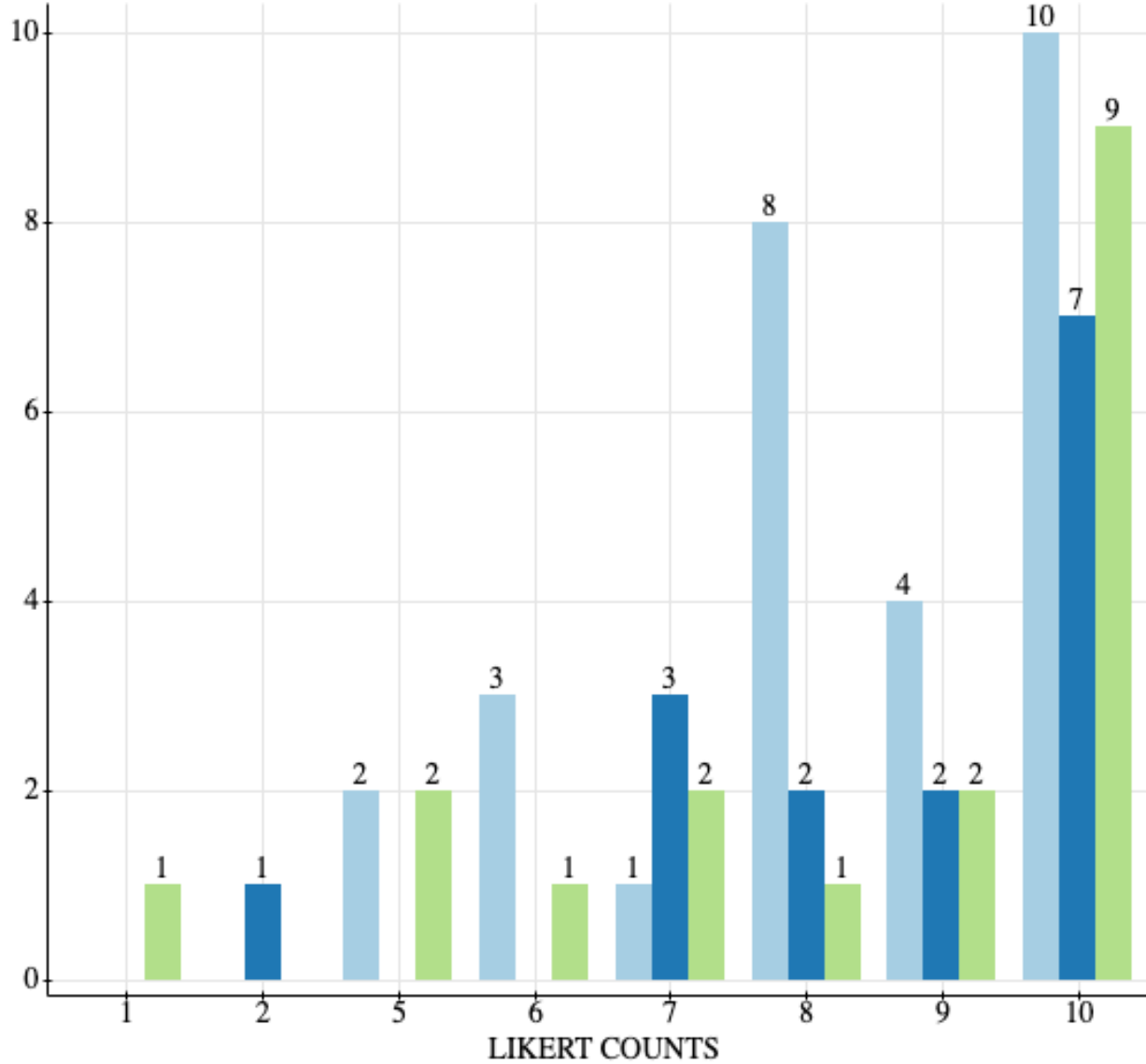
Composing **INSTRUCTIONS** may be synonymous with directions— step-by-step guidance on how to perform a specific task or function. A **MANUAL** or guide will include many sets of instructions. Manuals may show how to set up equipment, show safety requirements, how diagrams or pictures, parts list, check list, capabilities, etc. Explaining the method used to accomplish a project, an instruction manual is a one-way communication.

	Mean	Median	Mode	STDEV	Below 5 (%)	Above 6 (%)	Blank (%)
Audience: Layperson	7	8	10	2.45	21%	69%	10%
Audience: Experienced User	8	8	10	1.88	12%	79%	9%
Diagrams	8	8	10	2.05	18%	78%	4%
Schematics	7	8	10	2.47	24%	66%	10%
Standard Operating Procedures	8	9	10	2.02	9%	84%	7%



**Instructions and Manual Writing Competencies**  
Standard Operating Procedures (SOPs)

FREQUENCIES



**Demographics**

Academia / Education

Graphics Industry

Graphics Industry, Academia / Education



Providing **DOCUMENTATION**

is the act or an instance of furnishing or authenticating with documents.

Documentation could

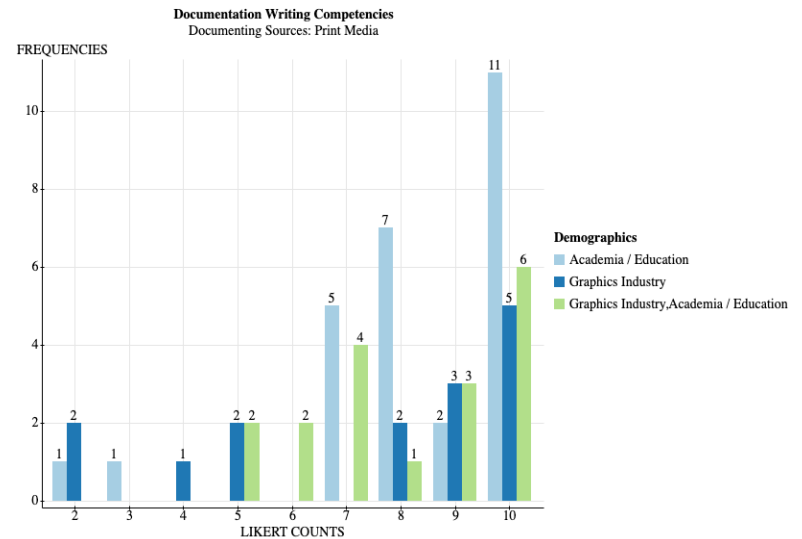
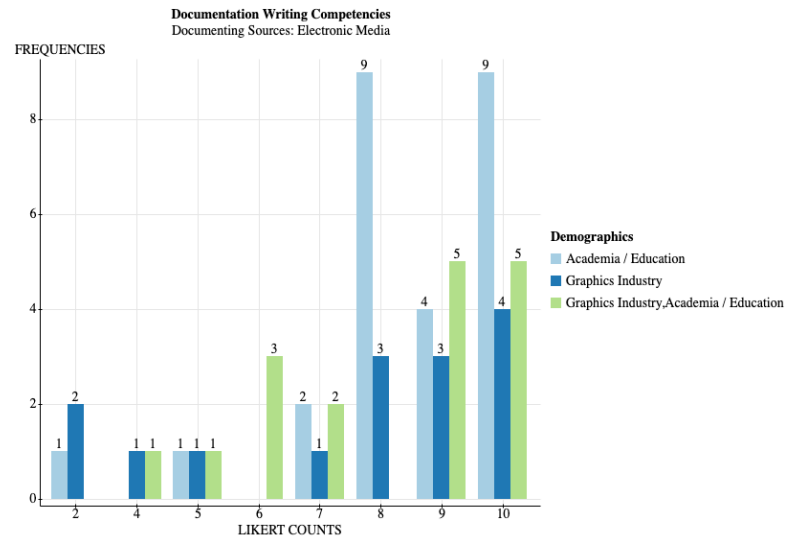
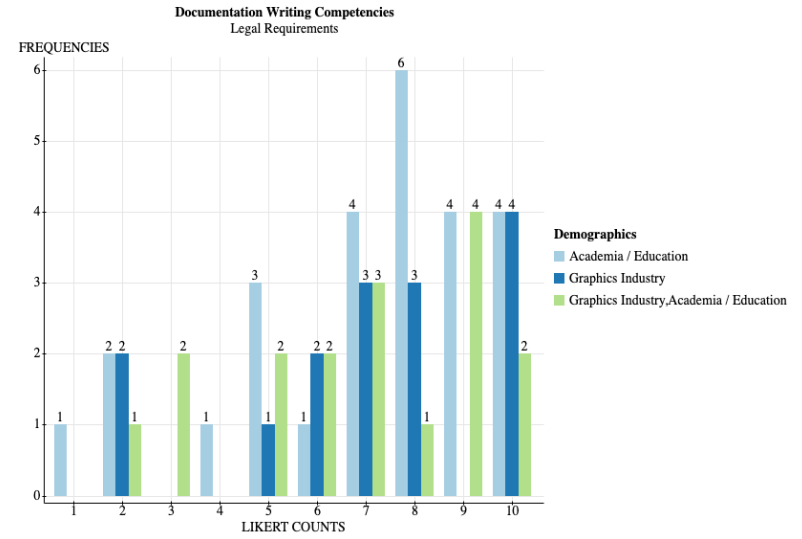
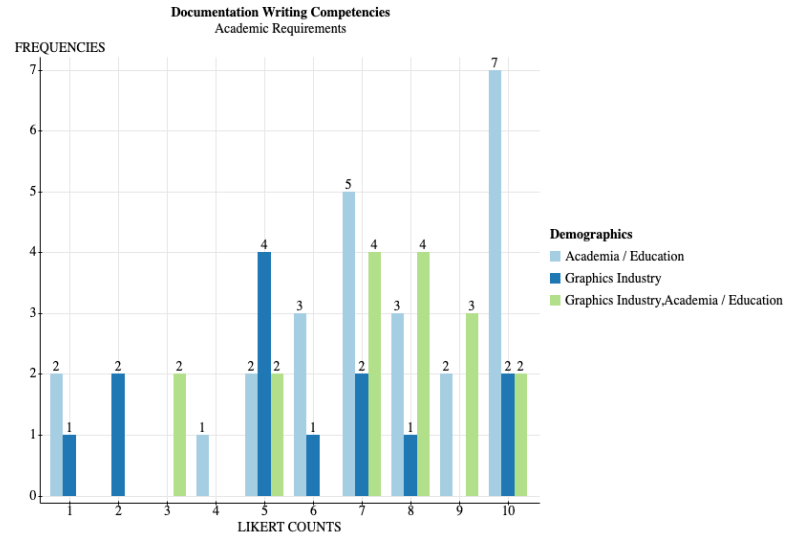
include attestation, confirmation, corroboration,

evidence, proof,

substantiation, testament,

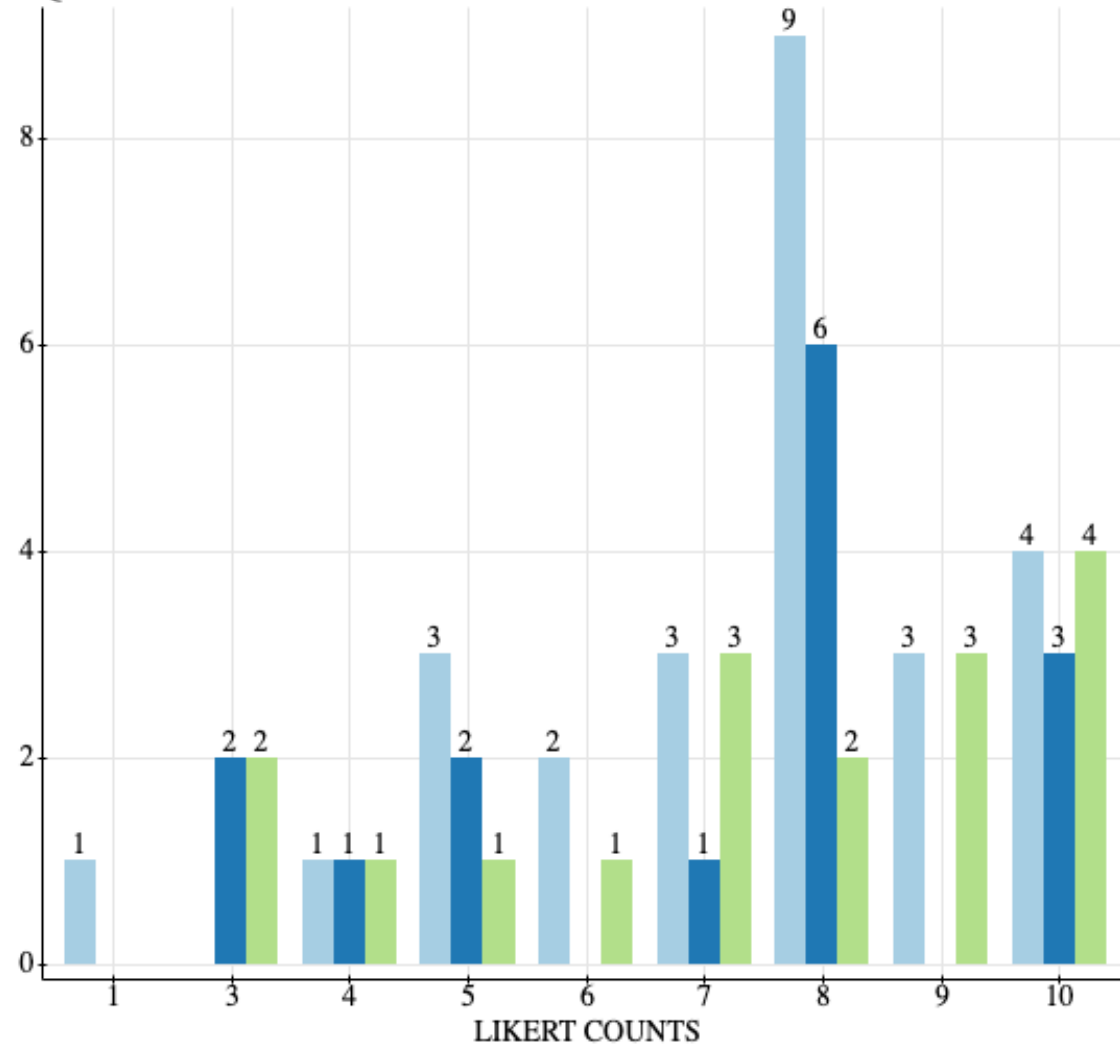
testimonial.

	Mean	Median	Mode	STDEV	Below 5 (%)	Above 6 (%)	Blank (%)
Legal Requirements	7	7	10	2.52	22%	67%	10%
Academic Requirements	7	7	10	2.58	24%	61%	15%
Establish Credibility	7	8	8	2.25	21%	69%	10%
Documenting Sources: Print Media	8	8	10	2.22	13%	79%	7%
Documenting Sources: Electronic Media	8	9	10	2.15	12%	78%	10%



**Documentation Writing Competencies**  
Establishing Credibility

FREQUENCIES

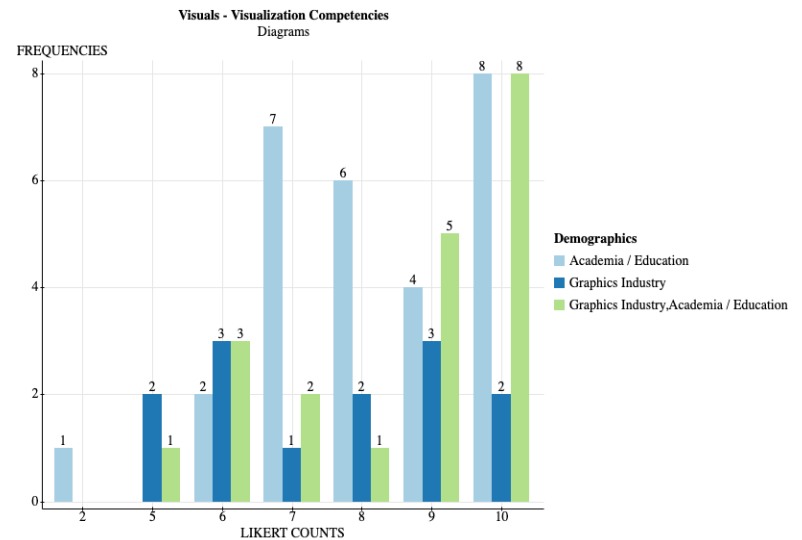
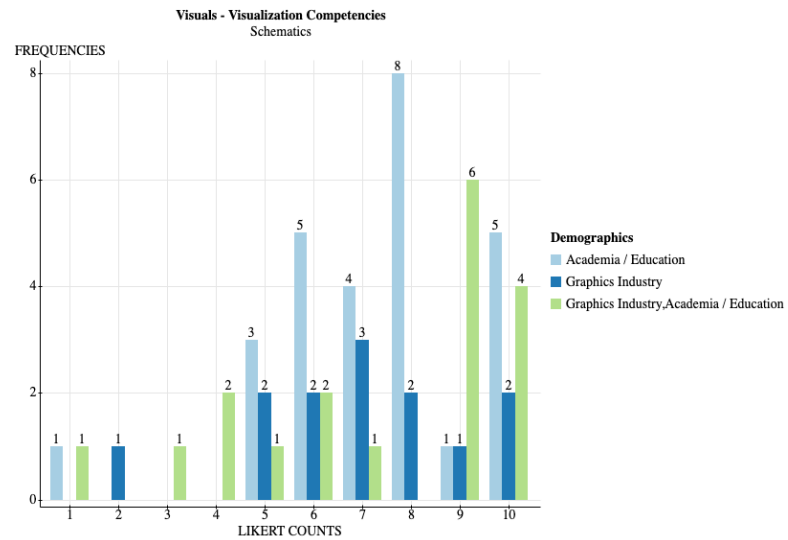
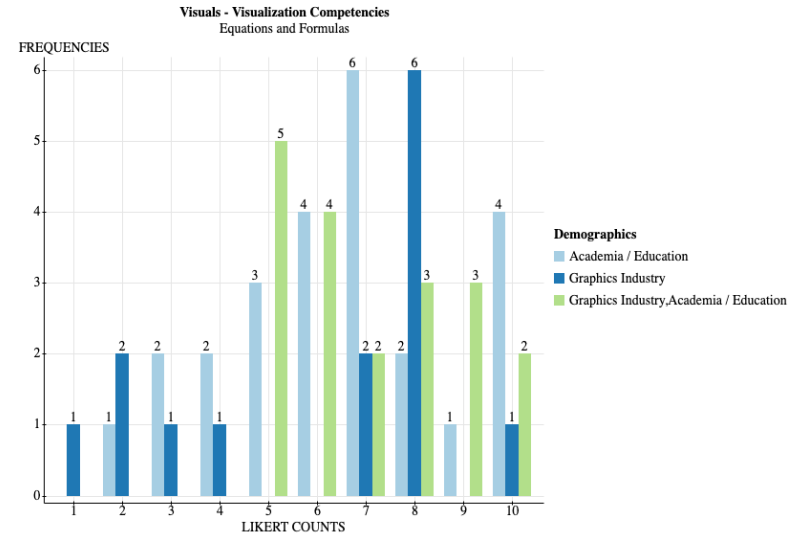
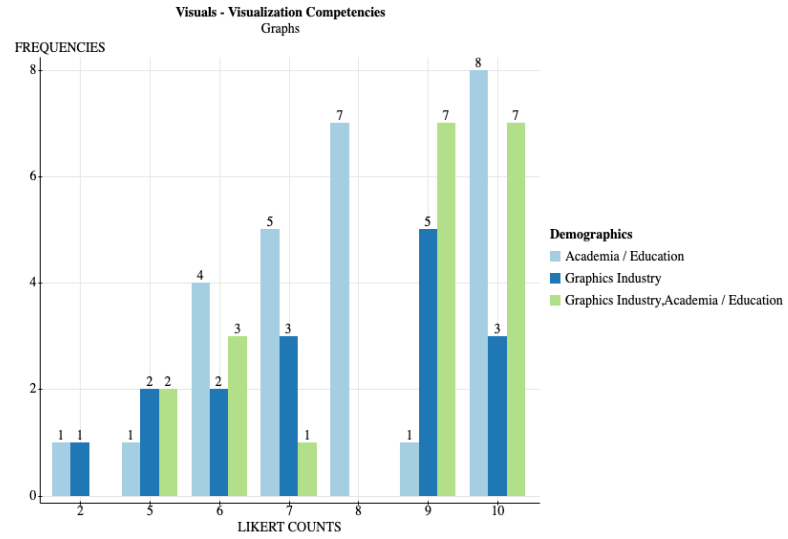


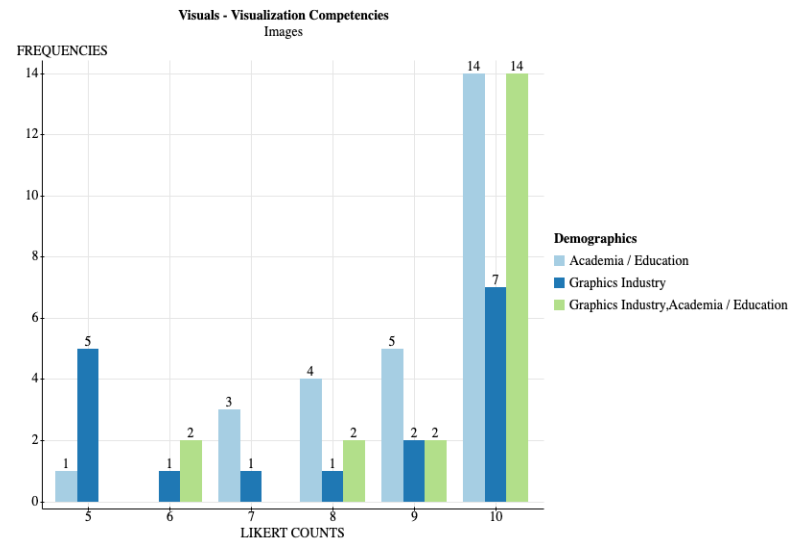
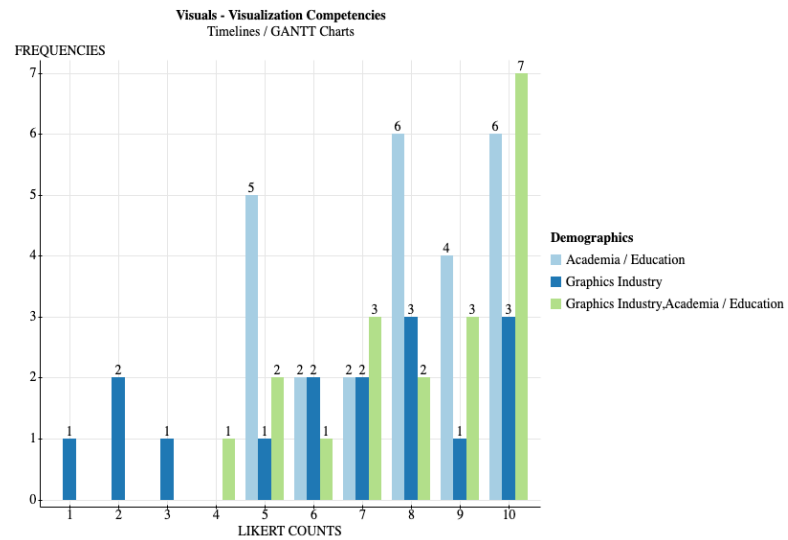
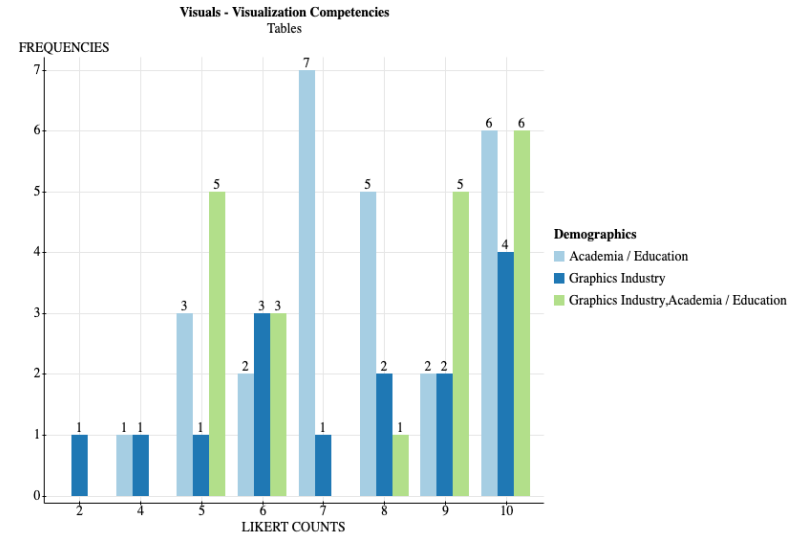
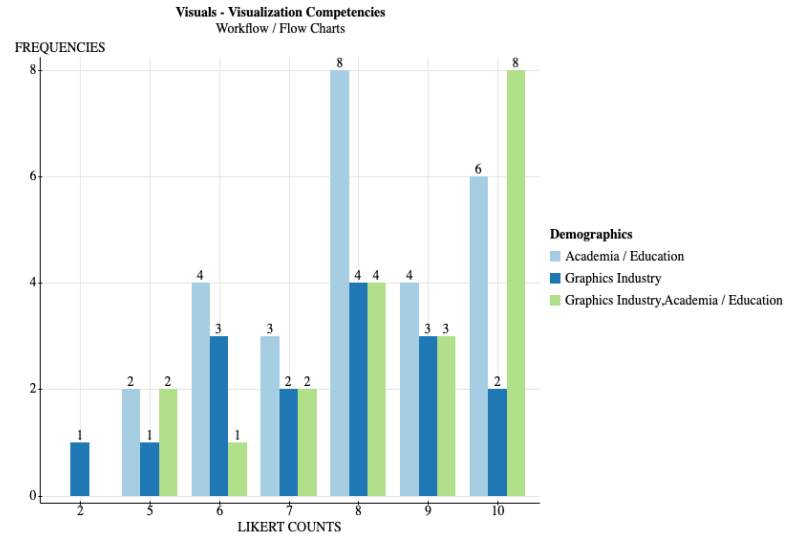
**Demographics**

- Academia / Education
- Graphics Industry
- Graphics Industry, Academia / Education

Technical writing often utilizes **VISUALS** to accompany written information and further deliver information to the audience. Visuals must be carefully selected or created to support the audience's understanding of the topic. However strong they are on their own, visuals must be integrated into the text of the document. Visuals are an important part of technical instructions because they help clarify, explain, or support an idea, and motivate readers to focus on the information in the manual. Listed below are several competencies for producing "Visualizations".

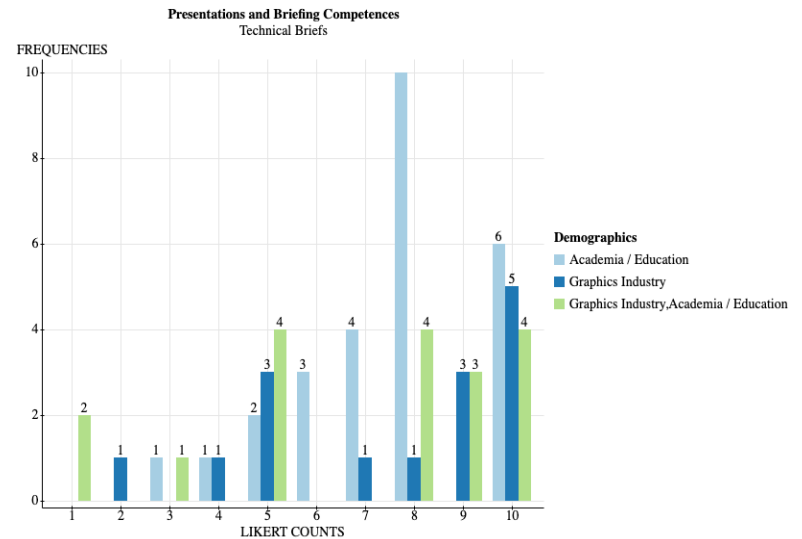
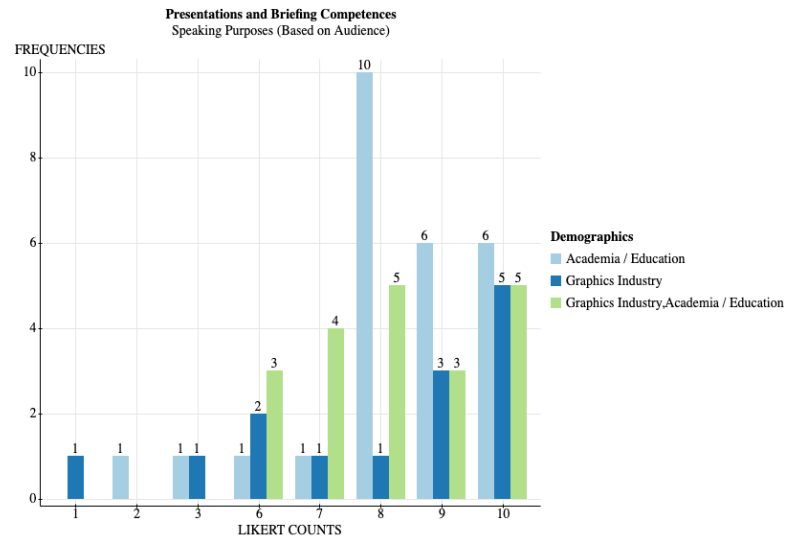
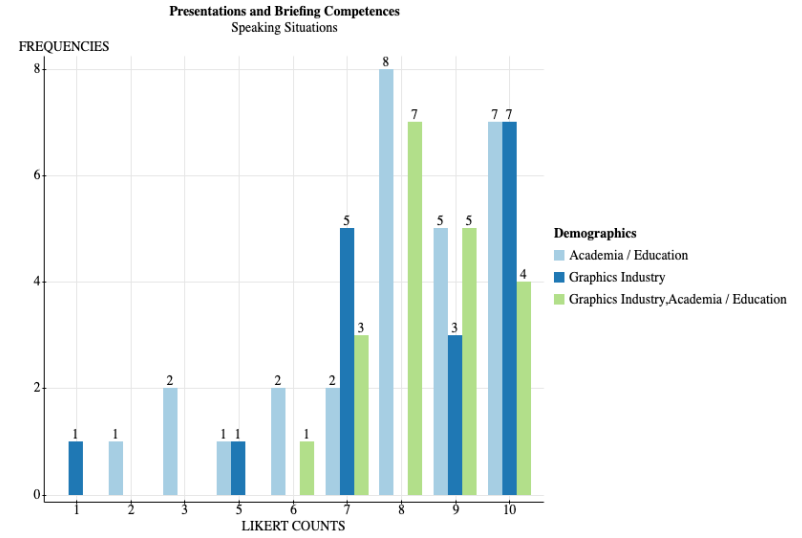
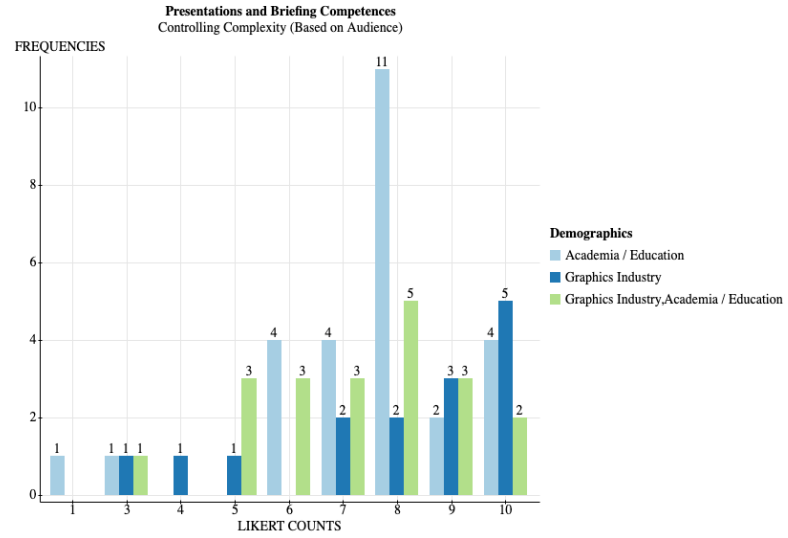
	Mean	Median	Mode	STDEV	Below 5 (%)	Above 6 (%)	Blank (%)
Equations and Formulas	7	7	8	2.30	27%	63%	10%
Diagrams	8	9	10	1.75	6%	88%	6%
Graphs	8	8	10	1.97	10%	87%	3%
Schematics	7	8	10	2.29	18%	72%	10%
Tables	8	8	10	2.03	18%	76%	6%
Workflow / Flow Charts	8	8	8	1.75	9%	88%	3%
Timelines / Gantt Charts	8	8	10	2.30	19%	73%	7%
Images	9	10	10	1.66	9%	90%	1%





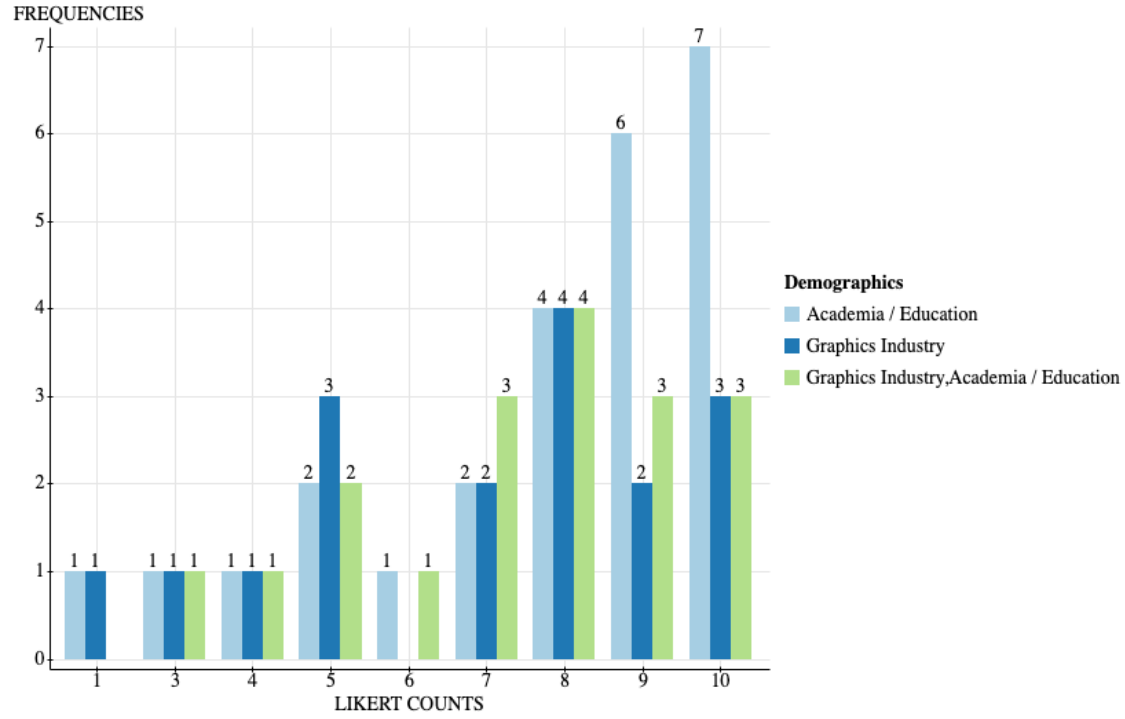
Good **PRESENTATIONS** are memorable. They contain graphics, images, and facts in such a way that they're easy to remember. A **BRIEFING** is designed to provide information quickly and effectively about an issue. It is often used to influence decisions or offer solutions. Briefings can be delivered as short written documents or presented in person. Listed are several competencies for producing and giving "Presentations and Briefings".

	Mean	Median	Mode	STDEV	Below 5 (%)	Above 6 (%)	Blank (%)
Speaking Situations	8	8	10	2.00	9%	90%	1%
Speaking Purposes (Based on Audience)	8	8	8	2.00	6%	85%	1%
Controlling Complexity (Based on Audience)	8	8	8	2.01	13%	81%	6%
Technical Briefs	7	8	8	2.43	24%	67%	9%
Presentation Application Software Proficiency	8	8	8	1.94	12%	84%	4%
UX/UI: User Experience / User Interface	7	8	10	2.39	22%	69%	9%

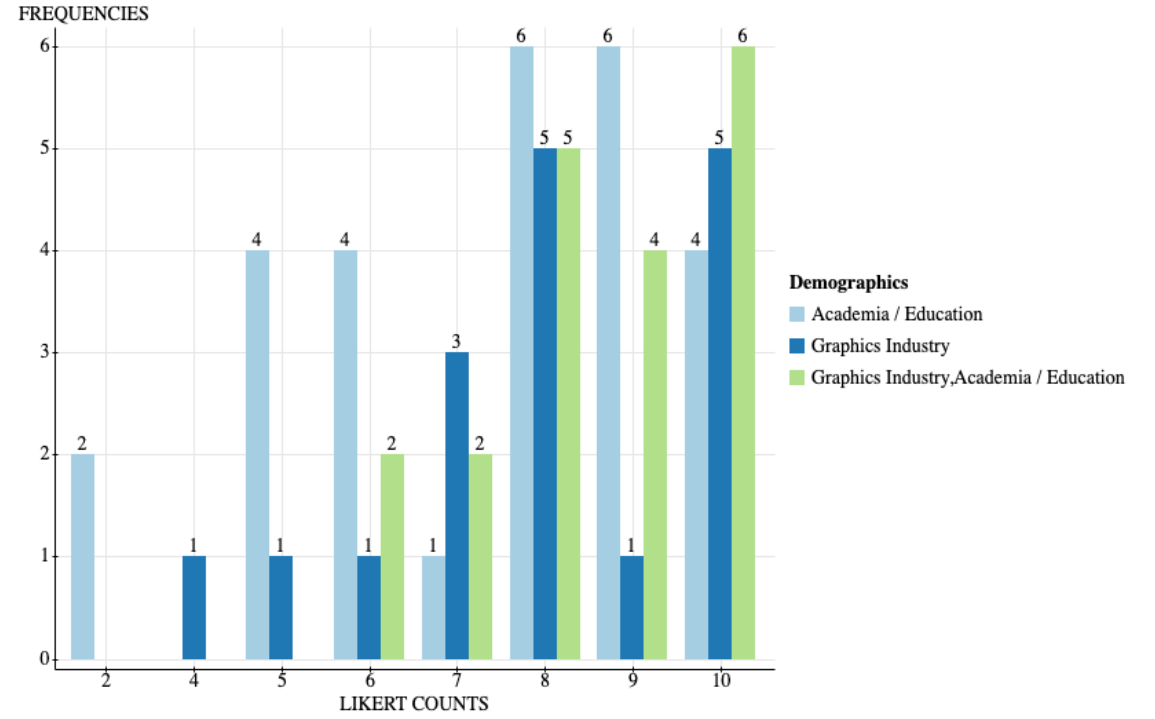




**Presentations and Briefing Competences**  
User Experience / User Interface (UX/UI) Competencies

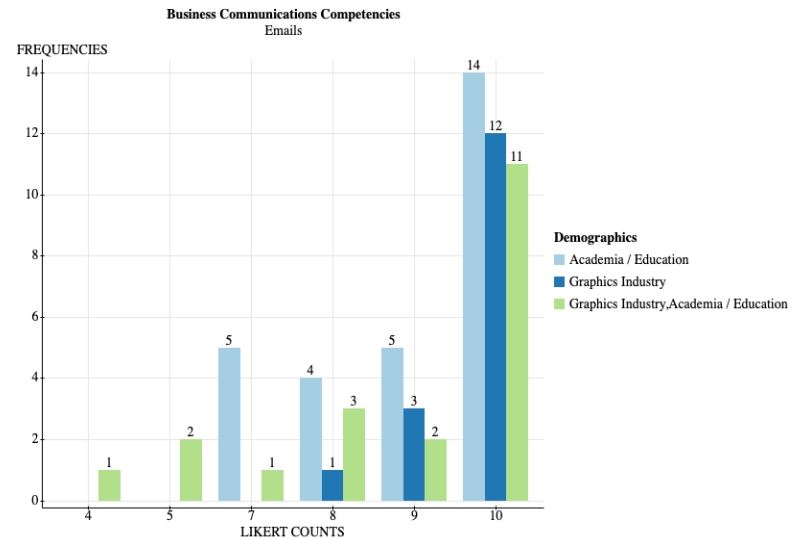
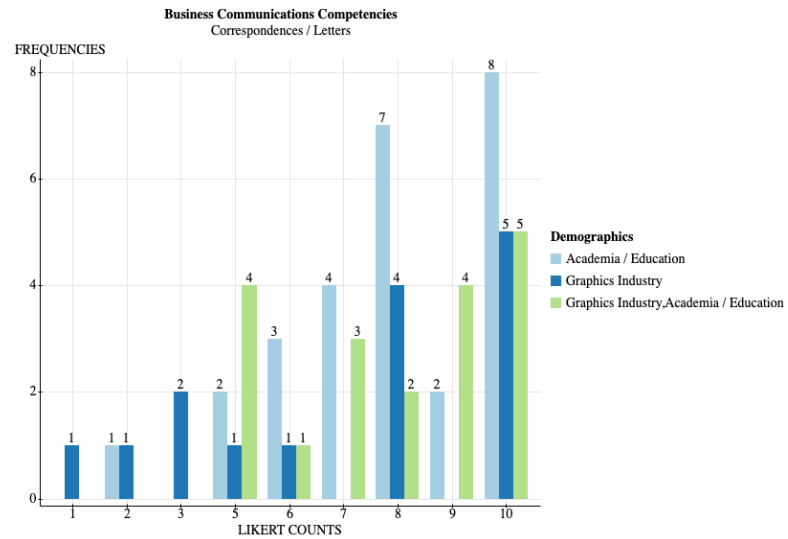
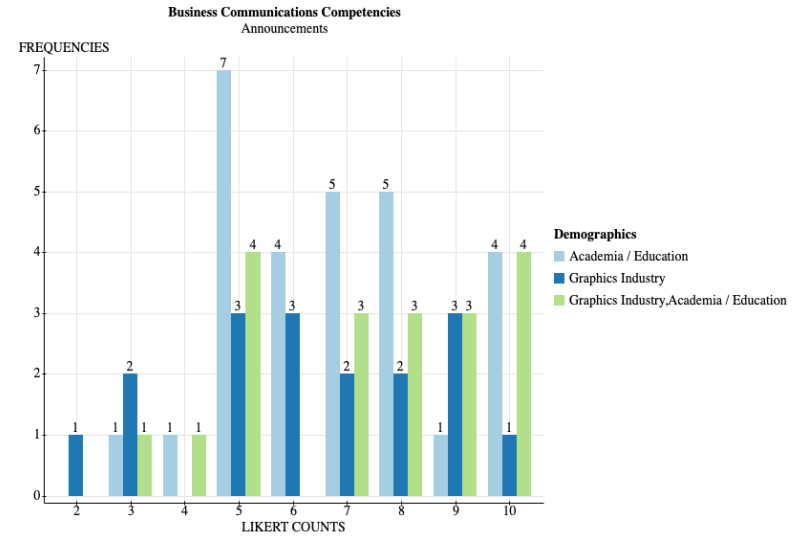
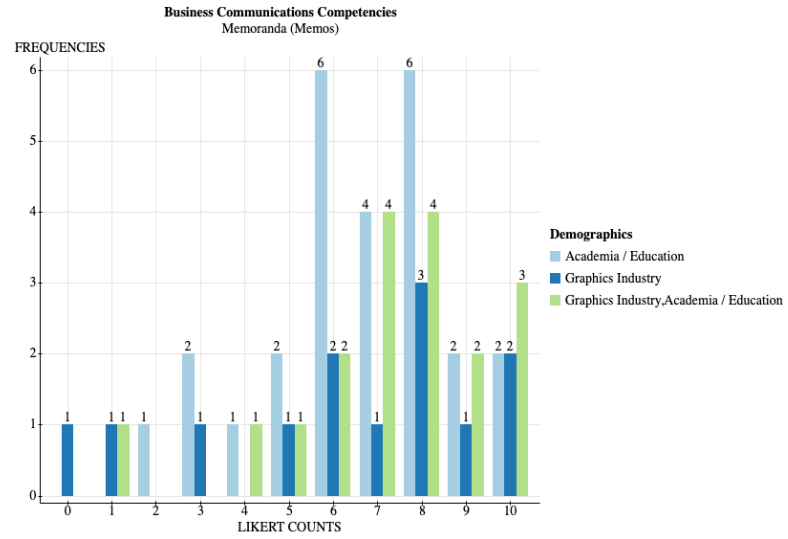


**Presentations and Briefing Competences**  
Presentation Application Software Proficiency

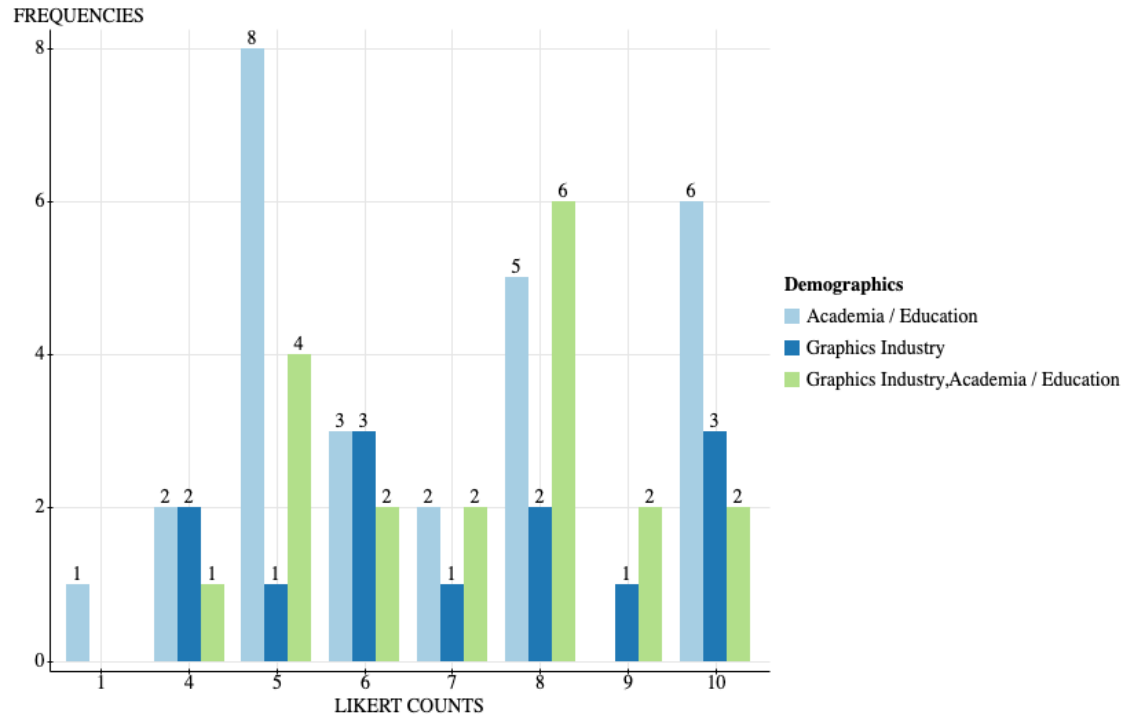


**BUSINESS COMMUNICATIONS** is the process of sharing information between people within and outside a company. Effective business communication is how employees and management interact to reach organizational goals. Its purpose is to improve organizational practices and reduce errors. Listed below are several competencies associated with GC for producing and writing formats for "Business Communications".

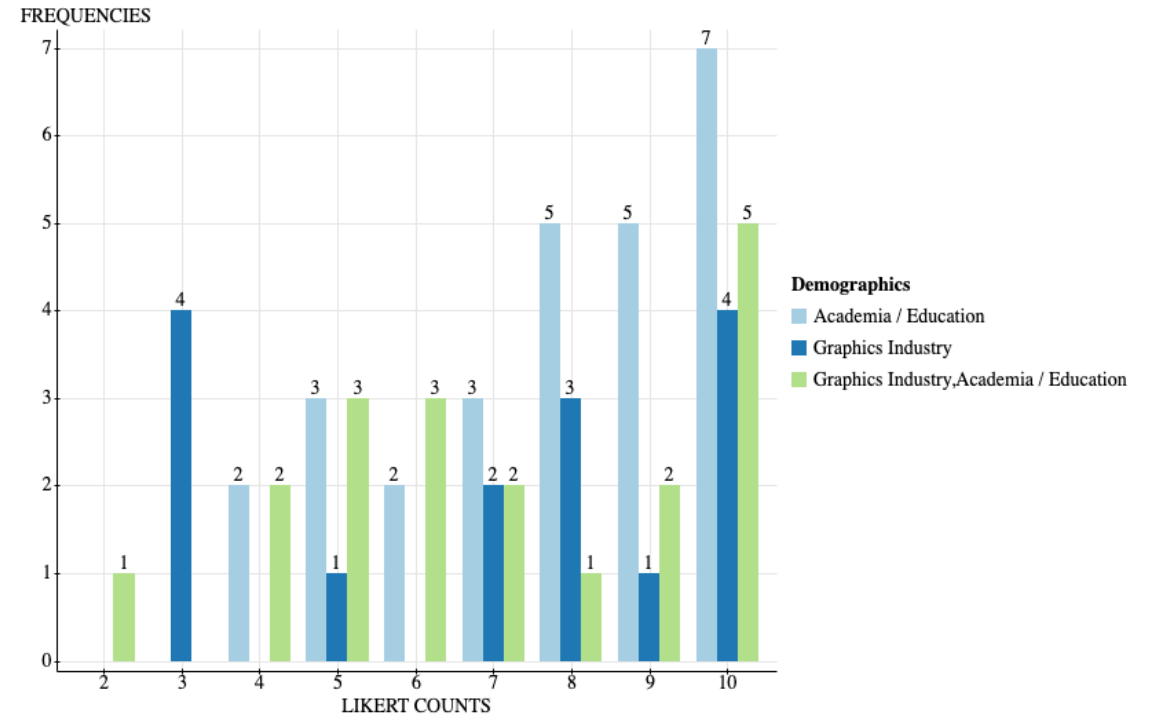
	Mean	Median	Mode	STDEV	Below 5 (%)	Above 6 (%)	Blank (%)
Correspondences / Letters	8	8	10	2.33	18%	75%	7%
Emails	9	10	10	1.40	4%	93%	3%
Memoranda	7	7	8	2.41	19%	67%	13%
Announcements	7	7	5	2.14	31%	66%	7%
Newsletters	7	7	8	2.14	28%	61%	10%
Job Descriptions	7	8	10	2.35	24%	69%	7%



**Business Communications Competencies**  
Newsletters



**Business Communications Competencies**  
Job Descriptions



# Open-ended Response Summary

- Great topic appreciation
- Adherence to style guides and proper citations
- Importance of communication skills in email
- Slow down to ensure clear tone and content in emails
- Excel competency: building spreadsheets, using formulas
- Sales Communications and Persuasive Writing
- Context: 60-credit associate degree in graphic design
- Context: 9th-12th grade population with general Graphics experience
- Importance of proper grammar in communication
- Copyright, public domain, and fair use laws
- Understanding different writing styles and their applications
- Differentiating between business, compositional, journalistic, and academic research writing
- Professional communication in all aspects

*Further research into the data is the next step to test significance in comparing within group populations: Academic, Industry, Both.*

# Next Steps...

## Next Steps for the Continuation of the Delphi Study:

1. Analyze the initial survey results to identify areas of consensus and divergence among experts.
2. Refine the survey based on initial feedback, addressing any identified gaps or areas needing clarification.
3. Conduct a second round of the Delphi survey, inviting previous participants to reassess their opinions and evaluate any new competencies introduced.
4. Compare the results of the second round with the initial survey to monitor changes in consensus and track the evolution of expert opinions.
5. Repeat the process as necessary, ensuring that the Delphi method reaches a stable consensus on the core competencies in technical writing.
6. Synthesize the findings to develop a comprehensive, supplemental resource for Graphic Communications majors and instructors.
7. Share the supplemental resource with educational institutions and industry partners to support the improvement of technical writing education.
8. Evaluate the impact of the supplemental resource on students' learning outcomes and instructors' teaching strategies.
9. Refine and update the resource periodically, incorporating feedback from users and staying current with industry trends.
10. Explore opportunities for expanding the study's scope to include other disciplines and target additional areas of technical writing.

Thank you.

QUESTIONS

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