CHAPTER

4

ARTISTIC AND SCIENTIFIC RESEARCH: GOALS AND METHODS

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Introduction

What is research?

Generally speaking, research can be seen as the application of practical knowledge on theories, principles, guidelines and the verification of these principles, and reliability to solve different types of problems or achieve concrete results. Research in visual art is the systematic use of the artistic process, the actual making of artistic expression in all the different forms of arts, as a primary way of understanding and examining experience by both researchers and the people that they involve in their studies. Research in art and science should to a greater extent complement each other, to make meaningful and good research.

What is the research methodology?

Research methodology is a contextual framework for academic inquiry, that is a coherent and logical scheme based on views, beliefs, and values that guide the choices researchers for other users make. It is the strategies or art and design by which the artist or designers maps out an approach to problem-finding or problem-solving in their various works. Research in visual art is the systematic use of the artistic process, the actual making of artistic expression in all the different forms of arts, as a primary way of understanding and examining experience by both researchers and the people that they involve in their studies. Scientific research on the other hand is the systematic investigation of scientific theories and hypotheses ... such a method allows scientists to construct questions about observed phenomena, conduct experiments, and analyze results. In addition to the scientific method, researchers in this area depend on peer reviews to ascertain the truth.

Research in its totality is the systematic investigation into the study of material, sources to establish facts and arrive at a new conclusion. In art and design many research projects are carried out by students and others and there have been seeking to find a place to position their professional and scholarly contribution within the broader art and design area of discourse. Exploration of art and design projects alongside critique, literature, reading, peer review, and reflection enabled the understanding to become clear and more explicit. The discussion stresses

the importance and value of art research was discovered through critical reflection on research in the science and visual arts. It is important to explore, review or re-examine the practice-based research in this area or cluster of research activities within the action of the practice

Traditionally, art and science have been treated as two separate disciplines, but when they are studied together it is clear to see the impact one has on the other. A great deal of creativity is required to make scientific breakthroughs, and art is just as often an expression or a product of scientific knowledge, this simply explains the situation. Art-informed research is a mode and form of quantitative research that is influenced by, but not based on the arts. The methodology infuses the language, process, and form of literacy, visual, and performance arts into scholarly inquiry to advance knowledge. Creative research method is often treated as though they are new, yet researcher has always used creative ways to solve problems. Any research project is made up of hundreds or thousands of decisions and each decision holds space for creativity. Research in any society is highly valued, and we need to understand why being engaged in legitimate art-making tasks implies that one is also engaged in worthwhile research activities. While the values of research in the natural and social sciences are widely recognized, the fact that artists are also engaged in research must also be acknowledged and not ignored. However, the research operations associated with creating art are quite different from the research activities of the scientists.

Research is the systematic investigation into the study of materials and sources to establish facts and reach new conclusions. It can also be looked at as a systematic investigative process employed to increase or revise current knowledge by discovering new facts. It is divided into two general categories: (1) research in the sciences is aimed at increasing know-how or knowledge, and (2) Creative research activity is an effort aimed at using basic research for solving problems or developing new processes, products, or techniques. Research in both natural and social sciences relies upon measures that generate quantitative data from which qualities are inferred; for example, a high number equals the intensity of agreement, pressure, what is valued, and so on. In visual art counting the number of times something occurs reflects on the level of its significance. For example, if when excavating an ancient temple a particular symbol appears again and again on a variety of objects, it is concluded that the symbol was important to the ancients who built and used the temple or any other similar thing.

In science, specific instances of behaviour are identified and quantified very carefully. These are translated into qualities which become the basis for formulating generalizations about phenomena. These formulations become principles or constructs that govern our understanding of the natural and social world. In art “style", a term used by both art historians and art critics, is a construct for thinking about reoccurring characteristics in works of art. A particular style is inferred from observing and categorizing common elements in works produced by a variety of artists, or in the works of an individual artist or art movement.

Over the past years, the writer has supervised many practised-based research submissions. These have spanned across the fields of art, communication design, art history/criticism, sociology of arts and discourse on the nature of material thinking and practice-orientated research. Yet, consistent across these investigations has been the literacy of practice that includes methods for making and communicating new knowledge, which is pertinent to a particular field of professional activity. Gardner (1993) builds on this idea of clustering

knowledge and knowing by arguing for multiple forms of intelligence. There are various ways for clustering knowledge and different individuals have strengths in different clusters. In addition to this, there is also the phenomenon of professional literacy, as understood by a domain of professional practice that may be aligned to a particular discipline or a clustering of activities within a professional field. Art and design are one of such clustering. It is essential that when we explore, review or examine practice-based research this be framed within the language and actions of the practice of the practitioner.

In the field of art and design many research projects are carried out by researchers and others but there are still seeking to find a place to position their professional and scholarly contribution within broader art and design discourses. Postgraduate degrees in art and design are still relatively nascent, in communication design are even more so. This is particularly true in art history and criticism about doctorates undertaken *through*, rather than *about*, the practice of art and design. Postgraduate degrees in communication design are more common where it examines, contextualize or historicize design. I believe that one of the key contributions of this book or research is presented in a language that addressed both the expectations of the Academy whilst still being accessible to practitioners. The author has through critical reflection been able to make insights that integrated the theory with the everyday practice of art and design. The visualization process presented in the exegesis was the means for communicating this, and more importantly it was an example of the literacy of communication design being used as a scholarly reflective tool of research.

Exploration of the art and design projects alongside critique, literature reading, peer reviews and reflection enabled this understanding to become clearer and more explicit. The discussion here stresses the importance of the journey in which the values in this research were discovered through critical reflection on research in visual art and sciences. Art can best be defined as the expression or application of human creative skill and imagination, especially in the area of fine and applied arts, producing works to be appreciated primarily for their beauty or emotional power. Art is often considered the process or product of deliberately arranging elements in a way that appeals to the sense or emotions. It encompasses a diverse range of human activities, creation, and ways of expression including other areas like music, literature, film, glass design, textiles, sculpture, graphics, painting, ceramic and others.

Art is something that is intelligently created to serve the following purposes: communicate, represent, decorate, persuade, convey or evoke emotion, and provide self-expression, even if the work is never shared with another person. Explore new ideas, including what art itself is. Visual art is constructed from very basic elements or components that we experience through our sense of sight and/or touch; namely, lines, two and/or three-dimensional shapes, textures, colours, dark and light qualities, and actual or implied space. Almost everything that we see can be described or interpreted in terms of these same visual (or sensory) components. Why do we ascribe the term "art" to some of these objects while others are merely described as useful or interesting or even beautiful? Art can be defined in many other ways broadly but critically, In trying to define art, one should consider the following points ;

- Does something have to be beautiful to be called art?
- Does the subject of the work have to be momentous for the work to be important?

- Can work with "ordinary" subjects be important works of art?
- Can works that deviate from representing the natural world be works of art?
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Basic research methodology steps
Introduction
Aims and objectives
The primary focus of your research project is usually expressed in terms of aims and objectives. What is the difference between an aim and an objective in an academic context?

Aim
An intention or aspiration; what you hope to achieve.
Aims are statements of intent, written in broad terms.
Aims to set out what you hope to achieve at the end of the project.

Objective
A goal or a step on the way to meeting the aim; how you will achieve it.
Objectives use specific statements which define measurable outcomes. For example: what steps will you take to achieve the desired outcome? Research objectives should be S.M.A.R.T.:

Specific – be precise about what you are going to do
Measurable – you will know when you have reached your goal
Achievable – Don't attempt too much. A less ambitious but completed objective is better than an over-ambitious one that you cannot possibly achieve.
Realistic – do you have the necessary resources to achieve the objective? For example time, money, skills, etc.
Time-constrained – determine when each stage needs to be completed. Is there time in your schedule to allow for unexpected delays?

Remember:
Use strong positive statements which use strong verbs. Avoid weak verbs.
Strong verbs: collect, construct, classify, develop, devise, measure, provide, revise, select. Syntheses.
Weak verbs: appreciate, consider, enquire, learn, know, understand, be aware of, appreciate, learn, perceive

How many aims or objectives should there be?
There is no fixed number of aims or objectives. Some lecturers and Professors are happy with one clear strong aim, whilst others like to see the main aim supported by at least two subsidiary aims. One is required to produce sufficient objectives to be able to measure progress towards meeting the aims.

Remember: Aims describe what you want to achieve. Objectives describe how you are going to achieve those aims.

Methodology

Remember to do the following when writing your Methodology:

Explain what methods you intend to use when researching and developing your report. Use a descriptive writing approach. It is important to explain what research methods you used to collect your info. Do not include your questionnaires, interview transcripts, etc. - these go in the project appendices. Discuss with your project supervisor the extent and level of detail required; original research will require a more detailed description than a project based solely on secondary research.

Literature survey

Secondary data will be reviewed initially through the university library using a range of information sources such as the OPAC system, academic and commercial abstracts, bibliographic databases, and Internet search engines. To aid the search, a table of key terms will be constructed and the sources located will be correlated with this. A secondary cross-reference table will be developed so that data can be viewed from different perspectives.

Data collection and sampling

Is good to test current practices against the historical record an online survey will be conducted to gather primary source data from companies currently engaged in the export of goods related to heavy areas of projects. The survey will collect quantitative data on the range of goods requiring an end-user license.

Data analysis

It is anticipated that a commercial spreadsheet package such as MS Excel would be suitable, although more sophisticated analysis software such as SPSS is available within the university's, centre should this be required.

Remember: If someone else chooses to carry out the same or a very similar type of study, they should be able to understand and copy your methods from your descriptions.

Literature survey

The Literature survey (also known as a Literature Review): uses a descriptive writing approach to describe the existing and established theory and research in your report area by providing a context for your work can show where you are filling a perceived gap in the existing theory or knowledge can propose something that goes against or is controversial to existing ideas, accurately references all sources mentioned in the survey and gives a full citation in the Reference List.

Scope and constraints
Set the boundaries clearly in this section. For example: you may have too much material to cover so you will need to put some limits in place on the project you may not be able to conduct some research due to constraints imposed by time, cost or availability of materials.

Scope and constraints
Step 1: Dissertation proposals
Resources
List resources that you will need to complete your study in the Resources section.

Example: The University's library and IT facilities should provide adequate material for the majority of the research and analysis required by this study.

However, the graphical representation of some of the data may require the use of specialist software such as Pro - graph.

Below is a proposed timetable for your project. It should also be sufficiently detailed for your supervisor to identify any areas of weakness to provide you with appropriate guidance:

Outline of sections/chapters
Give an outline of the structure of your dissertation in this section. This is usually restricted to the main body as the overall structure is often prescribed.

The main discussion will require a more detailed breakdown than other sections. You should give suggested chapter headings and one or two paragraphs about the proposed content.

Example outline for the main body:
• Introduction
• Literature survey
• Methodology
• Results (if appropriate)
• Discussion
• Conclusions
• Recommendations (if appropriate)

Remember: Check if your faculty/department has any requirements.

References
The reference list at the end of your work demonstrates the depth of your research. It acknowledges your sources of information, protecting you against the serious charge of plagiarism (passing off others' ideas as your own). This is where you list all of your research reading if you have included a literature survey.

Remember: If you present your literature survey separately, you would have referred to some aspects of the reading in your introduction (your statement of the problem
You must cite and reference those aspects in this section.

Below is a list of the sections a project may contain. However, not every project includes all these sections. Find out which sections you need to include by asking your supervisor, by identifying what is standard practice in your discipline or by reading papers written by other students:

- Cover
- Title page
- Acknowledgements
- Abstract
- Contents page
- List of figures or illustrations
- Main body
- Introduction
- Literature survey
- Methodology
- Results
- Discussion
- Conclusion
- Recommendations
- Reference list / Bibliography
- Appendices

Check List on Research Procedure:

- The title of the research adequately captured the scope and objective of the study
- The background provided by the researcher is relevant to the research problem and objectives
- Has the candidate reviewed key issues as regards the research topic and research problem?
- Is there research justified?
- Is the research well-articulated as regards what is not well-known in the research area
- Has the candidate applied that methodology that yielded the kind of information relevant to the research objectives?
- In terms of his findings/date analysis and general interpretation
- Has the research adequately and correctly acknowledged the sources of the information gathered from the research?
- Finding and observation

Types of Research and Scholarly Articles

Quantitative/Qualitative/Mixed Method
Some Types of Social Science Research
Books about Research
Types of Scholarly Articles
Critical Reading Questions
Education Statistics
Curriculum & Lesson Plan Sources

Quantitative/Qualitative/Mixed Method

Quantitative Research - involves the use of numerical calculations or summarize, describe and explore relationships among traits; reliance on control of variables, statistics, measurement, and experiments.

Qualitative Research - emphasis is on conducting studies in natural settings using mostly verbal descriptions, resulting in stories and case studies rather than statistical reports. Mixed Methods - employs both quantitative and qualitative designs

Characteristics of Research

Type Description

Case Study: Studies an individual or small group of individuals with an unusual condition or situation. Case studies are typically clinical in scope.

Survey: Involves interviewing or administering questionnaires, or written surveys, to large numbers of people. Investigator analyzes the data obtained from surveys to learn about similarities, differences, and trends. Predictions are made about the population being studied.

Observational: Directly observing subjects' reactions, either in a laboratory (called laboratory observation) or in a natural setting (called naturalistic observation). Observational research reduces distortions sometimes found in survey research

Correlation: Correlation research attempts to determine if a relationship exists between the two variables and the degree of that relationship.

Descriptive: Describing a group, situation or individual to gain knowledge that may be applied to other situations.

Experimental: Experimental research tests how an independent variable (the factor that the scientist manipulates) affects a dependent variable (the factor that the scientist observes).

Cross-Cultural: Designed to reveal variations across different groups of people. Most cross-cultural research involves surveys, direct observation, and participant observation methods of research.

Types of Scholarly Articles
Characteristics of Articles
Type Description

Research/Empirical: Article reporting on the results of one or more studies or experiments, written by the person(s) who conducted the research. This is considered one type of primary source. Look in the title or abstract for words like study, research, measure, subjects, data, effects, survey, or statistical which might indicate empirical research.
Case Study: Detailed account of clinically important cases of common and uncommon conditions.

Review: Summarizes the findings of other studies or experiments; attempts to discover trends or draw broader conclusions. Scholarly in nature but not a primary source or research article, however its references to other articles will include primary sources or research articles.

Meta-Analysis: A meta-analysis is a mathematical synthesis of the results of two or more primary studies that addressed the same hypothesis in the same way.

Letters or Communications: Short descriptions of important latest studies or research findings which are usually considered urgent for immediate publication.

Theoretical: Containing or referring to a set of abstract principles related to a specific field of knowledge; characteristically it does not contain original empirical research or present experimental data, although it is scholarly.

In any applied research it is important to describe technique, workflow, management or human resources issues.

Professional communications, Book Reviews, Letters to the Editor: Most scholarly journals publish articles that pertain to the workings of the profession but are not 'scholarly' in nature.

Important Questions
Questions to ask when reading and interpreting scholarly articles:

1. What is the source (journal) of the article?
2. Was the article peer-reviewed?
3. Who are the authors and what are their affiliations?
4. What is the main subject of the study?
5. What was the problem(s) investigated?
6. What is the purpose of the rationale for the study?

7. Who or what constituted the sample of the population?
8. What was the design of the study?
9. What are the statistical analyses used?
10. What are the results?
11. Are the results clear?
12. Did the results answer the identified questions?
13. Do the results seem valid?
14. Are the interpretations of the results consistent with design and analysis?
15. Are the results consistent with findings from similar studies?
16. What do the results mean to medicine and health care, to health care workers, patients and others?

A Research Proposal

A research proposal is a document proposing a research project, generally in the science(s) or art, academia, and generally constitutes a request for sponsorship of the research. Proposals are evaluated on the cost and potential impact of the proposed plan for carrying it out.

Research proposals generally address several key points

- What research question(s) will be addressed, and how they will be addressed
- How much time and expenses will be required for the research
- What prior research has been done on the topic?
- How the result of the research will be evaluated
- How the research will benefit the sponsoring organization and other parties

Types of Proposal

Research proposals may be solicited, meaning that they are submitted in response to a request with specific requirements such as a request for proposal, or they may be unsolicited, meaning they are submitted without your prior request. Other types of proposal include "pre-proposals" where a letter of intent or brief abstract is submitted for review before submission of a full proposal; continuation proposals which reiterate an original proposal and its funding requirement to ensure continued funding; and renewal proposals, which seek continued sponsorship; and renewal proposal, which seek continued sponsorship of a project which be otherwise terminated.

Academia research proposal

Research in the sciences and visual art

Research in art and science should to a greater extent complement each other, to make meaningful and good research in education going forward. Generally speaking, research is always seen as the application of practical knowledge on theories, principles, and guidelines and the verification of these principles and the reliability of these principles to solve different types of problems or achieve concrete results.

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work. Scientific research on the other hand is the systematic investigation of scientific theories and hypotheses ... such a method allows scientists to construct questions about observed phenomena, conduct experiments, and analyze results. In addition to the scientific method, researchers in this area depend on the peer reviews.

The Relationship between Art and Science

Traditionally, art and science have been treated as two separate disciplines, but when they are studied together it is clear to see the impact one has on the other. A great deal of creativity is required to make scientific breakthroughs, and art is just as often an expression or a product of scientific knowledge, this simply explains the situation.

Art-informed research is a mode and form of quantitative research that is influenced by, but not based on the arts. The methodology infuses the language, process, and form of literacy, visual, and performance arts into scholarly inquiry to advance knowledge. Creative research method is often treated as though they are new, yet researcher has always used creative ways to solve problems. Any research project is made up of hundreds or thousands of decisions and each decision holds space for creativity.

Research in any society is highly valued, we need to understand why being engaged in legitimate art-making tasks or process implies that one is also engaged in worthwhile research activities. While the values of research in the natural and social sciences are widely recognized, the fact that artists are also engaged in research must also be acknowledged and not ignored. However, the research operations associated with creating art are quite different from the research activities of the scientists.

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Research in both natural and social sciences relies upon measures that generate quantitative data from which qualities are inferred; for example, a high number equals the intensity of agreement, pressure, what is valued, and so on.

In visual art counting the number of times something occurs reflects on the level of its significance. For example, if when excavating an ancient temple a particular symbol appears again and again on a variety of objects, it is concluded that the symbol was important to the ancients who built and used the temple or any other similar thing.

In science, specific instances of behaviour are identified and quantified very carefully. These are translated into qualities which become the basis for formulating generalizations about phenomena. These formulations become principles or constructs that govern our understanding of the natural and social world.

In art “style", a term used by both art historians and art critics, is a construct for thinking about reoccurring characteristics in works of art. A particular style is inferred from observing and categorizing common elements in works produced by a variety of artists, or in the works of an individual artist or art movement.

The artist as researcher

Artistic research is not concerned with either identifying or quantifying data. Artists rely upon their perceptions of the natural and social world.

The focus of research activity

It is the experience of a phenomenon and the qualities of a work of art that instils the focus of the artist's research. As artists respond to objects and events - the description of a particular person or design that is the varying character of graphic media - particular feelings or thoughts are evoked that are translated into personal statements. These responses relate to qualities such as the intensity of colours and variations in spatial forces and tensions that are associated with experiencing a particular phenomenon.

Careful observation is central to the efforts of scientists while examining phenomena - the behaviour of humans or animals. The chemical reactions of compounds are the basis for generating the information required for translating observations into facts and generalizations. A scientific response would be to observe the sunset as a predictor of hot weather based upon having quantified how often such sunsets are followed by hot days.

Methods for generating data

The artist's methods for generating materials for his works are non-standard. Observational techniques and what artists will respond to are characteristic and are often dependent upon the artist's frame of mind. Rather than being logical, the methods used by artists for generating data are expressive; e.g., creating accidental colours when spreading paint, or attending to and distorting particular facial features or a spatial field.

To observe phenomena as objectively as possible, scientists utilize standardized techniques and approaches which have been established empirically. Their methods are logical and can be replicated by other scientists.

Forms for reporting data

The artist, who is expressing personal reactions to experience, and standardization, is abhorrence. In addition, the particular form that is employed is inseparable from the content of what is being expressed. For example, a symmetrical and static organization of visual elements impacts differently upon what is ultimately expressed than would an asymmetrical and dynamic arrangement.

Scientists utilize a variety of devices for reporting the nature and findings of their research; e.g., graphs, pie and bar charts, etc. There are standardized methods for describing data and even standardized writing styles for reporting one's findings.

Ways of representing results of research

Discursive, serial, logical, and literal interpretations and descriptions of observations are employed by scientists to represent their activities and findings clearly and unemotionally.

Nature of generalization

Artists employ poetic, non-literal, symbolic and metaphoric interpretations of their experiences. Compositions are designed to convey a vibrant and imaginative sense of one's experience. The literal aspects of the research of artists are limited to the actual physical nature of the materials or media of expression; e.g., tactile (not visual) textures of paints or pastels, projected coloured light (films), concave or convex volumes (sculptural forms), etc. Almost everything else is a representation or an interpretation of experience. Particular arrangements of shapes and colours can denote signs for hands or feet or facial components, etc. Signs become symbols when relevant associations are made. For instance, a pursed mouth in a carved mask may symbolize sadness within the culture where such an association has evolved. When technique and form merge into meaningful content, the artist's efforts may serve as a visual metaphor for feelings and beliefs.

Artistic research flows from the general to the specific. Works of art are created in response to life's experiences, which are reflected in distinctive statements that embody particular aspects of broad experience. The artist studies objects or things in general and then creates a particular work concerning it. But particular works also embody generalizations. For example, a distinctive portrait of an individual may also project a general sense of world-weariness or dignity or a demeanour of restrained elegance, as in an artist's Portrait of a Professor.

Scientific research flows from the particular to the general. Findings from investigations of specific phenomena are the bases for stipulating broader generalizations.

Interest in prediction and control

Neither control nor predictions are of interest to artists. Their concerns are centred on making a heuristic (exploratory and self-educating) effort when engaged in creating expressive forms. The results of these efforts are not pre-determined because it is essential to remain ready to take advantage of unforeseen, unexpected events ("happy" accidents) as one's work evolves.

Scientists are very concerned with carefully controlling the nature of their experimentation and/or study. Controls are essential to generating data that are both reliable (stable) and valid (accurate). It is these kinds of data that are of interest to scientists because such information can be used to formulate testable hypotheses and to confidently predict future events.

Criteria for establishing the worth of research

The validity of the artist's effort is based on the work of art created that is based upon judging the credibility of the relationship between form and content, as well as the integrity of the artist's personal view. Within the realm of science, establishing the worth of one's activities and findings is achieved through the use of formalized procedures and instruments. For instance, particular statistics, selected based on the nature of one's research, are computed to project the levels of confidence one can have in the reliability and validity of one's findings.

Ultimate aims of the research

Art moves from a general view of experience to a particular interpretation of the meaning**.** Self-expression and the creation of meaning are the ultimate aims of artists. They seek to produce images that will be reflective of one's particular interpretation of the meaning of one's experience, which includes both individual and cultural attitudes and values.

Because it is primarily concerned with expressing the perceptions and beliefs of individual artists living within particular cultures, art does not improve. The art forms produced today are no better than those produced thousands of years ago.

The primary concern of art is the exposition of meaning; what it means (and feels like) to be old, delighted, awed, exalted, attacked, maimed, elated, exhausted, sombre or sober, peaceful or agitated, conflicted or tranquil. Art speaks to us metaphorically about the nature of phenomena and one's emotional (as well as intellectual) reactions to life's experiences. And the value of artists and their works is based upon the extent to which the meanings created are significant and cogent expressions of both the artist and the psychological and social contexts in which works of art are created

The ultimate aim of science is to discover the truth. Scientists strive to generate true statements about reality by describing the physical and social world with ever-increasing reliability. Their investigations move from examining particular objects and events to the exposition of facts (reliable knowledge) and valid generalizations. Because of its logical and cumulative nature, science is always improving.

Writing your Research paper

The first questions that come to your mind should be what type of paper are you writing? Is it a report, analysis, or argument? The type of points you intend to make will determine the types of information (facts, statistics, opinions, interviews, historical studies, etc.) and the amount of cited research you will need to include to fully support your ideas.

What is the minimum word - count or page - length required for your paper? Is there a maximum? Knowing how much material your lecturer/professor expects gives you an idea of the depth of your research topic. Can you fully explain your ideas and make your points about your specific topic within the guidelines of the research work? Knowing how much you will need to write lets you scale the topic to the assignment, and gives you an idea of the amount of material you can use to support your thesis.

Which citation style will you use? This is an important time-saver, allowing you to format in-text and reference list citations correctly from the beginning. What types of sources can you cite as support for your thesis? Are peer-reviewed or scholarly journal articles expected? Are websites, blogs, or interviews permissible? Is your lecturer/professor looking for strictly primary materials, or is some combination of primary, secondary, and tertiary materials acceptable? Knowing all this in advance lets you focus your information-gathering efforts on the right types of support materials, saving time in the long run. When is your paper due? Be sure to start your paper early enough that you leave enough time after writing your drafts for proofreading and revision. Often, reviewers or project supervisors will note that some points are unclear or confusing, requiring you to gather additional support materials to strengthen your arguments.

Formulating Your Thesis

Your literature review likely strengthened your familiarity with your topic, helping you to identify a refined focus for your research. Now that you are aware of the issues, trends, and mysteries regarding your topic, you should have an idea about how to contribute answers, further questions, and observations of your own. Your research question will drive your entire project - the information that you gather, explore and write will all focus on this question. Depending on your assignment, you will write a thesis statement or a problem statement to introduce your paper. A good thesis statement is neither too broad nor too narrow, is interesting to you, and poses a unique question that you will answer through your research. A thesis statement includes your narrowed topic (your research focus) and the main idea of your paper (what you will show or prove about your topic).

A problem statement typically defines the problem, states a proposed solution, and describes the research that you will conduct to reach the solution or attempt to solve the problem.

1. Why does your research question need to be unique?
Your research question needs to be unique because your research should add to the body of knowledge. Find your perspective about your topic, and focus on the ideas, problems, or connections that others have not yet addressed - academic work can be interesting!

2. Does your research question always need to be interesting to you? What if your class is boring and you just don't like the subject matter?

The purpose of education research is to gain knowledge. If your research question is interesting to you, the process of researching and writing will also be more interesting and will result in a better paper and better knowledge. With a bit of brainstorming, it is possible to find an interesting angle on almost any topic, even one that initially appears boring! Finding that angle at the beginning of the process makes the rest of the work much more exciting.

Analyzing Your Data

If your research or assignment involves the collection of data, you will need to both figure out what your data means and be able to explain it accurately to your readers. Analyze your results mathematically, using mean, median, mode, range, percentages, etc. to find explanations of your results, and then present your findings visually using charts, graphs, and other visuals. Below are some data analysis and visualization tools:
Simple Interactive Statistical Analysis – is an online tool that you can use to perform statistical analysis instantly.

Vassar Stats - an online analysis tool with great instructions included.
Excel Charts - step-by-step charts using Excel, from Microsoft Office.
Many Eyes - s site that allows anyone to upload data, visualize it, and talk about discoveries with other people.
Power View/Excel - quickly create a variety of visualizations, including all kinds of charts, maps, and combinations.

Supporting Your Points

When you are writing, it is important to read the materials that you collected during your literature review and identify ideas that both support your own and present differing opinions. You want to be able to address all sides of the issues related to your thesis to make your arguments stronger. But how do you integrate portions of your source material throughout your thoughts in a logical manner?

Create a first draft using your ideas only. This allows you to clarify your ideas and find your own writer's voice. Developed points as a first step result in an original paper and eliminates problems with including too much-cited information.

Support your ideas. Once you have written your first draft, you can more easily identify which points need support - remember that other authors' writing is included to explain, clarify, or illustrate your own, original ideas. You will need to add as much as is needed to fully support your points, making your ideas completely clear for your audience. There are several ways to blend source materials into your final document:

Full quotations are verbatim sentences or passages that are surrounded by quotation marks, with in-text citations following each. These can be considered when the support material to be quoted would be incomplete otherwise. Be aware of the rules required by your citation style for longer quotations; some styles require indentation or other special formatting.

Partial quotations are useful when only a portion or even one word from the source is needed to provide validity to your work. These are also surrounded by quotation marks and include in-text citations.

Paraphrasing is a useful strategy when the source contains good information but is poorly written or written in a style that makes it difficult to read or understand. Paraphrasing, or restating another person's writing in your own words, allows you to maintain the original ideas in the source material but incorporate them more smoothly into your writing. Paraphrased content does not contain quotation marks, but it does require in-text citations.

Summarizing source material lets you convey the message in the source material but with fewer words. Rather than restating all of the details in the support material, summaries retain the most important idea of the material, providing general support for your writing. Summaries are not quoted, but are always cited.

Explain why the support material matters to your argument. As you write, remember that support material cannot stand on its own. Your ideas, observations, and results are made clearer and fully understandable with the addition of support material, but the relationships between other people's writing and your own must be explained. What connections are you attempting to make between the source material and your ideas? Why did you choose a particular quotation to support a particular idea? Explain your reasoning. Don't make your audience work to figure out meaning. Explain your point, explain it again, give an example, and then explain that example.

Make your paper readable. Signal phrases can help to introduce cited material, indicating the relationships of quoted material to your points and blending quotes smoothly into your writing. This approach interweaves your thoughts together with those of your sources, providing structure, better flow, and continuity.

Presenting Your Research

Before your paper presentation, get your ideas out and share your work with others! Whether you will present your research to your academic department, a group of 20 peers, or a conference attended by 3,000 people, planning your presentation with a few key points in mind will ensure that you get your message across and survive to tell the tale. Ask yourself these questions when planning the speaking portion of your presentation: What is the purpose of your presentation? What points or lessons do you want your audience to get from your presentation?

Who is in your audience? Will you present to experts in your topic or a mixed group with various knowledge levels? Is your audience international, and will that impact what you say?
How much time do you have? You want to make sure you get to make all of your points, but be respectful of your audience's attention span. Keep your points simple - and memorable!
Are you being clear? Present the basic or background information before explaining complicated data analysis or results.

A basic format is below:
Introduction: present yourself, your topic, and your key points
Body: Tell the highlights of your findings, observations, and trends

Discussion: Include any diversions from your original thesis statement and any need for future research

Thanks: Tell your audience that you appreciate their attention, and let them know how they can contact you for further questions.

Are your visuals effective? Be intentional about the content you add to your slides. A very brief summary of your point adds more value than a full slide of text, and a well-chosen image can get your point across in ways that words cannot.

Below are some visual presentation tools to peruse:
PowerPoint - Microsoft's presentation software is a popular option for putting together visual slideshows. Your PowerPoint can also be saved and shared to many other sites.

Slide Share - This lets you upload and share your PowerPoint which is a very nice cloud storage option.

Haiku Deck - Presentation software with a very visual, "keep it simple" focus.

Prezi - Dynamic, easy-to-create presentations stored online.

ISSUU - Offers a free option for creating presentations with page-turn animations.

1. When presenting a paper to a group of people, why not simply read it in its entirety?

When presenting a paper to a group of people, reading a paper in its entirety might result in a roomful of sleeping audience members! Keep your audience's attention by identifying the

absolute take - away points of your paper and focusing on getting those points across in a more personal, engaging way. When done right, your presentation may lead audience members to obtain a copy of your paper to read them for further information.

2. Why is it important to understand the familiarity of your audience with your topic?
Understanding your audience's familiarity with your topic gives you an idea of how much background information you need to include so that everyone can engage with your talk and follow along with your points. Including too much background may cause experts in your topic to lose interest, making it more difficult to engage those people for the new observations portion of your talk. Including too little background may make novices feel that your talk is over their heads. A few very quick questions at the beginning of the talk can help you to gauge levels of understanding if you don't already have an idea of your audience's knowledge

Writing a Research Paper for an Artist
Introduction
1. Compose the statement
2. Then "frame" your thesis
3. If you are focusing on artwork, remember to put the artist's name/artist name(s), the title(s) of the work (s) and the date(s) in the first paragraph

Writing an Art History paper

- Choose your desired topic
- Look through an art history book. Slow and leisurely
- Look through a list of art history topics for ideas. Good starting points state or write the artists' Bios and images galleries
- Pick a topic based on an eye appeal and compelling personal interest

Fill your Brain with Information

- The brain works with information, Empty brain, empty writing
- Research your topic using websites, books, and articles
- Read footnotes in the books and articles, they can lead to creative thinking
- Be an Active Reader
- Ask yourself questions while you read and look up what you can't find or don't understand on Take note
- Search the internet with words, names, and titles you learn
- Write down interesting facts and thoughts that come to mind while you read

Writing your Introduction
Compose a thesis statement. Declare that you have noticed something about the art, artist, critic, Patron or whatever your focus is for your analysis. Then "frame" your thesis. Tell your reader about discovering information that can help us understand the works of art better. For example, the French artist Paul Gauguin moved to Tahiti late in life. Your thesis analyze his late paintings in terms of the Tahiti lifestyle that you have read in his biography. If you are focusing on

artworks, remember to put the artist's name/artist's name, the title(s) of his works and the date(s) in the first paragraph. You can refer to the title(s) alone after

Describe and Point out What You Want the Reader to Notice

If you are going to include the artist(s) biography begin with a summary, unless your paper is a biography of the person, most of your paper should be about art not life. Make sure your arguments are constructed in a parallel fashion. Establish a sequence of information and consider the paragraph unit f information. Each paragraph should discuss the topic within the quantity of information you plan to cover. Ideas for units of information or topics, appearance, narrative, iconography, history, artist's biography, patronage etc. Whatever will help you support your thesis? Iconography might require more than one paragraph especially if your whole paper is about analyzing the iconography of a work of art. Again, write about the connection between what you decide in these analyses and what you declare in the statement. Follow the same sequence of ideas for the second artwork, artist, critic, patron etc. Follow the same sequence for the third work, artist etc. When you have analyzed all the examples, synthesize, compare and contrast.

Comparison: Dedicate one paragraph to discussing the differences between the artwork, the critics, the patron etc.

What do you want Your Reader to learn from Your Essay?

Reiterate the thesis. Remind your reader about your findings in a summary sentence or two
Persuade the reader that you have demonstrates that your thesis is soundly based on your findings.

Optional; State your analysis is important in terms of understanding a large picture (but not too large). For example, the artist's other works from that period, the artist's work together, and the work's relationship to the movement of the artwork to the movement in history. The connection should not open new topics, but simply offer the reader food for thought and then declare this investigation is beyond the scope of your paper. Do not write that art history is wonderful and you have learned a lot.

Editing

Be sure to footnote/cite your sources. In the body of the paper when you use information or an opinion from a book, article, website etc. Make a list of your sources at the end of your paper. Follow your teacher's instructions and /or visit a website on citation styles or biography style. Ask the teacher which citation style she/he wants you to use.

Check the followings:

Titles for works of art should be in italics *The Birth of Venus*. First and last names begin with a capital letter. Exceptions include places and familiar indicators including "da" "de", "den" and "van" and others unless the last name begins the sentence. ("Van Gogh life in Paris"), mouths

and days of the week begin with a capital letter. Language, nationality and countries name begin with capital letters. Leonardo is not called Da Vinci

Conclusion

Research is highly valued because of its importance in education, is essential for us to understand why being engaged in legitimate art-making tasks or process implies that one is also engaged in worthwhile research activities. While the values of research in the natural and social sciences are widely recognized, the fact that artists are also engaged in research must also be acknowledged and not ignored. However, the research operations associated with creating art are quite different from the research activities of the scientists.

Research is the systematic investigation into the study of materials and sources to establish facts and reach new conclusions. Research in the sciences is aimed at increasing know-how or knowledge, and creative research activity is an effort aimed at using basic research for solving problems or developing new processes, products, or techniques. Research in both natural and social sciences relies upon measures that generate quantitative data from which qualities are inferred; for example, a high number equals the intensity of agreement, pressure, what is valued, and so on.