

WHY RESEARCH METHODS MATTER



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Research Core-Science

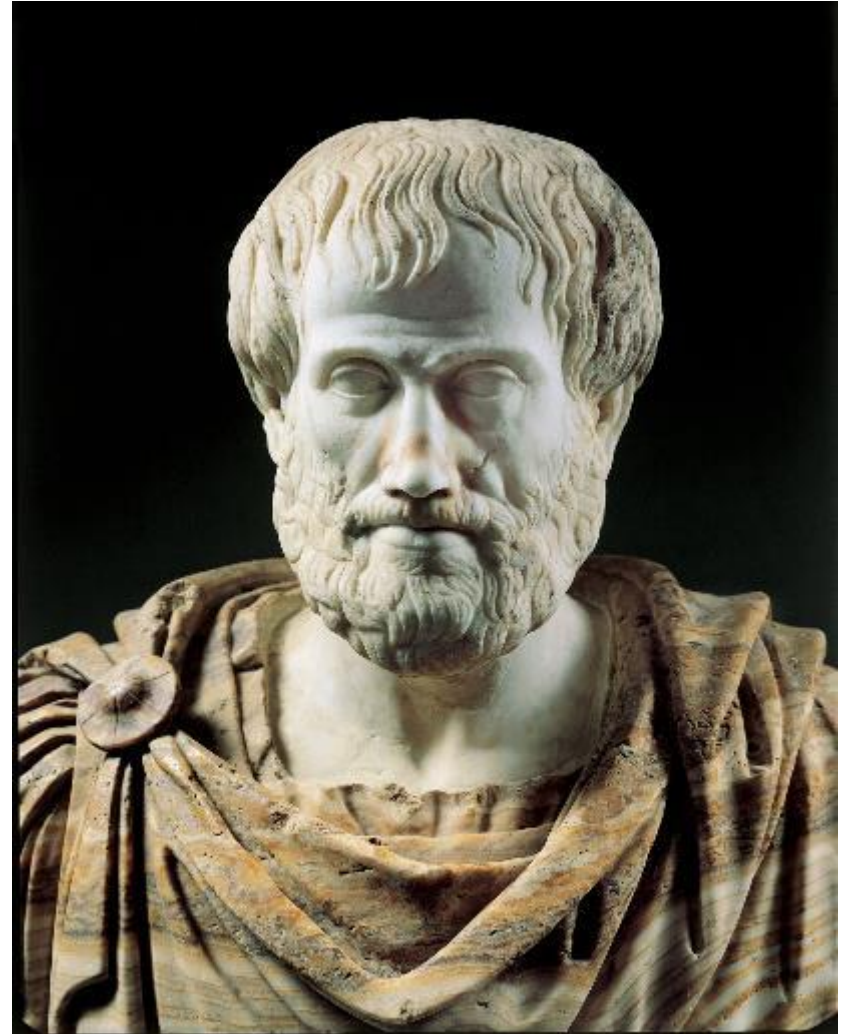
Methods



- **Research Methods** include all the ways researchers systematically study anything to better understand it, uncover new information about it, or explain why things happen as they do.
- Ultimately it is through the **application** of sound research methods and principals that we advance our understanding of the world.
- It turns out that that how much we discover information about the world matters just as much as what we learn.

Aristotle

- ❑ Aristotle thought the heart controlled sensation and movement and not the brain.
- ❑ Having never dissected a human body, he drew the wrong conclusions about the purposes of human organs.



Types of Research (**Basic** and Applied)



- **Basic** and Applied Research
- Known as pure or fundamental research aims at answering questions that lead to gains in knowledge, understanding, and prediction.
- All about advancing our general knowledge of how the world works.

Types of Research (Basic and **Applied**)

- Aims at answering questions that lead to direct and practical applications in the world.
- Uses the findings of basic research to develop practical solutions aimed at changing the world.
- Must be grounded in the findings of basic research therefore the two (Basic and Applied) research are connected.



Types of Inquiry



- **Exploratory Research** focuses on the initial exploration. This is typically done as a precursor to other types of research to learn more about a topic or problem or what others have said about it.
- **EXAMPLE:** Scholarly Literature Review
- **Descriptive Research** is when you attempt to describe something in detail but are not aiming at explaining why something is the way it is.
- Who, What, Where and When



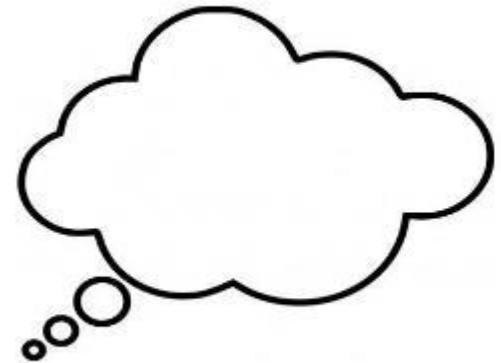
Types of Inquiry Continued...



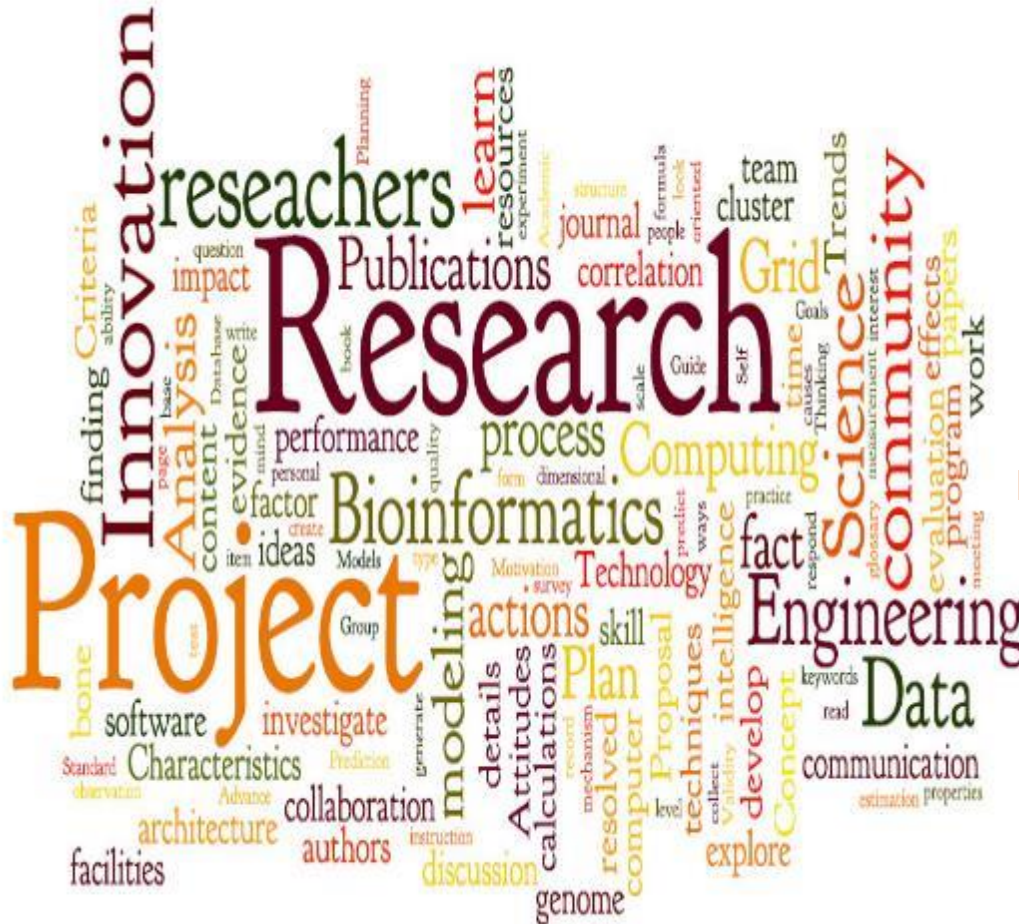
- **Explanatory Research** can be a natural follow-up to descriptive research.
- Aims at questions of why and how; the goal is to evaluate cause and effect and explain why and how things work the way they do.
- *Still another distinction in types of research between Quantitative and Qualitative Research!*

Quantitative Vs. Qualitative

- **Quantitative Research** focuses on analyzing large amounts of data that can be readily expressed in numbers. Example: SAT Data
- **Qualitative work** can also have numbers but usually involved data that is not easily boiled down to numbers and therefore tends to focus on small numbers of cases or subjects. Example: Feeling and Perceptions



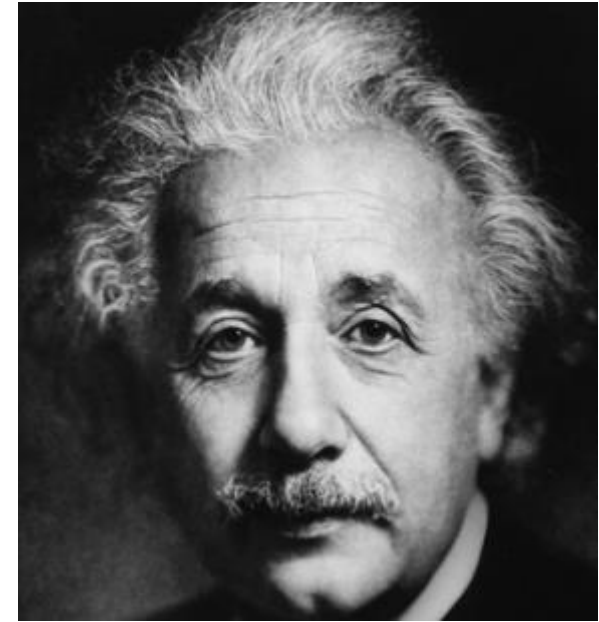
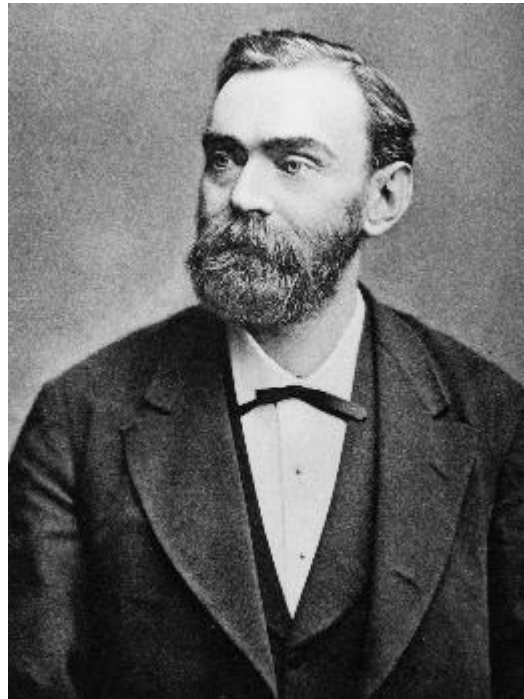
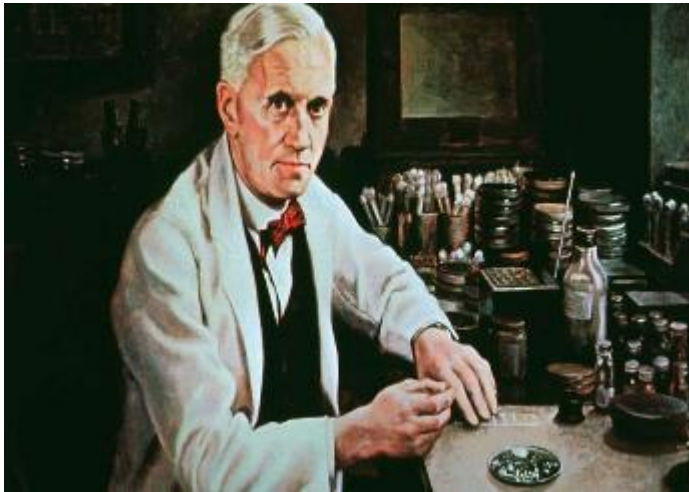
Research Projects



- Different disciplines focus on different approaches to research, and the nature of **YOUR** project will often dictate which kind of research you do!
- Regardless of the type of research you choose, ultimately you are trying to explore, describe, understand, explain, evaluate, or predict something about the world.

Important

- You don't always find what you expect in research.
- Alexander Fleming (1928)
- Alfred Nobel
- Albert Einstein



Research Open Mindedness

- ❑ Be open minded in Research!
- ❑ You can't go into research thinking you know the answer and only look for information that confirms your preexisting ideas.
- ❑ You never set-out to prove that you are correct.
- ❑ Your job is to try you hardest to disprove your ideas.



Challenge Yourself! 😊



- Its human nature to believe a study that confirms your existing beliefs, even if the study was poorly or systemically done.
- The study that challenges your beliefs is the one that really deserves your attention!

Thank you!

- Exploring the Scientific Method connected to Research.
- READ the “Plan of the Week” for upcoming assignments.



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