

MIT 7116 RESEARCH METHODOLOGY

Module 01: Introduction, Nature and Approaches

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2020/21

Introduction

- Common sense Vs scientific knowledge

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So, we do scientific research not common sense.

Common sense can carefully be upgraded to scientific research

Examples

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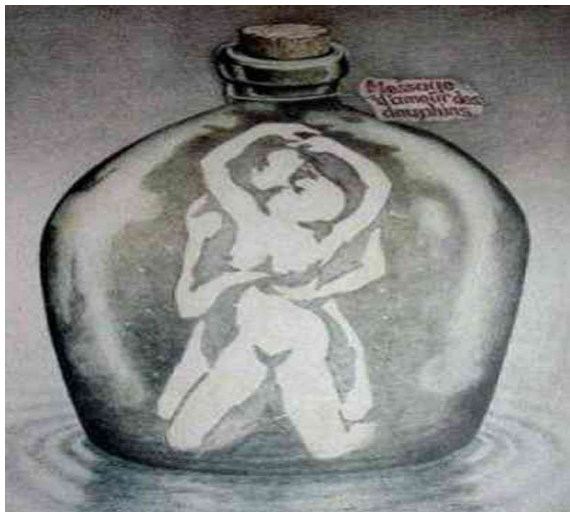
Whenever you make any statement that you claim to be a research finding, be ready for questions "why" and "how". The answer should not start with "I think"

Total \neq Sum

- What do you see?

Total \neq Sum

- What do you see?



Characteristics of Scientific Research

- Purposiveness
- Rigor-carefulness
- Exactitude
- Testability
- Reliability
- Precision and confidence
- Objectivity
- Generalizability

Why Research

- Finding solutions to problems
- Inform policy making
- Tactics - delay decision making
- Generate theories (basic research)
- Award like you
- Politics - determine degree of support
- Exploit a research grant
- Find solutions to mgt problems
- Find impact of an intervention

Types of Research

- Classified according to intent
 - Pure research
 - Applied research
 - Exploratory research
 - Descriptive research
 - Diagnostic research
 - Evaluation research
 - Action research

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What **RESEARCH** did you do for your undergraduate project?

- . . .
- . . .
- . . .

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- Research extends the body of **KNOWLEDGE**
- Not necessarily a real life problem

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RESEARCH

- Crime is a function of age, background, education level, tribe, gender, etc. Police SOP is the same sometimes wasting resources. I develop the "susceptibility index" basing on previous convictions

Research

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 - If in doing so a problem is solved, Good
 - If the knowledge is generated but problem not solved , also Good
 - People will read the knowledge, and use it to solve the problems, like you did in UG

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- The approach must be clear
 - Based on a sound philosophy
 - Justifiable by previous research (or by reason of the researcher deviating from the norm)
 - Clear steps/materials that the reader should be able to reproduce the results

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- Placement in State of the Art [Lit Review]
 - Demonstrate you know what is the current trending in the area
 - How it technically grew to that level
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 - What you do
 - How do you do them
- Discuss Findings
 - why are the Findings so?
 - where is their place in literature

Research - Illustration

Standard stable marriage problem

- Quantification of Optimism/Pessimism
- Solving truncated lists, non linear preferences, ties
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- Extend solution to identify leakage in a fluid graph

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Tell me one...(5 mins)

...

...

Research

Contributing to the body of knowledge entails

- New approaches
- New techniques
- More understanding of techniques
- Disaproving beliefs
- Limiting confines of correctness