بسم الله الرحمن الرحيم

جامعة قطر
QATAR UNIVERSITY

Research?
A Gentle Introduction

Tamer Elsayed

October 12th, 2014

Research 101

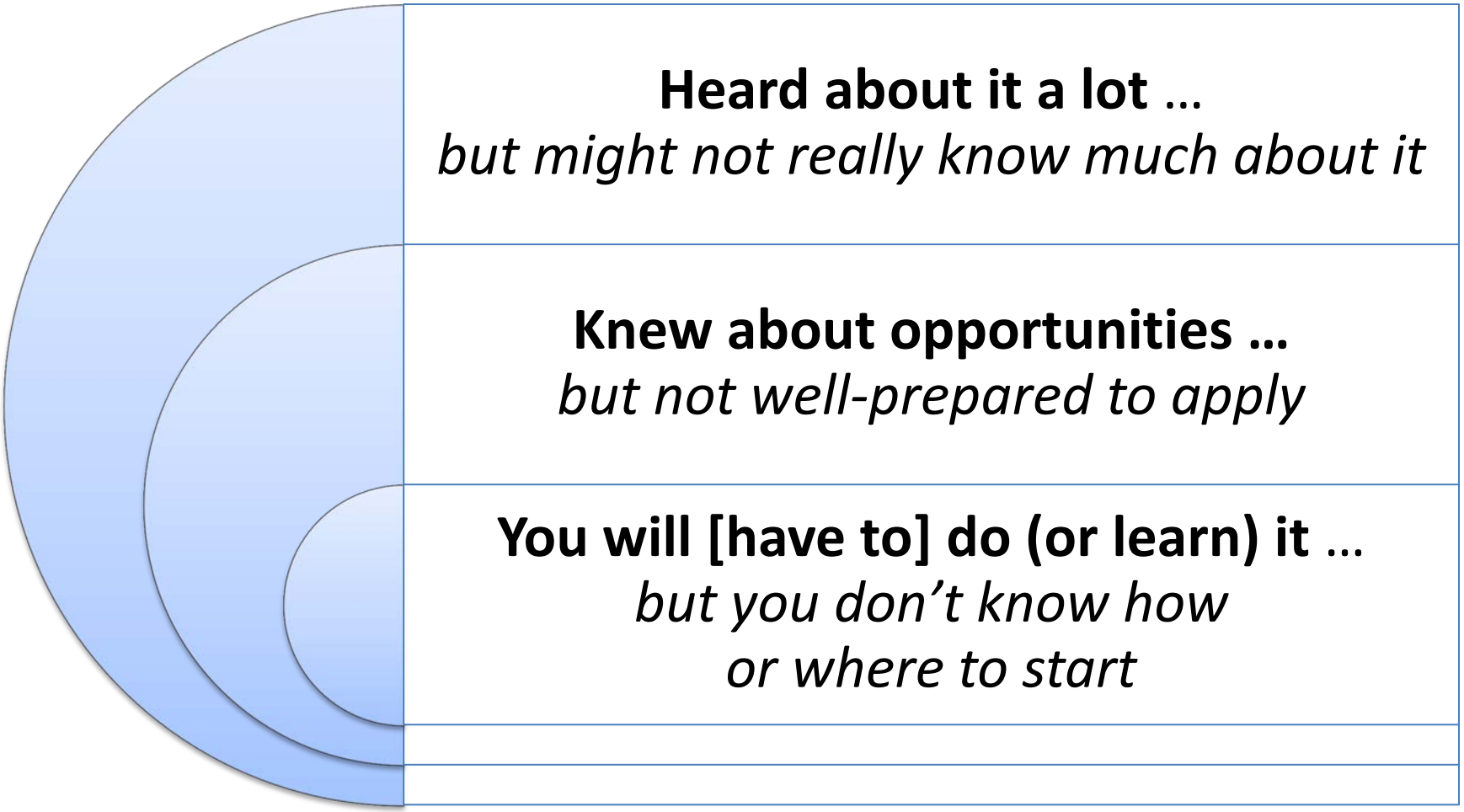
About me & my research …

- ***MSc*** in computer networks
- ***PhD*** in information retrieval
- ***Research assistant*** (5 years)
- Software Engineer ***Intern*** (a summer)
- ***Postdoc*** (2 years)
- ***Researcher*** (1 year)
- ***Assistant Professor*** (>2 years)
- >30 publications in top conferences (e.g., ***SIGIR***) and journals (e.g., ***JASIST***)
- ***Lead-PI*** of 2 NPRP projects

Current research interests: Twitter search & evaluation and Big data

Research 101

Why Research 101?



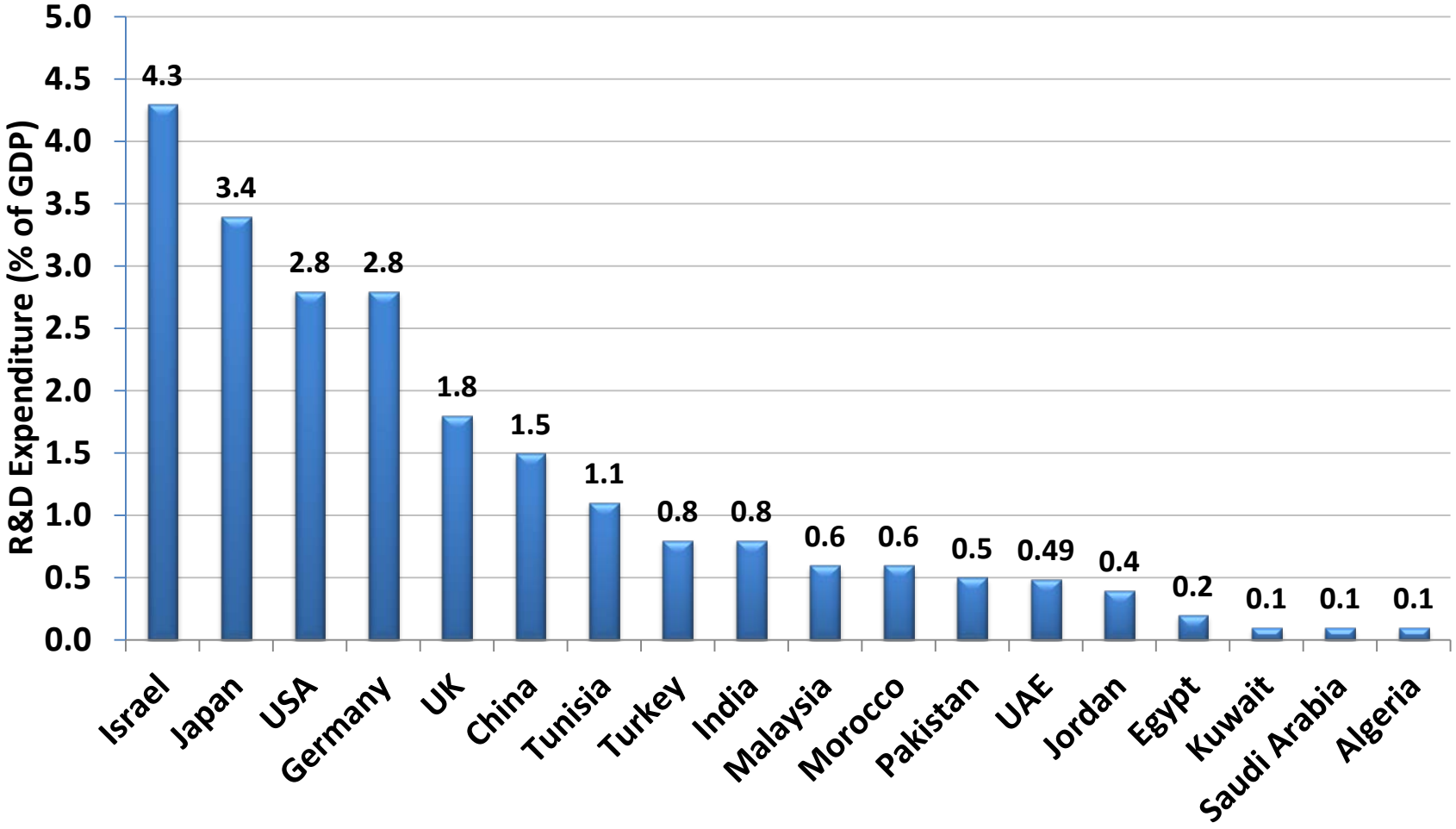
It’s not only important for you …

Science **is one of the basic** ***building blocks*** **of** ***any nation*****.**

Research **is** ***needed*** **for the advancement of science.**

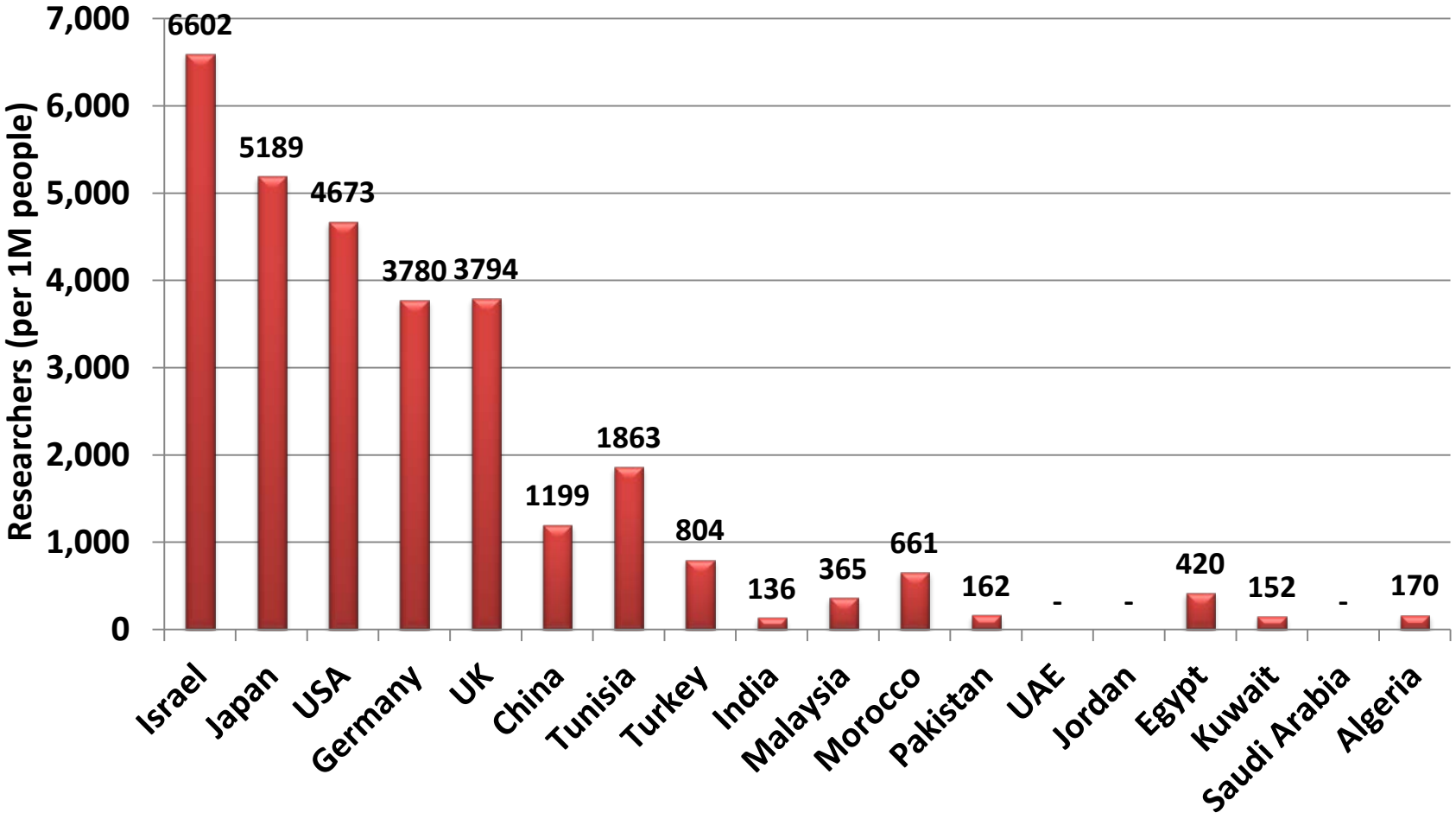
Research **is** ***essential*** **for the advancement of any nation!**

R&D Expenditure (% of GDP) in 2013*



* United Nations human development report 2013
http://hdr.undp.org/en/2013-report

Researchers (per 1M people) in 2013*



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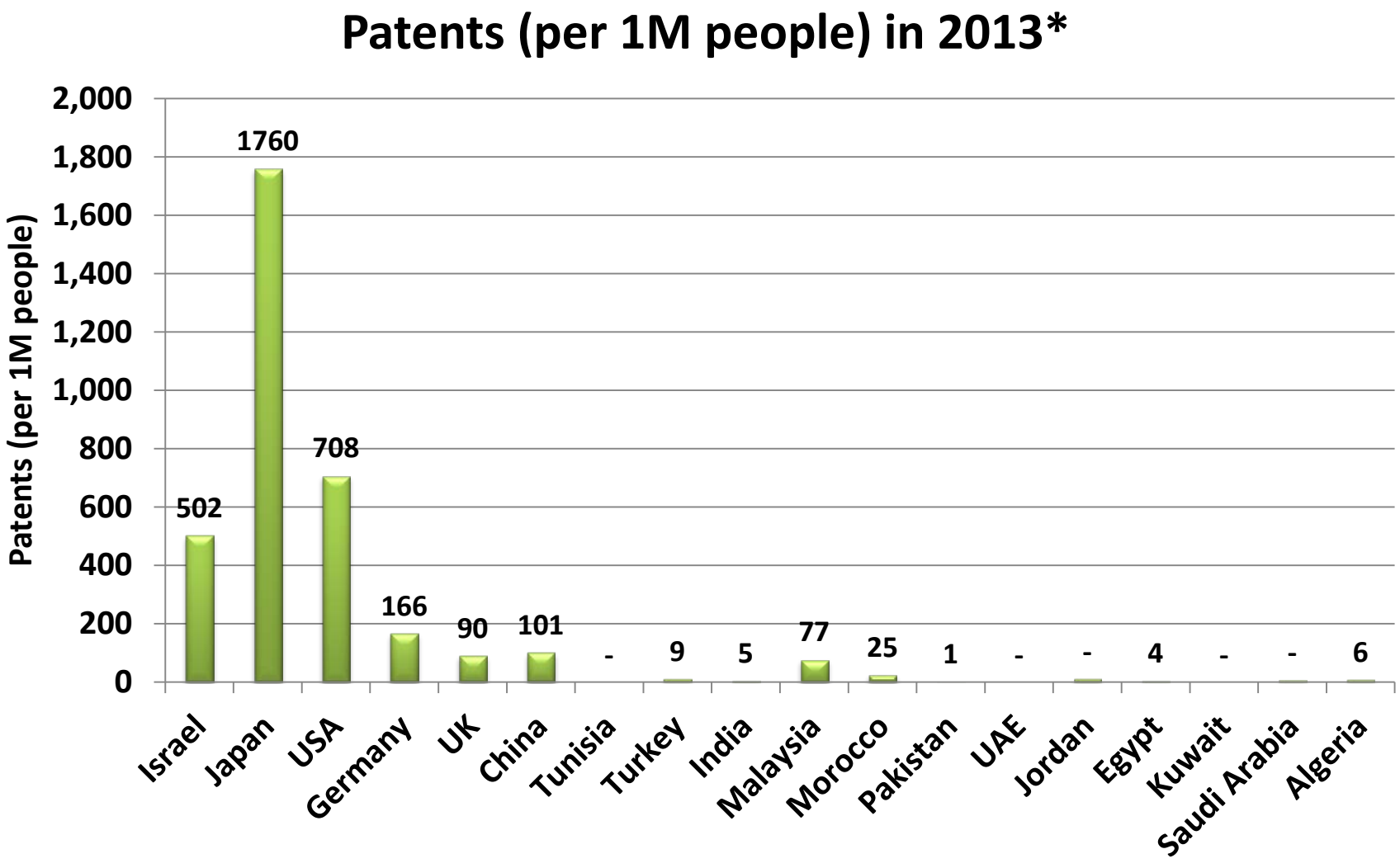

* United Nations human development report 2013
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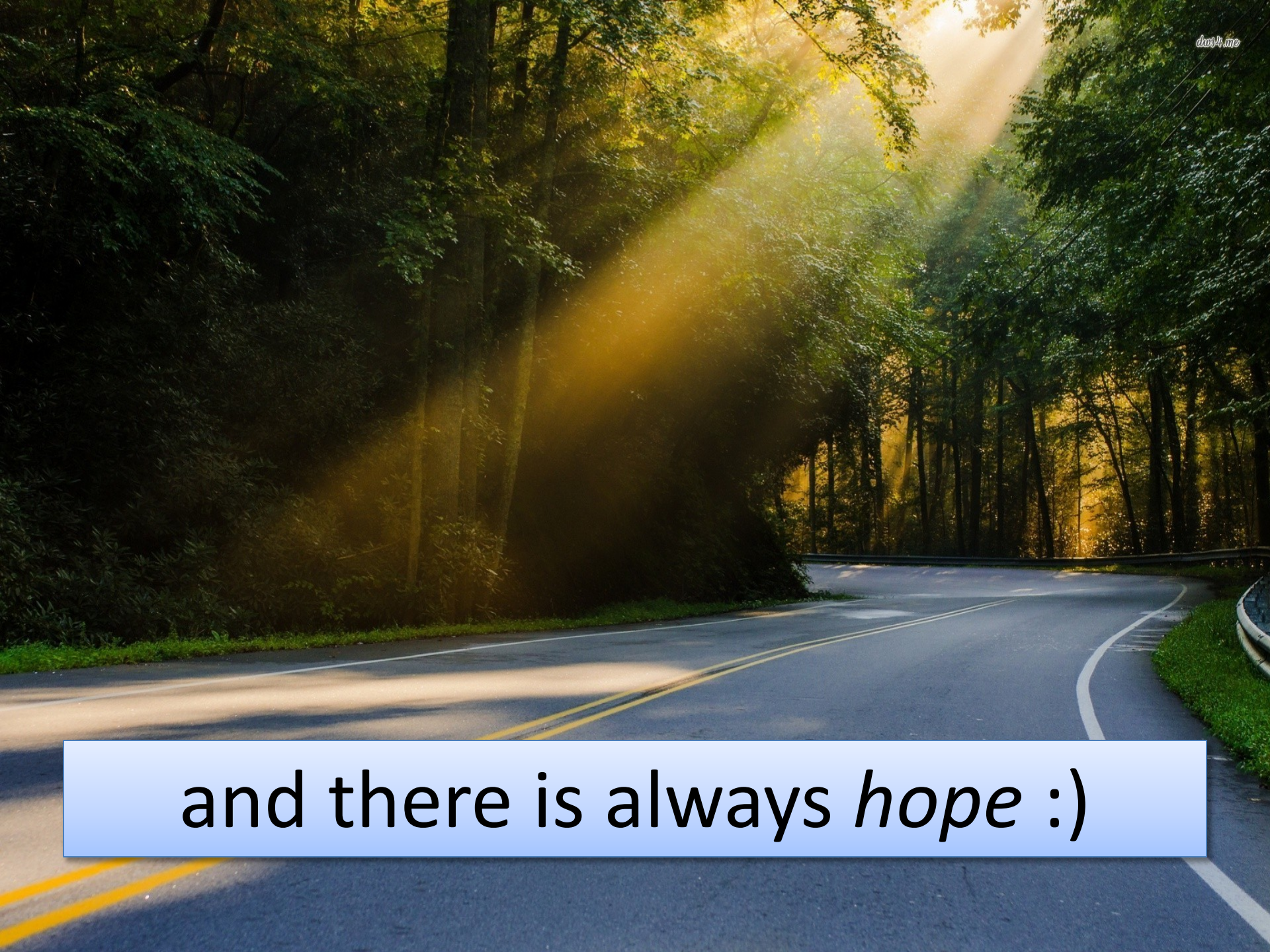
So what?!

Generation **that values science & research is required.**

We need to start … even with small steps.

Start with yourself!

Research has to be a priority.


and there is always *hope* :)

KEEP
CALM
AND
ENJOY
RESEARCH
KeepCalmAndPosters.com

Research 101

Sun	• *Research? A Gentle Introduction*	Dr. Tamer
Mon	• *How to Read a Research Paper*	Dr. Tamer
Tue	• *How to Pick a Good Research Topic*	Dr. Nasir
Wed	• *Research Issues You Must Know!*	Dr. Tamer
Thu	• *LaTeX: Writing Professional Scientific Documents*	Eng. Maram

hands on

All start at 3:45pm!

Check rooms on schedule

Please register beforehand!

RESEARCH?
A GENTLE INTRODUCTION …

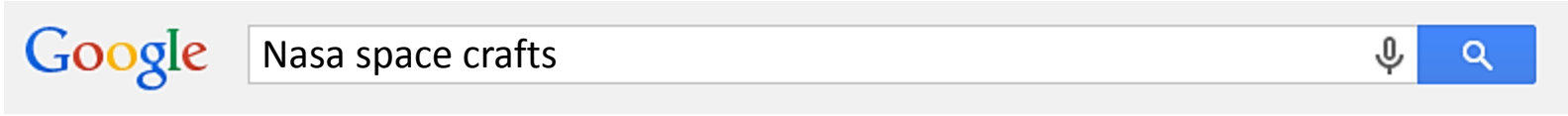
WHAT IS (NOT) RESEARCH?

We are all familiar with this …

Looking for something …

… is search, but NOT research!

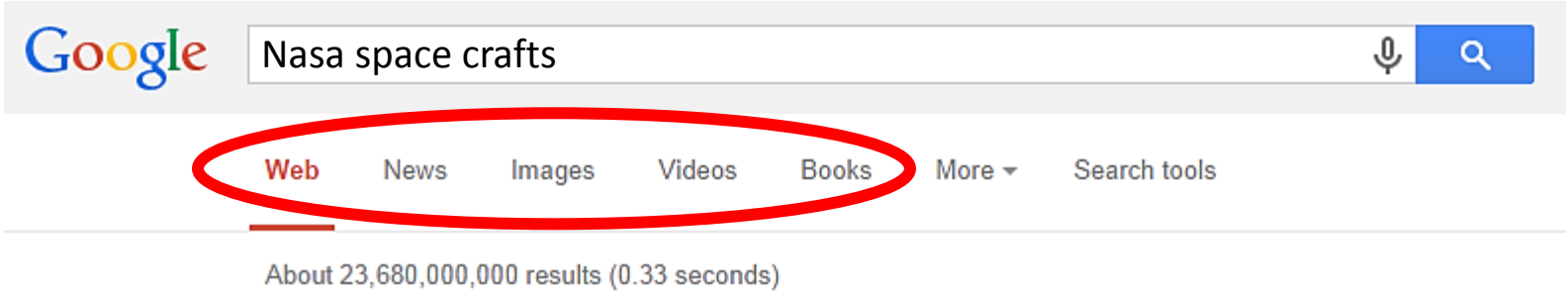
but with lots of results …



About 23,680,000,000 results (0.33 seconds)

… still search, NOT research!

but with different sources & forms of results …



… still search, NOT research!

What is **NOT** research …

- **Looking** randomly inside different books
- **Downloading** docs from different websites
- **Surfing** the Web
- "**information gathering**"
- Merely **transporting facts** from one resource to another
- **Searching** for data when writing an essay
- **Compiling** facts in written form

Why NOT?

No contribution to knowledge!

But search can be the beginning of the process that may end in research

What research is …

*"a search or investigation directed to the discovery of some fact by careful consideration or study of a subject; a course of critical or scientific inquiry."**

* Oxford English Dictionary

What research is (informally) …

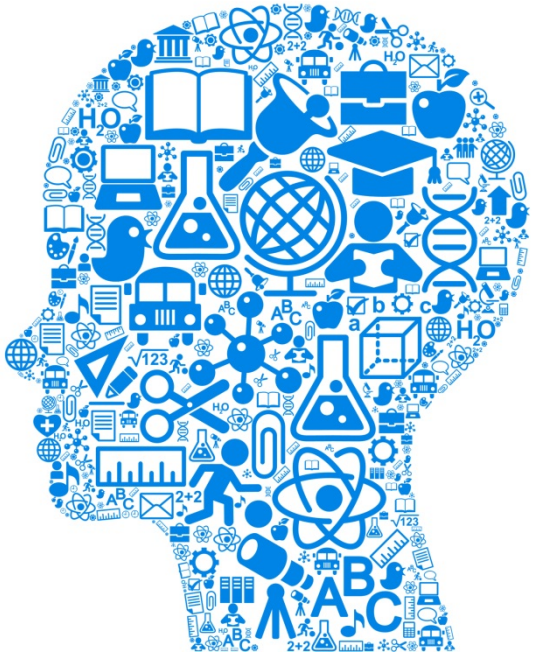
A systematic process of analyzing data (or information) or investigation of things to

- ***establish facts***
- ***reach new conclusions***
- ***increase our knowledge base***
- ***increase understanding of a phenomenon***

Properties of quality research

Critical or **scientific inquiry** is a **formal process**, intended to produce results that are

- incremental
- reliable
- valid
- replicable
- contribute to existing knowledge
- generalizable
- logical
- generating new questions
- intended for the betterment of society



WHY RESEARCH?!

Why is research important?

Guards against the dangers of casual inquiry

- Can guard against the fundamental tendency of people to
  - accept what we hear when presented as facts
  - accept tradition as fact
  - accept authority
  - inaccurate observation
  - overgeneralizations
  - selective observation

Why is research important?

Guards against faults of researchers!

- Can also guard against
  - applications of the misconceptions
  - careless or faulty methods and observations
  - opinions about the way things *should* be
  - ego involvement

Why is research important?

Provides solid foundation

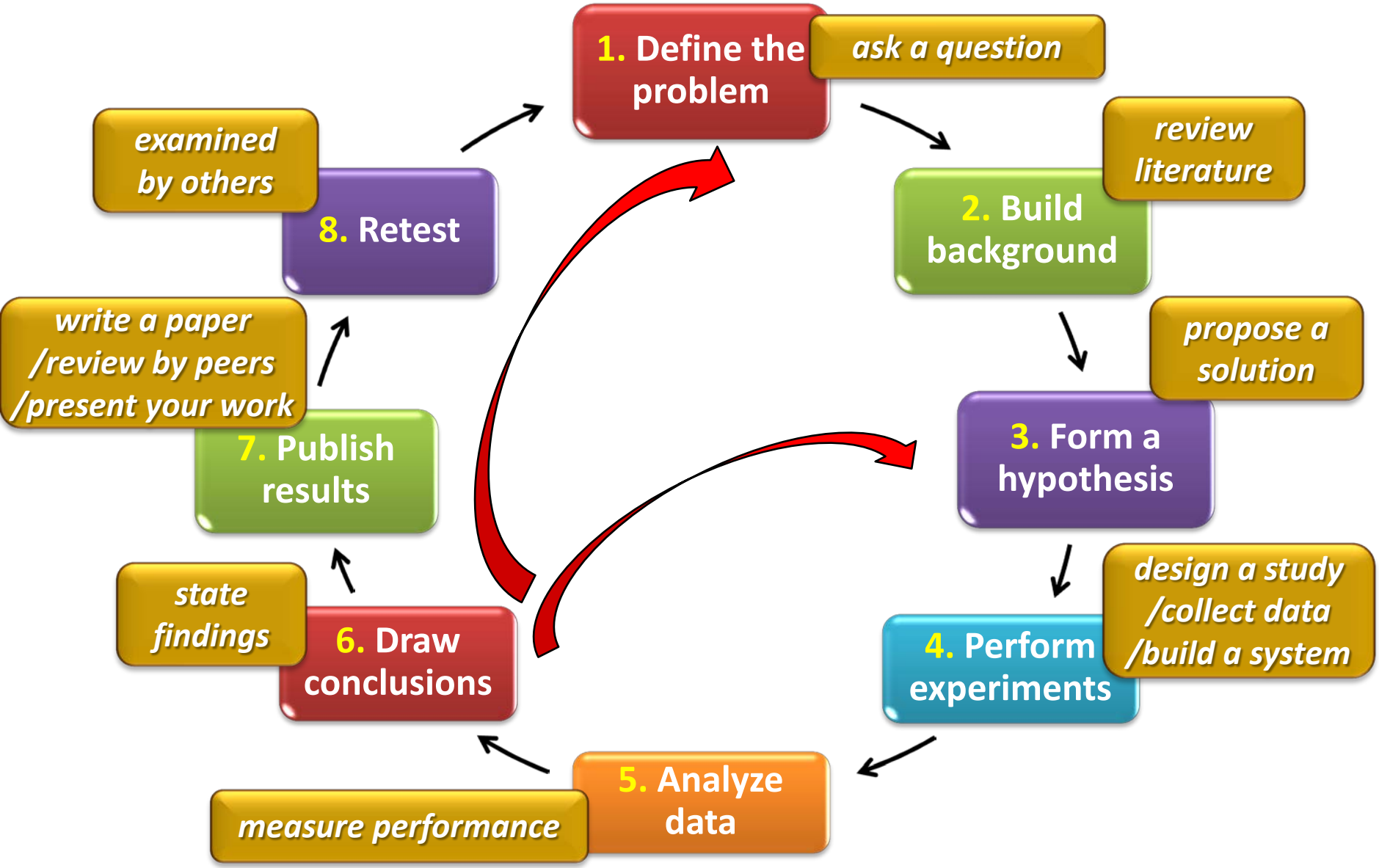
- Important also in …
  - Discovery and creation of knowledge
  - Theory building
  - Testing, confirmation, revision, refutation of knowledge or theory
  - Investigation of a problem for local decision making
  - Advancements in a discipline or field

RESEARCH PROCESS

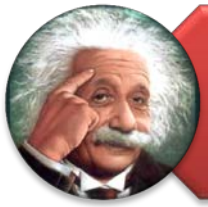
Research demands …

a systematic investigation or step-by-step plan

The Scientific Method



“Some” Misconceptions about research …



“You must be *so smart* to do research”

“You must have *cool ideas* to produce excellent research”

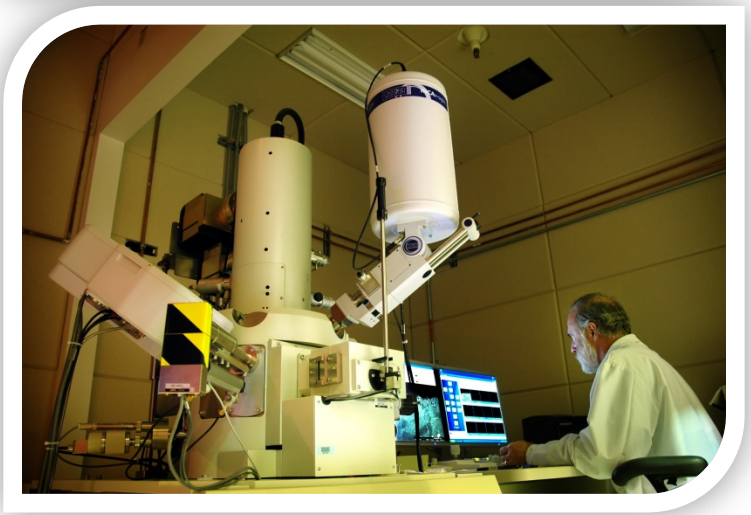
“You should have a sense of *where you are going* before you start”

“Research is *boring*!”

RESEARCH OPPORTUNITIES IN QATAR …

Study or Work?

- Study
  - MSc
  - PhD
- Work
  - Research Assistant
  - PostDoc
  - Scientist
  - Engineer
  - Others (e.g., consultant)



… or BOTH ☺

Where?

Universities

جامعة قطر
QATAR UNIVERSITY

Carnegie Mellon University Qatar

TEXAS A&M
UNIVERSITY *at* QATAR

and others …

Where?

Research Institutes & Labs

and others …

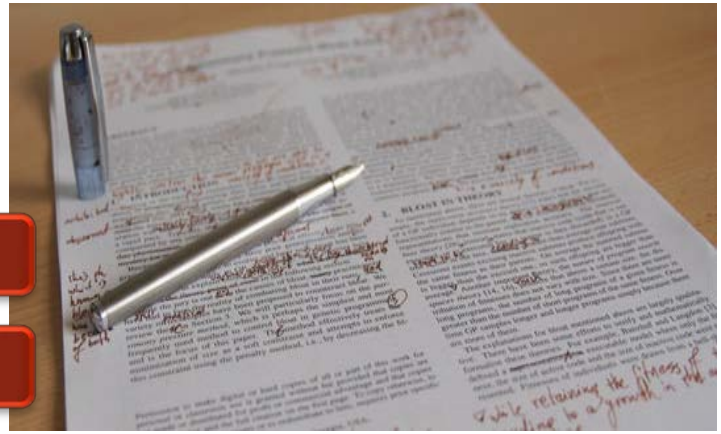
How?

- Internal funding
  - e.g., QU, QCRI
  - Small and big projects

- External funding
  - e.g., QNRF
  - NPRP, UREP, GSRA, PDRA, …

What's next?

How to Read a Research Paper



Tomorrow: 3:45pm-4:45pm

Engineering Bldg., I-111 (Corridor 9)

Research 101

Your feedback is appreciated!