Developing your research question

The Value of Research Questions

► The importance of clearly defining your research question cannot be overemphasised.

► They help to:

- Define the project - a good question(s) summarises in a few sentences what the project is concerned with.

- Set boundaries - this stops you from spending time on things not relevant to the question(s).

- Give direction - helps you focus your efforts (searching literature, method selection, development, data gathering, analysis, etc.).

- Define success - has your project resulted in credible answers to the research questions?

Characteristics of Good Research Questions

► Good research questions:

* are clear and unambiguous,

* show the purpose of your project;

* are answerable -and point to the type of evidence needed to provide answers;

* are not trivial; and

* form a coherent interconnected set -they are not an apparently random collection).

Is this a "good" Research Question?

▶ What is the Impact of SQL injection vulnerabilities in Web applications and importance of creating security awareness among programmers while developing Web applications?

▶ Does it show the purpose of the project?
▶ Is it...
  ◆ ...clear and unambiguous?
  ◆ ...answerable?
  ◆ ...non-trivial?
  ◆ ...coherent?

Is this a "good" Research Question?

▶ How could a virtual reality application increase the current low intake of female students studying Computer Science?

▶ Does it show the purpose of the project?

▶ Is it…
  ◆ …clear and unambiguous?
  ◆ …answerable?
  ◆ …non-trivial?
  ◆ …coherent?

Is this a "good" Research Question?

- To what extent can a cloud Machine Learning platform semantically label fashion garments using deep neural learning?

- Does it show the purpose of the project?
- Is it...
  - ...clear and unambiguous?
  - ...answerable?
  - ...non-trivial?
  - ...coherent?

Is this a "good" Research Question?

- How to predict music track popularity based on YouTube data using deep neural networks?

- Does it show the purpose of the project?
- Is it...
  - ...clear and unambiguous?
  - ...answerable?
  - ...non-trivial?
  - ...coherent?

Developing Your Research Question(s)

- Think in terms of the purpose of your research.
  - To explore, to describe, to explain, to promote action or change
  - Expected contribution to knowledge... but real world research also seeks potential usefulness in relation to practice!

- Know the area.
  - Helps to be familiar with the area on which your research focuses.

- Widen the base of your experience.
  - Researchers in other fields/disciplines may well be wrestling with problems similar to yours.

- Consider using techniques for enhancing creativity
  - Some might be relevant for generating your RQ

- Avoid
  - Deciding of the methods or design you will use before sorting out the research question.
  - Posing a research question that can't be answered.
  - Asking question that have already been answered satisfactorily.