

Mastering the Skill of Question Formulation for Learning and Research

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Overview of sessions

Session 1
February 2

Faculty and graduate students (11:00 am - 1:00 pm)
Introduction to the Question Formulation Technique

[virtual facilitation]

Session 2
February 7

Faculty (2:30 pm - 4:30 pm)
The Art and Science of the Question Formulation Technique: applying the QFT for teaching and learning purposes

Graduate students (1:00 pm - 2:20 pm)
The Question Formulation Technique for Research

[on-site facilitation]

Session 3

Faculty March 6 (2:30 pm - 4:30 pm)
Lessons from Ph.D. students' work and further exploration of the Question Formulation Technique

Graduate students February 28 (1:00 pm - 2:30 pm)
Exploring how to get to better questions

[virtual facilitation]

Symposium
May 8

CSLA - RQI Symposium presenting applications and advances in question formulation for learning and research. Presentations by both faculty and students

[on-site facilitation]

Day 3: Lessons from Ph.D. students' work and further exploration of the Question Formulation Technique

March 6, 2024

Today's agenda

1. Lessons from Ph.D. students' work
2. Further exploration of the Question Formulation Technique



+ Ph.D. students' work and impact

The Question Formulation Technique (QFT), on one slide...

1) Question Focus

2) **Produce** Your Questions

- ✓ Follow the rules
- ✓ Number your questions

1. Ask as many questions as you can
2. Do not stop to discuss, judge or answer
3. Record *exactly* as stated
4. Change statements into questions

3) **Improve** Your Questions

- ✓ Categorize questions as Closed or Open-ended
- ✓ Change one Open to Closed and one Closed to Open

4) **Strategize**

- ✓ Prioritize your questions
- ✓ Action plan or discuss next steps
- ✓ Share

5) **Reflect**

Closed-Ended:

Answered with “yes,”
“no” or one word

Open-Ended: Require
longer explanation

The QFT for Research on One Slide



Identify research topic

Produce your questions

Improve your questions

Prioritize

Further explore a priority question

Identify research questions and agenda

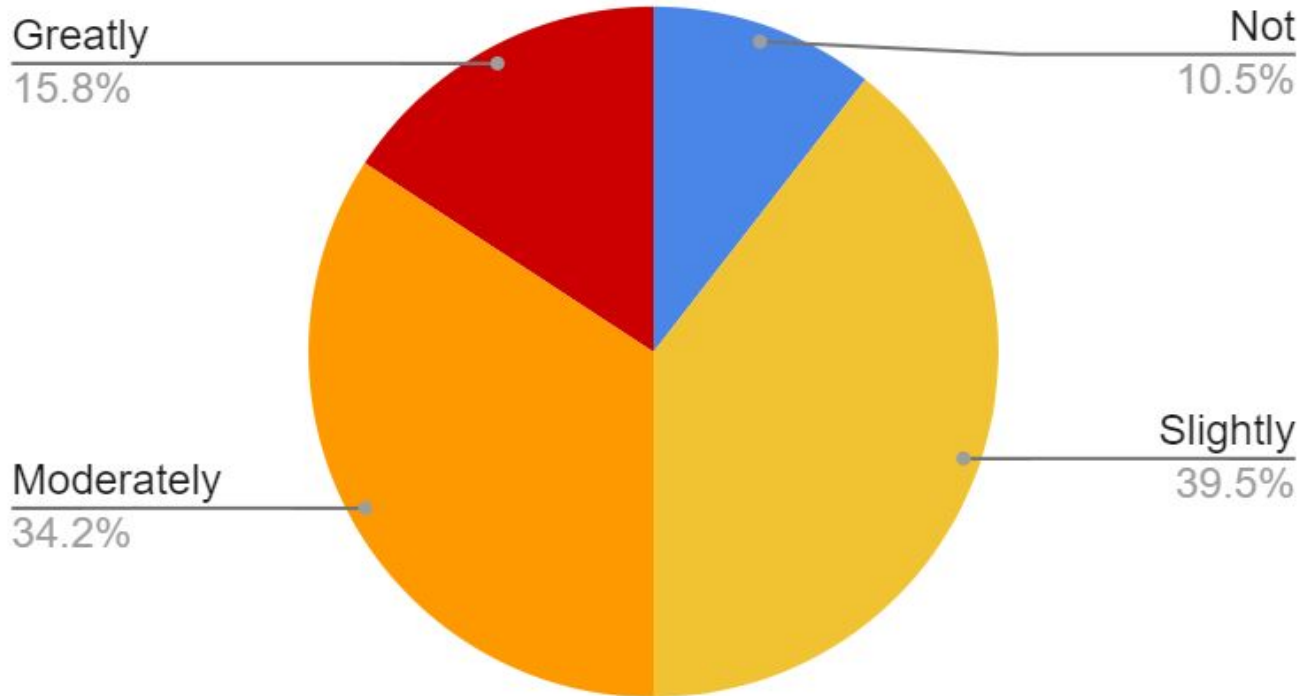
Reflect

Changes in students feeling and thinking (comments following sessions 1 and 2)

- I definitely feel better than before about asking questions that I think would help me to unveil my potential for my research.
- Participating in the right question workshop has given me a new perspective on questions. I now understand that asking thoughtful questions is essential for gaining deeper insights.
- (What did you learn?) Consider what questions are there before engaging blindly in research. Formulate the questions that will guide my research in an informed way.

Impact of the QFT and QFT for Research

5. After learning the Question Formulation Technique (QFT) and the Question Formulation Technique for Research (QFT-R), I believe that my ability to formulate questions is now _____ improved.

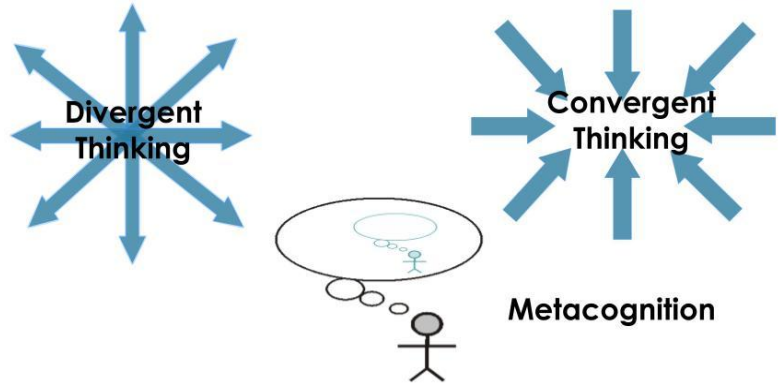


How question formulation improves your thinking

Ph.D. students reflection in session 2

“The process of producing and working with questions helps me **clarify thoughts, uncover assumptions, and stimulate deeper exploration** of a topic, leading to more comprehensive understanding and informed decision-making.”

“The process of producing and working with questions can be super helpful because it **encourages critical thinking** and helps us **explore new ideas**. It allows us to dig deeper into a topic and gain a better understanding. Plus, it's a great way to engage in meaningful conversations and learn from each other.”



Students continued to work on question formulation

For assignment

- Students produced new questions related to the other two priority questions from session 2. They used the same process to select two additional sets of three priority questions that can best help them shape their research.
- When they were asked ABOUT THEIR FINAL TOP three questions from 9 priority questions,
 - **No students would stick with their original priority questions** developed on Feb 7
 - **Half of them would use a combination** of Feb. 7 questions and the new priority questions developed through the assignment
 - Another **half would choose the priority questions that emerged from their work** on the assignment

Session 3: Serious and Original Intellectual Labor: Identifying Characteristics and Categories of better research questions

Ph.D. students worked to:

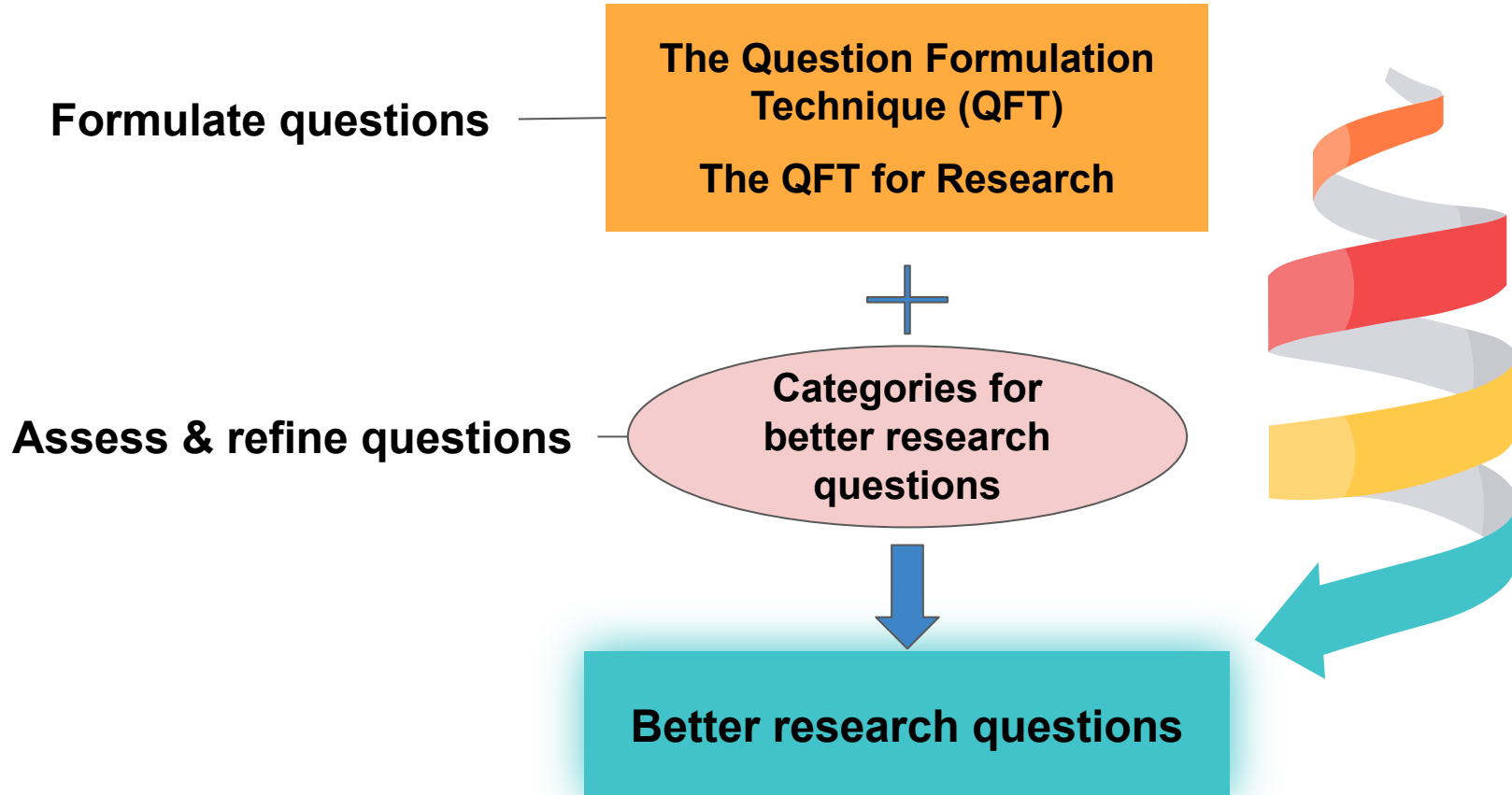
- individually generate ideas about **characteristics of a good research question**
- create **categories** and organize them in groups
- think about **why those characteristics were important** and **why they belonged in different categories.**

Characteristics and Categories the Ph.D. students created

- **Significant + relevant to the topic**
 - Not answered yet - novel, unique, creative, thought provoking
 - Benefits for society
 - Urgency to solve the problem
 - Expand knowledge & contribute to existing knowledge in the field
- **Broad + focused/specific**
 - Find more possibility through the question
 - Universality
 - Clear target/outcomes
 - Specific and focused enough
- **Viable/feasible/practical/effective**
 - Useful, helpful, scientific
 - Answerable and can be answered within a reasonable time
 - Replicable
- **Clear**
 - Clear to understand
 - Rational/reasonable/logical
- **Reflect good research background**
 - Reflecting existing knowledge (bibliography) and technology to implement research

➤ ***Would you like to add anything to the list?***

Outcomes for the Ph.D. students

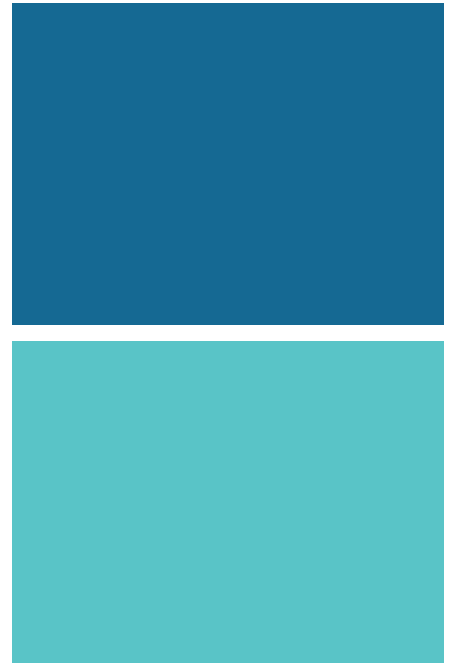


Ph.D. students' reflections on S3

“I was able to reflect upon my previous skills with developing questions. Using my new skills, such as categorizing questions and determining characteristics of good questions, helped me improve and convert my current questions into the best possible questions!”

“...I think category [izing] our question is really important because they make us be more specific about our question and make us know more about question we come up with”

-
- What do you see from what we shared with you about the work the Ph.D students did?
-



- + Further exploration of the Question Formulation Technique
-

Classroom Example: College Biology

Professor: Emily Westover, Ph.D., Brandeis University

Topic: Molecular Mechanisms of Disease

Purpose: To generate a topic for a literature review

Question Focus

HbS is the molecular cause of Sickle Cell Disease, a heterogeneous and devastating disease

* Background reading on Sickle Cell assigned before class

Next Steps with Student Questions

- Groups generated questions about Sickle Cell Disease and chose their top 3 questions
- Each group then chose one question that would be the focus of a literature review
- Students reviewed the literature and made a 15-minute presentation on their findings

Outcomes

- **Ownership:** Students reported the QFT helped them feel ownership of the assignment and generated excitement during the literature review process
- **Formative Assessment:** The questions generated through the QFT helped Professor Westover assess the level of students' content knowledge and conceptual understanding and informed her instruction

Various Teaching Purposes for using the QFT

- Introducing new content
- Formative assessment
- Literature review
- Summative assessment
- Peer review
- Skill development
- Problem-solving
- Designing experiments
- Developing research questions

The QFT, on one slide...

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A Quick QFT

QFocus:

Using the QFT with my students

Remember the four rules for producing questions:

1. Ask as many questions as you can.
2. Do not stop to discuss, judge, or answer the questions.
3. Write down every question exactly as it is stated.
4. Change any statement into a question.

Prioritize questions

Please select three questions that:

- A. you would like us to address
- B. you would like to discuss in small or large groups

Using & Sharing RQI's Resources



The Right Question Institute offers materials through a Creative Commons License. You are welcome to use, adapt, and share our materials for noncommercial use, as long as you include the following reference:

“Source: The Right Question Institute (RQI). The Question Formulation Technique (QFT) was created by RQI.

Visit rightquestion.org for more information and free resources.”

Resources

<https://rightquestion.org/education/resources/>

Lesson Planning Workbook:
for Using the Question
Formulation Technique (QFT)

RQI Right Question
Institute
A Catalyst for Microdemocracy

Question Formulation Technique Planning Tool

The Question Formulation Technique (QFT) Planning Tool can be used to guide your thinking as you plan to use the QFT. The QFT Planning Tool will help to identify teaching and learning goals, consider how students' questions may be used, design a Question Focus (QFoca), develop prioritization instructions, and create reflection questions.

Access this tool online at <https://rightquestion.org/resources/field-education/>

- 1 Identify teaching and learning goals
- 2 Consider how students' questions will be used
- 3 Design a Question Focus, Develop prioritization instructions, Create reflection questions
- 4 Finalize facilitative decisions and logistics

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Get Started



Steps of the QFT & Video Guide

[DOWNLOAD >](#)



Lesson Planning Workbook

[DOWNLOAD >](#)



QFT PowerPoint Template

[DOWNLOAD >](#)



Google form template and padlet template for the QFT are available at:

<https://rightquestion.org/remote-learning-resources/>

Discussion

Reflection and post-session survey

1. Please name what you consider the most important thing you learned today.
2. A quick post session survey for the three sessions.



<https://bit.ly/NJIT0306>

Office hours

We have office hours in March

- 1:30 pm - 2:30 pm on Wednesdays
 - 12 pm - 1 pm on Fridays
- Please sign up for a 30 minute session at <https://bit.ly/RQIOfficeHours>



A question to keep in mind regarding the symposium on May 8th...

- What would you like to learn from your colleagues and from your students?

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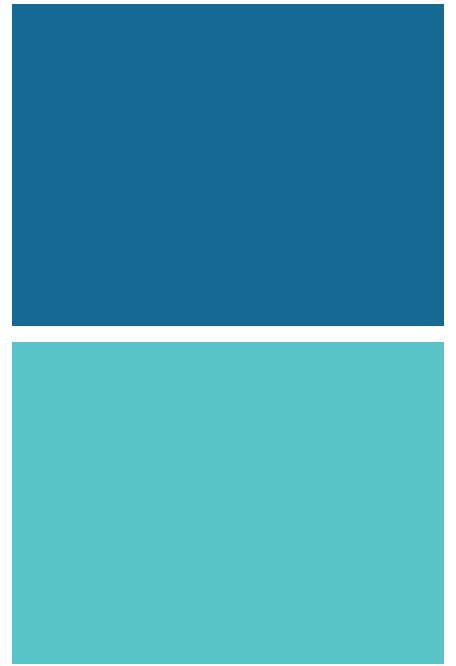
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Thank You!



+ Power of question formulation:
Question Formulation Theory for Learning

Question Formulation Theory for Learning

: explains the phenomenon of what changes consistently occur when people formulate their own questions in learning

- ★ Developed based on the work on the ground for over the past 30 years and supported by the literature on questioning and learning
- ★ Question formulation: Generating questions divergently and then working to improve them through convergent and metacognitive thinking”

Question Formulation Theory for Learning

QUESTION FORMULATION

RQI's definition:

"Generating questions divergently and then working to improve them through convergent and metacognitive thinking"

Engagement

- Focused
- Interested
- Curious
- Joyful
- Autonomous
- Personalized learning agenda

Comprehension

- Activate prior knowledge
- Make connections and meaning
- Assess information
- Gain new knowledge

Discovery

- Confirm or challenge knowledge
- Create
- Hypothesize
- Problem-name
- Explore
- Generate new ideas and new questions

Greater agency

- Purposeful
- Committed
- Self-directed
- Persistent
- Flexible
- Analytic
- Responsible
- Agile
- Independent

**Motivated Learners
& Nimble Thinkers**

Impact of the QFT in Groups

The Question Formulation Technique (QFT)

- Provides safe and equitable structure for participation
- Creates space for all voices
- Enhances mutual learning
- Offers a differentiated learning experience

- People hear different perspectives, and more diverse voices.
- People can find their own voice.

Collaboration

Communication

Equity