

Chapter 14

Questioning the Role of Questions in Teaching and Learning: Utilizing the Power of the Human Mind at University Level in Bangladesh

Yusuf Mahbubul Islam

 <https://orcid.org/0000-0002-4113-5409>

Southeast University, Bangladesh

ABSTRACT

The chapter relates the story of how the author, essentially a teacher of Computer Science, discovered the role and importance of questions towards developing the human brain and equally how questions support the Theory of Constructivism to organize information for retrieval. In his journey to find why students find it difficult to learn programming or for that matter, anything, he triangulated neuroscience, education theories and Scripture to come up with the purpose of questions in teaching and learning. The method developed is called Question-based Learning (QBL), or alternatively Query-based Access to Neurons (QuBAN) and utilizes the learning potential of the human brain.

INTRODUCTION

The mainstay of the chapter deals with how specifically designed questions, as part of a process of learning, can not only promote effective learning, but also inculcate ownership and practice of the content taught. The chapter shows, how a methodological approach to the art of questioning was developed, as part of the journey to becoming a SoTL practitioner, from a background culture where the learners' questions are frowned upon by parents, teachers and administrators and, rote learning teaching-learning methodologies are prevalent (Islam, 2011). The art of questioning exists as an interrogative method of teaching (Educational Innovation of the University of Porto, 2024) and works to stimulate reflection, analysis and understanding of the concepts and content to be learnt. Historically, the interrogative questioning method can be traced back to Socrates, a Greek philosopher who used a series of questions to help his followers identify inconsistencies in the answers, which, in turn, generated self-questioning and

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critical reflection. The problem faced was how exactly should questions be used to inculcate learning? Drawing upon references that include Constructivism, Neuroscience and Scripture, this chapter takes a methodological look at the art of questioning and how learning takes place in the brain to develop an approach to the use of questions in the teaching and learning of programming. Finally, a brief case study is shared on how the methodology can be applied to other situations.

LANDMARKS IN MY JOURNEY TO BECOMING A SOTL PRACTITIONER

Born in Dhaka, Bangladesh, in 1956, at a very young age, I had the fortune of visiting a number of countries abroad with my father who travelled as a visiting professor. The countries include the United States, Pakistan and two countries in East Africa - Kenya and Tanzania, after which he funded my Bachelor's degree in EEE at Heriot-Watt University, Edinburgh, UK. During these years I was forced to study mostly on my own being a foreigner or an outsider from a different culture in all these foreign places. My teaching career eventually started in the Fall semester of 1988, when I returned to become a lecturer at the Department of Applied Physics and Electronics at Dhaka University, Bangladesh. As fate would have it, I became a teacher of students who were the same age as I, that included two of my dear friends as they had lost a number of years given regular strikes and university closures in the country.

Through my friends I discovered the students' dependence on teacher's notes and lack of self-study habits, in contrast to the way I learned to study by myself. This comparative disadvantage led to a mental turning point, a realisation that led me to become a SoTL practitioner at heart with two questions: why do students ask for teacher's notes and why do they not learn? From this point onward, passing through various levels of lectureship to becoming a professor of Computer Science and Engineering, and eventually Vice Chancellor of two different universities, I continued to struggle with these two questions. During the journey, not only was I always on the lookout for clues that would lead to answers, I continued to try out possible solutions in my own classes.

As part of the journey, there are four major occurrences that I would like to share as these have had the highest impact on the teaching model that I now use to help students learn. It is after about 30 years of struggle and support from these 4 events that my SoTL mindset finally began to bear fruit in the shape of an engaging teaching/learning model that students now love and are hungry for. I have now used this model to instructional design and conduct foundation general education (GED) courses at tertiary level and have started pilot testing these and use my learning to benefit any opportunity that involves communication.

Event 1: Given the developing nature of Bangladesh, a development environment supported by non-government organisations (NGOs) is widespread. One such world famous NGO is BRAC. To train field workers and facilitators it uses participatory workshops. I had the good fortune of both being a participant of, and an observer of the workshop methodology. My own engaging experience as a participant was like a breath of fresh air or more like I was knocked over by a ton of fresh air - the participatory methodology is something I had never experienced in all my years as a student. On another occasion, I was taking a stroll in the Training and Resources Center (TARC) of the BRAC NGO around midnight. As I passed a window, I heard lively chatting - a workshop was going on! Peering in, I saw every participant happy, merrily participating, fully awake - no sign of fatigue or sleep. I asked myself: how is this possible?

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