Identifying and exploring the effects of different types of tutor questions in individual online synchronous tutoring in mathematics

# Details

## Year

2019

## DOI

10.1080/10494820.2019.1583674

## Issued

2019

## Language

English

## Volume

29

## Issue

3

## Start Page

## End Page

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## Type

Journal article

## Journal

Interactive Learning Environments

## Publisher

Informa UK Limited

## Topics

Learning

## Sample

13,317 conversations between 79 homework help providing Mattecoach firm's math coaches at 3 different universities and their tutees at all educational levels from compulsory school to upper secondary school.

## Implications For Educators About

# Abstract

Although we know that asking questions is an essential aspect of onlinetutoring, there is limited research on this topic. The aim of this paperwas to identify commonly used direct question types and explore theeffects of using these question types on conversation intensity, approachto tutoring, perceived satisfaction and perceived learning. The researchsetting was individual online synchronous tutoring in mathematics. Theempirical data was based on 13,317 logged conversations and aquestionnaire. The tutors used a mix of open, more student-centredquestions, and closed, more teacher-centred questions. In contrast toprevious research, this study provides a more positive account indicatingthat it is indeed possible to train tutors to focus on asking questions,rather than delivering content. Frequent use of many of the questiontypes contributed to increased conversation intensity. However, therewere few question types that were associated with statisticallysignificant effects on perceived satisfaction or learning. There are nosilver bullet question types that by themselves led to positive effects onperceived satisfaction and learning. The question types could be used byteachers and teacher students when reflecting on what types ofquestions they are asking, and what kind of questions they could be asking.

# Outcome

"Our findings suggest that frequent use of questions is an effective technique for encouraging discussion.... The students perceived that the tutors were more likely to ask questions, as compared with lecturing. This is being encouraged in the Math coach project and introductory course, and underlines the potential of professional development to improve tutoring practice. Interestingly, a literature review found that tutors, even when trained, focused more on delivering rather than developing knowledge (Roscoe Chi, 2007). Thus, this study provides a more positive account indicating that it is indeed possible to train tutors to focus on asking questions, rather than delivering content." (Authors, in "Discussion")