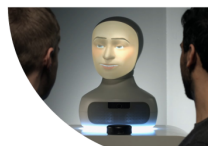




Invitation to Participate in Research Study



September 30, 2022

Study Title

Examining teachers' questioning techniques to stimulate Secondary School students' mathematical thinking.

Principal Investigator

Pablo González-Oliveras, Doctoral Candidate, KTH - Royal Institute of Technology

Formal invitation:

Dear Potential Study Participant,

I am inviting you to participate in a qualitative study examining teachers' approach, techniques and/or strategies to stimulate mathematical thinking of Secondary School students. To participate in this study, you must: 1) be a teacher at Secondary School level as a minimum 2) be either experienced, accredited or currently obtaining credentials as a teacher and 3) have a Mathematics-related subject (namely any Science or Technology subject) as one of your main areas.

Your participation in this study is voluntary. Furthermore, your participation is anonymous.

Study's Purpose:

As a part of a more extensive research on Social Robotics on Learning Activities, the purpose of this study is to examine teachers' approach, techniques and/or strategies to stimulate mathematical thinking of one hypothetical Secondary School student, during a 1-to-1 virtual interaction where both address a mathematical problem that the simulated student has difficulty with.

Research Questions

The following research questions will guide the study:

1. How do teachers describe the tactic they would put in practice in each act of the interaction in order to help the student resolve a secondary-school-level Math exercise?
2. What are the most frequent pieces of advice or questions chosen by the teachers in every act of the interaction, among the ones presented to them?
3. What are the most frequent types of questions according to the level of thinking they try to stimulate (as described by Bloom's taxonomy -Memory, Comprehension, Application, Analysis, Synthesis and Evaluation) ?

Procedures

Teachers who meet the criteria will be selected based on their interest. An invitational letter will be created by the researcher to be sent to a number of educational institutions (KTH's Faculty of Mathematics, (Stockholm, Sweden), Faculty of Education of University of Stockholm (Sweden), Winchester University (UK), Universidad Católica de Murcia (Spain), Lochside Academy (Aberdeen, UK), Portlethen Academy (Aberdeen, UK). Also an invitational post will be created on teacher Facebook group platforms, LinkedIn and through email list-servers. A secure link will be sent to those that confirm they meet the criteria and are interested in participating.

Confidentiality

Confidentiality of all participants will be protected in compliance with the Royal Institute of Technology's (KTH of Stockholm, Sweden) research with human participants, policies and procedures. Names of the participants will not be recorded, nor identified through the study nor for the study. Email addresses will be requested, optionally, for other purposes, namely in case the participant wishes to be contacted for future studies or to receive their answers provided during the study.

Compensation

No monetary or non-monetary compensation will be provided for your time or responses. Nonetheless, a Certification of Participation can be requested and obtained by those providing their email address at the end of the interactive survey (the email address will only be requested for this purpose).

Questions

If you have any questions or concerns regarding this study and your participation, please do not hesitate to contact me, the researcher, via email at pabloom@kth.se, or via phone/Whatsapp at (+34) 679641196.

Thank you for your valuable time and willingness to participate in this research study. Your contribution not only supports this particular study but also informs the broader current research on the study of teacher-student interaction and social robotics for learning activities.

The survey will take between 10 and 25 minutes to complete. Click on the link below to start the consent and survey.

You may open the survey in your web browser by clicking the link below:

[KTH Teacher-Student Interactive Survey](#)

If the link above does not work, try copying the link below into your web browser:

<https://www.kth.se/profile/pabloom/page/kth-interactive-survey>