

Accepted Manuscript

How do you feel about learning to code? Investigating the effect of children's attitudes towards coding using eye-tracking

Sofia Papavlasopoulou, Kshitij Sharma, Michail N. Giannakos



PII: S2212-8689(17)30025-9
DOI: <https://doi.org/10.1016/j.ijcci.2018.01.004>
Reference: IJCCI 93

To appear in: *International Journal of Child-Computer Interaction*

Received date : 3 February 2017
Revised date : 19 December 2017
Accepted date : 29 January 2018

Please cite this article as: S. Papavlasopoulou, K. Sharma, M.N. Giannakos, How do you feel about learning to code? Investigating the effect of children's attitudes towards coding using eye-tracking, *International Journal of Child-Computer Interaction* (2018), <https://doi.org/10.1016/j.ijcci.2018.01.004>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

How Do You Feel about Learning to Code? Investigating the Effect of Children's Attitudes towards Coding Using Eye-Tracking

Sofia Papavlasopoulou, Kshitij Sharma, Michail N. Giannakos*

Department of Computer Science

Norwegian University of Science and Technology (NTNU), Trondheim, Norway

ABSTRACT

Computational thinking and coding for children are attracting increasing attention. There are several efforts around the globe to implement coding frameworks for children, and there is a need to develop an empirical knowledge base of methods and tools. One major problem for integrating study results into a common body of knowledge is the relatively limited measurements applied, and the relation of the widely used self-reporting methods with more objective measurements, such as biophysical ones. In this study, eye-tracking activity was used to measure children's learning and activity indicators. The goal of the study is to utilize eye-tracking to understand children's activity while they learn how to code and to investigate any potential association between children's attitudes and their gaze. In this contribution, we designed an experiment with 44 children (between 8 and 17 years old) who participated in a full-day construction-based coding activity. We recorded their gaze while they were working and captured their attitudes in relation to their learning, excitement and intention. The results showed a significant relation between children's attitudes (what they think about coding) and their gaze patterns (how they behaved during coding). Eye-tracking data provide initial insights into the behaviour of children, for example if children have difficulty in extracting information or fail to accomplish an expected task. Therefore, further studies need to be conducted to shed additional light on children's experience and learning during coding.

Keywords: children's attitudes; eye-tracking; coding; computational thinking; constructionism

*Corresponding author, e-mail: michailg@ntnu.no; Address: Sem Sælands vei 7-9, NO-7491 Trondheim, Norway

Download English Version:

<https://daneshyari.com/en/article/6795220>

Download Persian Version:

<https://daneshyari.com/article/6795220>

[Daneshyari.com](https://daneshyari.com)