Novice Debugging in Block-Based and Hybrid Environments

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ABSTRACT
Debugging is an important skill for novice programmers to master, but many students struggle to learn how to debug due in part to difficulty with program syntax. Block-based environments provide an alternative to traditional textual programming that reduces syntax errors, and recently hybrid block-based/textual environments have become more common. This poster presents preliminary research to understand how novice debugging strategies differ between block-based and hybrid environments. We assigned seven participants to debug four programs within one of the two environments and conducted interviews about their debugging approaches. Thematic analysis of interview responses suggest that students adjusted their strategies based on their prior experience with textual environments. By understanding novice programmers’ strategies in these environments, the field can move toward more effectively supporting productive strategies.

CCS CONCEPTS
• Social and professional topics → CS1.

KEYWORDS
Debugging, Block-based programming, Hybrid environment

1 INTRODUCTION AND BACKGROUND
The behaviors and perceptions of novice programmers have been studied extensively, with findings suggesting that novice programmers struggle with understanding program syntax and exactly what a program does [2]. These difficulties also explain why novices have trouble developing strong debugging skills [1]. This preliminary research investigates the affordances of block-based environments and hybrid block-based/textual environments for supporting novices as they debug. The research question is how does the programming environment, block-based or hybrid, influence the debugging strategies of novice programmers?

REFERENCES