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Nurturing Hybrid Work Literacy in Upper Secondary Schools: Selecting the Best Hybrid Work Configuration for Coding Camps

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Introduction

- Hybrid work has become the **new normal** way of working for many professionals, including software developers — some work from home, others from their office, and others from a combination of both
- Educating people on hybrid work is crucial

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Introduction

- Non-conventional learning experiences bring together individuals from diverse backgrounds to tackle complex challenges collaboratively within a limited timeframe
- Lack of evidence and guidance to support educators
  - How many people in the classroom? -- How much physical space is needed?

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Research Question

How do different hybrid work configurations impact the final product teams develop during coding camps for upper secondary school students?

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Coding camp design

- Creating mobile applications using a block-based programming language
- Upper secondary school students aged 15-19 with little to no software development experience
- Hybrid format
- 20 hours -- one four-hour session each day for 5 consecutive days

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Coding camp design

Teamwork

- We formed teams of three students attending different schools and assigned two females to mixed teams
- We randomly assigned each team to two Groups corresponding to the different hybrid work configurations

Session	Group A	Group B
1	●●●	●●●
2	●○○	○●●
3	○●○	●○●
4	○○●	●●○
5	●●○	●○○

● In-person attendance
○ Remote attendance

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Coding camp design

Assessment framework

- Five groups of metrics to analyze the projects (size, complexity, code smells, component metrics, computational concepts)
- The same of the onsite and online coding camps that served as the baseline for the instructional strategy of this study

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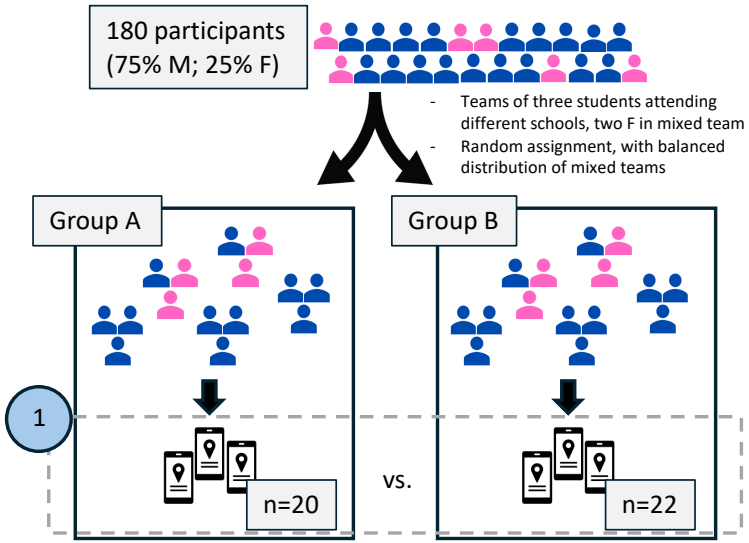
Method



1. comparing the quality of the products produced by the two configurations

2. Comparing the hybrid coding camp products with the online and face-to-face ones

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Results (1/4)

- Similar trends across all three delivery formats (2)
- The same holds when comparing the two hybrid work configurations – with some minor differences (1)

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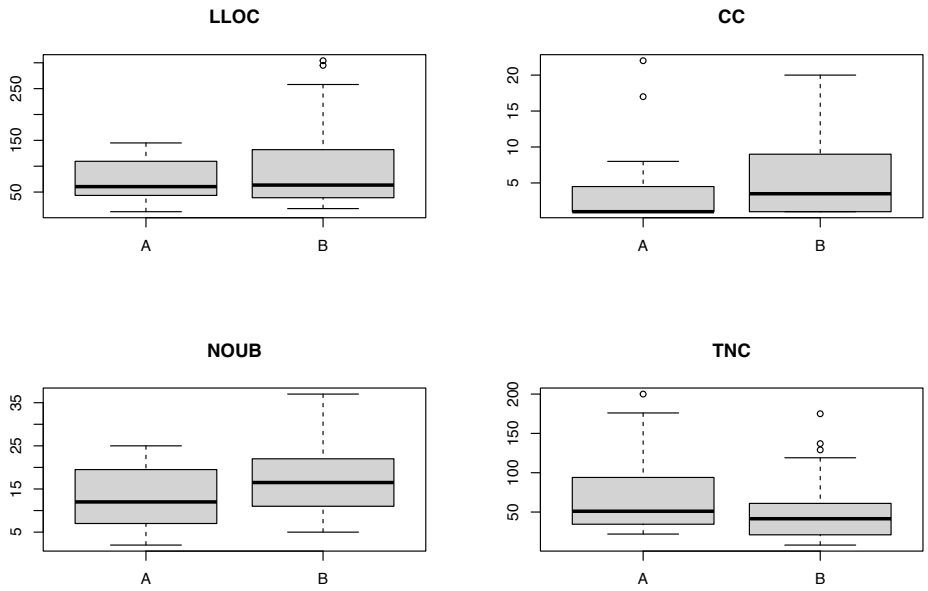
Results (2/4)

Size and complexity

Complexity is slightly higher in Group B

TNC is higher in Group A -- more focused on designing the UI



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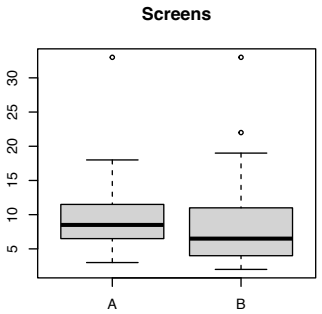
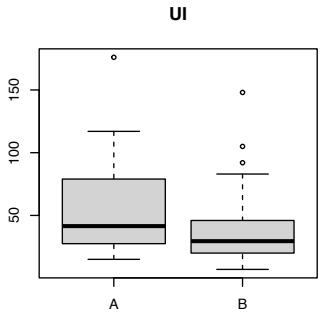
Results (3/4)

Components

Screens and UI are slightly higher in Group A -- more emphasis on the UI





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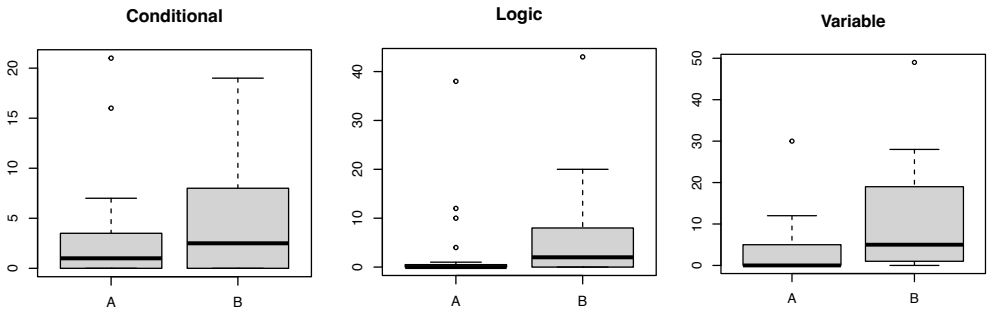
Results (4/4)

Computational concepts

Products of Group B have higher number of conditional, logic, and variable blocks – more focus on programming logic



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Answer to RQ

The quality of the products produced by the two configurations is similar.

However, there is a slight difference in emphasis between the two groups.

- Teams in Group A, where only one of the three members attends in person, place slightly more emphasis on the User Interface.
- Teams in Group B, where two of the three members attend in person, concentrate slightly more on the programming logic

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Conclusion

- The configuration of group A allows the camp to run effectively with less physical space needed: only one-third of the participants are on-site, while the others can attend online → direct implications for educational practices
- Suggestions for balancing possible issues in each configuration. For example, chosing Group A configuration requires strategies to let teams focus more on the programming logic by decreasing emphasis on the user interface

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Conclusion

- Our study is limited to a specific coding camp and a particular age group (i.e., upper secondary school students aged 15-19) -- **findings may not be applicable to other educational settings, age groups, or types of camps**
- **Replications** of this study are needed to obtain more solid conclusions
- Future work needs to investigate possible differences in **student satisfaction** and preferences on hybrid work configurations, considering individual learning styles and backgrounds.

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