### **ICoME Abstract Submission**

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### Title:

What's special about prototyping stage in Design Thinking in terms of communication and collaboration skills?

#### Abstract:

The present study aims to explore students' experiences on collaborative and communication skills during a team project. These two skills are critical in team projects which are the two of the 4Cs in the 21st Century skills. The thirty five students participating in 5 weeks of Design Thinking program developed a prototype as their final team project. This study analyzed focus group interview of 5 students, and each of 5 students were also interviewed individual about their experiences of prototype activities. Most of the students find the prototype stage most active and collaboration as critical in team projects. We categorized the participants' verbally stated experience particularly regarding communication and collaboration through text analysis and coding them into categories. The results showed that participants attained experience in prototyping stage: 1) how a group can collaborate to realize ideations into a physical product, 2) what kinds of communication skills are vital in keeping the group work. The present study supports that employing prototype activities of Design Thinking helps students foster their competencies in communication and collaboration skills among the 4Cs. The implication of this research will give insights to creating abstract ideas to a product in Maker education.

## Keywords:

design thinking, prototype, collaboration, communication