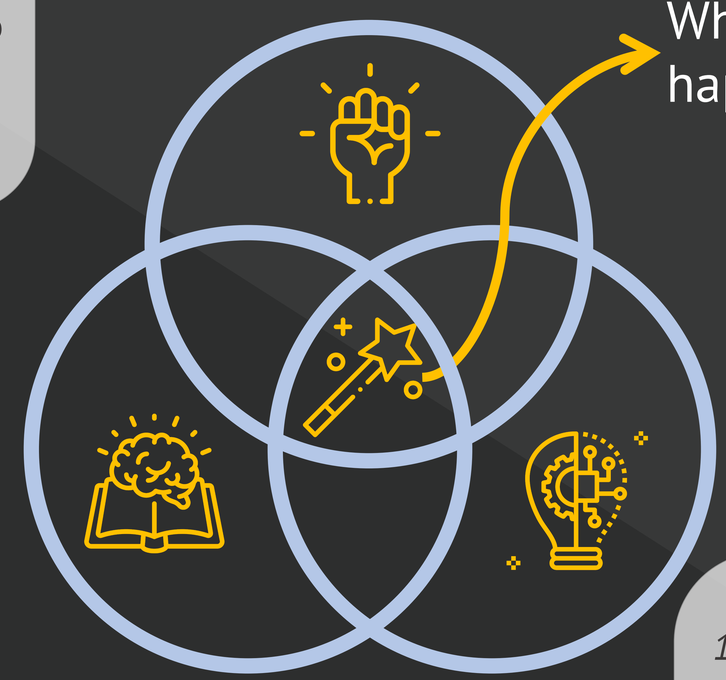
How can we stimulate all dimensions of student creativity?

Sparking Creativity with the Game Boy Advance

In a '*Software Design in C++*' course, students learn to apply high-level software development techniques on low-level embedded hardware.

Domain-specific technical ***expertise*** (1) and ***motivation*** (2) are needed to succeed, but also ***creative skills*** (3) to cope with the limitations of the platform! We use the GBA to stimulate all three aspects of Amabile's Componential Model [2].



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Promising Results after 2nd year of the experiment:

1. *Expertise*: students still struggle. A lack of proper tooling, debugging, and documentation increased the difficulty.
2. *Motivation*: 96% were highly motivated (Intrinsically: nostalgia, working with actual hardware, uniqueness)
3. *Creative skills:* working with constraints (splitting sprites to conserve space, sharing palettes, …) combined with the freedom of choice.

Future work involves investigating peer evaluation to assess creativity of students.

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