Briefly describe the work you have presented

In software engineering, software modelling plays a significant role. Nevertheless, learners often consider software modelling as a comparatively difficult subject since it requires them to have abstraction skills to master it. Meanwhile, gamification has been growing as a trend solution to improving learners' engagement. This study endeavours to harness gameful design to build gamification that supports learners advancing their modelling abilities. Our method to dealing with gameful design combines pedagogical design principles derived from several learning models and the Deterding's Gameful Design framework as an approach to gamification development. This research also employs Model-Driven Engineering best practices and uses the Design Science Research Methodology. This research aims to produce software modelling learning gamification (SMLG), and an SMLG framework to design and generate the SMLG's instances. We plan to perform controlled experiments to evaluate the effectiveness of the SMLG and the SMLG framework.

Outline your research achievements and the challenges you have faced since your last TAP meeting

Achievements:

1. Conducted a preliminary survey to identify goals, motivations, and challenges in learning software modelling.
2. Published a paper in a Doctoral Symposium at the MODELS ’16 Conference.
3. Developed early versions of SMLG and SMLG framework prototypes.

Challenges:

1. Write a good report in English. It is always challenging for a non-native speaker.
2. Write a coherent Qualifying Dissertation report.
3. Develop a high-quality SMLG prototype. It requires proficiency in Epsilon, Eugenia, Javascript, and other technical skills.

What actions and research objectives have been agreed?

1. Perform a literature review to identify research problems, questions, and objectives.
2. Develop a framework that is intended to design and generate SMLG based on the literature review and survey. The framework will be iteratively updated according to the results obtained from experiments.
3. Design and generate instances of SMLG. The instances will be tested to respondents for evaluation and to obtain feedback for iterative improvement.
4. Perform controlled experiments to measure the significance of the SMLG in improving learning performance compared to the traditional method, didactic learning without the support of the gamification.
5. Perform controlled experiments to measure the productivity and maintainability of a software modelling learning design framework in supporting tutors design and develop SMLG.

Progress and Plans: Student comments

We plan to complete literature study and develop a prototype by the end of the first year (2016), and address gamification of modelling and metamodelling in the second

year (2017) and third year (2018) respectively. So far, we have conducted the literature review, and the prototype is under construction.

Supervisor Report on Progress and Engagement

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Research Training Undertaken (inc. courses and conferences attended)

Doctoral Symposium at the ACM/IEEE 19th International Conference on Model Driven Engineering Languages and Systems, 2-7 Oct 2016, at Palais du Grand Large, Saint-Malo, Brittany, France.

Agreed Training Needs (if applicable)

n/a

Research Facilities: Student comments (if applicable)

n/a