Using Vital Engagement as a tool for course design and development

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***Abstract*—Increasing student engagement in meaningful teaching activities is important to facilitate deeper understanding and increase student learning in higher education. We have sought inspiration from the concept of *Vital Engagement,* introduced by Nakamura & Csikzentmihalyi, for course development and implementation in two courses at LTH Faculty of Engineering at Lund University. This paper presents how Vital Engagement can be used for course development. We also share preliminary outcomes from our first application of this concept, based on feedback from students and our own experiences.**

***Index Terms*—Vital Engagement, course development**

I. Introduction

BASED on a recent study on students' absence from classes in Engineering education at LTH Faculty of Engineering at Lund University [1], students in general want to attend, but "inefficient and poor teaching (according to the students)" seems to be a trigger for strategic absence. Samuelsson et al. [1] recommend reconsideration of the perception that student attendance (in itself) is important for their performance. It is instead suggested to focus on enhancement and development of teaching activities that support a deeper understanding, for example, by supporting students' metacognition and by clarifying the purpose of each teaching activity.

We have drawn from *Vital Engagement* for course development, aimed at increasing student engagement and promotion of a deeper understanding. The present paper gives an overview of our first attempts for implementation in two courses at LTH.

II. Vital Engagement

Nakamura & Csikzentmihalyi [2] define the concept of *Vital Engagement* as a long-term personal relationship to some aspect of the environment that is characterized both by experience of flow (*enjoyed absorption*) and by meaning (*subjective significance*). Such a relationship serves as a foundation for a notion of flourishing, meaning that it contributes to a person's long-term well-being, growth, and fulfilment. The aspect of the environment can for example be engagement in political or sociological activities, creative work of a scientist or a writer, or basically any other aspect of the world. A personal relationship which is *vitally engaging* is enduring but also gives an immediate experience, both characterized by being intense and positive [3].

Enjoyed absorption, or the experience of flow, is characterised by full concentration on the here and now and a notion of the activity as being rewarding in itself. This state is supported by the presence of clear goals, immediate feedback and a perceived balance between one's personal capabilities and the current challenges that are faced.

Subjective significance concerns the perceived meaning of the relationship in the sense that the object of attention is inherently important and aligns with personal values and goals. The significance can for example be related to the person itself or to a wider context as family, local community or society.

The feeling of significance is important for the concept of Vital Engagement since it differentiates isolated experiences of enjoyed absorption, for example while playing a video game, and reoccurring experiences of enjoyed absorption in a meaningful and long-term relationship.

III. Enabling Vital Engagement for students in higher education

In our efforts to leverage the concept of *Vital Engagement* for students in higher education, we defined subcomponents which are believed to contribute to the presence of the two main components: *Enjoyed absorption* and *Subjective significance*, see Fig. 1.

The subcomponents for *Enjoyed absorption* are defined in Nakamura & Csikzentmihalyi [1] while the subcomponents of *Subjective significance* have been defined by us, with the aim of categorizing this component in a way that is relevant for higher education.

Clear goals

Students need to understand what they are working towards. Clear goals provide direction and purpose, helping students to focus their efforts. *Intended Learning Outcomes* (ILOs), *Teaching and Learning Activities* (TLAs) and *Assessments Tasks* (ATs) should be explained and motivated as well as constructively aligned [4].

Immediate feedback

Providing feedback help students understand their progress and possible needs for improvement. This can for example be achieved by using hand-in assignments with prompt feedback, during early stages of the course. Other examples include working with smaller calculations exercises with given answers (not solutions, however) and supplying teacher availability for questions and discussions.

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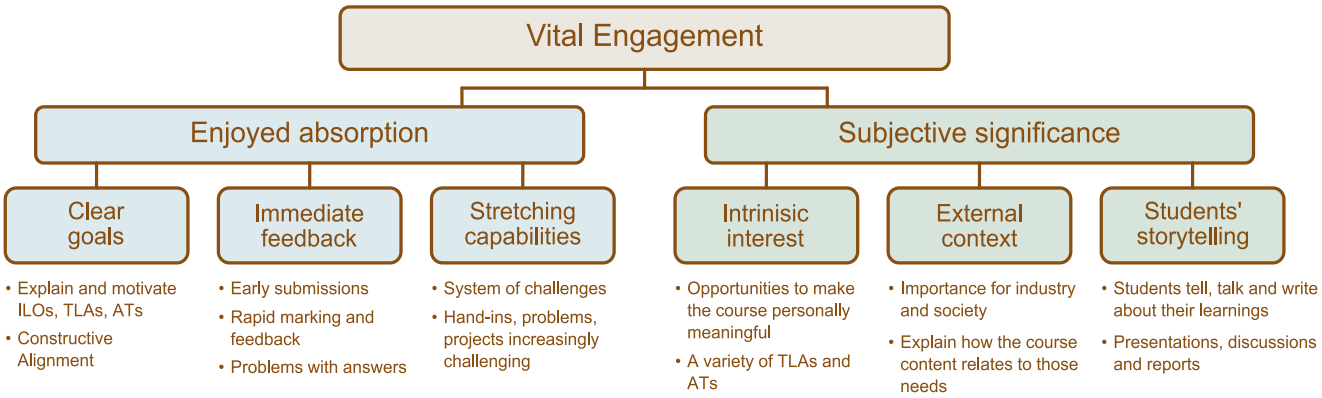

Fig. 1. Components and subcomponents describing our view of the concept of Vital Engagement in higher education.

Stretching capabilities

Exercises, assignments and projects should be designed to push students slightly beyond their current skills and knowledge levels, encouraging growth and development and fostering a sense of achievement and competence. Students' tasks can preferably be designed to fit the "Zone of proximal development", as introduced by Vytgotsky [5], i.e. the zone into which the students can stretch themselves with the support of teachers and peers but are unlikely to get there on their own.

Intrinsic interest

The students' *Intrinsic interest* can be promoted by clearly showing why the course content is relevant for the students, how previous knowledge is expanded in new contexts and how knowledge and skills gained within the course can be useful in other courses and in their professional carriers. The probability that the students apply a deep approach to learning can be increased by making the studies interesting and the students motivated [6]. Intrinsic motivation is further supported by experiences of autonomy, competence, and relatedness [7]. Since students appreciate different means of learning, a variety of TLAs and ATs should be considered.

External context

The relations between the course content and the needs of the industry and society should be made explicit. Connecting academic content to real-world scenarios and current events helps students see the relevance and importance of what they are learning. Exposure to practical applications in the engineering field can provide context and significance. A deeper understanding may be achieved by showing how the theoretical course content can be applied in new contexts.

Students' storytelling

Having students to share their own experiences and perspectives can create a more meaningful and connected learning environment. This can be achieved through in-class presentations and discussions as well as when the students talk about what they study and learn outside of the course as well as outside of the university. Having the students to talk and write about their learnings also offers occasion for repetition and a deeper understanding. This subcomponent refers to the *students'* storytelling, while the storytelling by teachers is assigned to the subcomponent *External context.*

IV. Application in Teaching Practice at LTH

With inspiration from the concept of *Vital Engagement*, two courses in the Engineering programs at LTH Faculty of Engineering, Lund University, have been scrutinized and developed during the spring semester of 2025: "Engineering Modelling: Analysis of Structures" (VSMF05) and "Structural Dynamic Computing" (VSMN10).

The course curricula and the teaching activities were reviewed from the perspective of *Vital Engagement* and how aspects promoting *Enjoyed absorption* and *Subjective significance* were already present or if and how such aspects could be included.

Both courses implemented a structure with (more or less) weekly hand-in assignments to allow for, if not immediate, at least rapid feedback. The teachers also emphasized their availability for discussions outside of the course schedule by either visiting the teacher's office or using e-mail or Canvas.

The course VSMF05 is given during the third year of the Civil Engineering program. To promote the students' intrinsic interest, the usefulness of content from previous courses was emphasised as well as importance and relevance of the course content for other courses and their professional carriers. Five hand-in assignments are part of the course, and these are designed with increasing complexity to allow the students to stretch their capabilities.

The course VSMN10 is given during the fourth year of the Civil Engineering, Mechanical Engineering, Engineering Physics and Engineering Mathematics, programs. For this course, much effort was made regarding *External context* and *Students' storytelling.* The relevance in relation to needs of industry is frequently brought up and exemplified during lectures and guest lectures in the course. Storytelling by students is promoted by presentation and opposition of a project work during the final week of the course.

The concept of Vital Engagement and its role as a source of inspiration for the teachers was presented to the students in both courses, for VSMN10 during the *first* day and for VSMF05 during the *last* day of the course. Explaining and discussing an inspirational concept such as Vital Engagement with the students is a way for teachers to show care and concern, which according to Glessmer et al. [8] is one of the most important trust-building approaches.

Feedback from the students on the use of Vital Engagement was received by using a questionnaire, asking about what components and subcomponents (according to the illustration in Fig. 1) were found to be more or less effective for them. The questionnaire also included questions with free text answers, regarding what were the best aspects of Vital engagement and what could be improved. Feedback from students was also received from the regular Course Experience Questionnaires (CEQs).

V. Students' perceptions and experiences

Immediate feedback was considered as the most effective of the six considered subcomponents of Vital Engagement for both courses, with 96% of the students' responses being positive from the questionnaire dedicated to Vital Engagement. Many students also mention *prompt feedback* from teachers as a positive or very positive aspect in their free text answers in the CEQs. These comments on feedback include both feedback on weekly assignments and larger project works. Classroom and office discussions, and discussions via e-mail and Canvas, are also frequently mentioned as appreciated and important.

Examples of quotes from students (translated from Swedish) relating to feedback in particular and Enjoyed absorption in general include:

"It really felt like there was a purpose behind every part of the course, and the objectives were clear, for example with the assignments. It also felt like everything was well connected. The course content built a lot on what had been done previously, which was good. Another important aspect, I think, was that you felt involved in the course and received quick feedback on assignments, and were able to ask questions during exercises and lectures." (VSMF05)

"Assignments throughout the course, both educational and challenging." (VSMF05)

"Having several smaller assignments was good; it helped keep you on track and provided continuous feedback on your work." (VSMF05)

"It was nice to have clear goals that were presented at the beginning of the course. Above all, it was great to receive such quick feedback on the work you did." (VSMN10)

"Quick feedback, quick engagement in the course through hand-ins. Good projects that gradually increased in difficulty." (VSMN10)

External context in terms of needs and relevance for industry was frequently mentioned as a positive aspect by the students in VSMN10. The guest lectures appear to have been very well received, and the course is overall appreciated for highlighting needs and challenges of potential employers for the students. The practical relevance of the project work in VSMN10 was also mentioned by several students in their free text answers of the questionnaires. The students of VSMF05 gave less attention to activities related to External context, although some mentions are found in the free text answers of the questionnaires. Several free text responses from the students highlight the importance of External context and why this was seen as a positive aspect to promote Subjective significance:

"That you get to learn what companies and the real world expect from you." (VSMN10)

"I think a lot has been connected to the industry, and the purpose behind why we're doing it has been clear." (VSMN10)

"We've learned an incredible amount and managed to accomplish even more. I really appreciate the reflection and the recurring connection to what the industry is actually looking for." (VSMN10)

Students' storytelling scored the lowest point of the six considered subcomponents in the rating of effectiveness. The average response does however indicate a positive (rather than negative) score for both courses. Activities or experiences related to Students' storytelling are further not clearly seen in the free text answers from the students in either course.

VI. Discussion

The amount of data gathered from the questionnaire dedicated to evaluation of Vital Engagement is small, with 26 responses (53% of the registered students) for VSMF05 and 20 responses (95% of the registered students) for VSMN10. The results are however believed to be of relevance for further course development and for a future more extensive evaluation.

As mentioned above, the scores from the questionnaires suggest that the students do not appear to value the subcomponent of *Students' storytelling* to any significant extent. There are however some interesting examples from both courses which we believe are clear evidence of the role of *Students' storytelling*, even if students did not identify them as such themselves. A student in the course VSMN10 (Structural Dynamic Computing) shared a story of how she explained the concept of bending modes to her partner by swinging a folding ruler. Describing concepts learned to someone unfamiliar with the topic is an opportunity to recall and elaborate on course material, thereby promoting long-term understanding. Simplifying complex concepts and using examples or analogies also help developing metacognition and promoting deep learning.

Another example relating to *Students' storytelling* comes from VSMF05 (Engineering Modelling: Analysis of Structures). The student had observed a roof truss in an existing building and asked the course teacher about the structural system and how it was designed, in relation to concepts learned in the course. This implies taking knowledge gained in the course and applying for understanding the design of a physical "real-world" structure.

VII. Closing remarks

Vital Engagement works well as a reflective framework for teachers – both to identify existing strengths in teaching approaches as well as identifying gaps where the framework can inspire new ways of engaging students using different strategies. We have practice-tested Vital Engagement for this purpose and are very interested to discuss with our peers how they already implement some of these elements and how this could be integrated in other courses and applied in other contexts.

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