Plant a seed for the future

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Abstract

We propose a hands-on session to prompt participants to reflect and take action. The session tackles the following objectives: 1. Reflect about the world we live in compared with the world of our dreams and how we can plant the seed for change in our classrooms. Why do teachers feel students are not interested in learning? Question ourselves about: What are the values we are modeling for our students? As teachers, we encourage our students 'to study for the exam'. Should we be encouraging them to learn? 2. Explore the available on-line tools to bring AL/PBL to on-line education. Will we give up on active learning when it is most needed? Are AL/PBL tools enough for the change we are craving

Keywords: Active Learning; Engineering Education; Reflection; Creativity; Change; Education paradigms.

1. Introduction

Far too often we are lost in our everyday tasks and we miss our purpose. In this hands-on we want to create the time and space to refocus and center ourselves as teachers (and as human beings).

The crisis the whole world is living in relation to the COVID virus invites us to pause for reflection and introspection, questioning the way we are living and calling for a change. Inspired by this time of uncertainty, we propose a session where attendants are invited to reflect on their own lives, the world we live in and the world of their dreams. With this vision in sight, we can start changing the world by thinking and discussing how we can first change ourselves and our classrooms.

The students of today will be the adults of tomorrow and they are the ones who will be shaping the world we live in. It is in education that we can plant the seeds for change. It is in our classrooms where we can be a source of inspiration and wisdom for the new generations and therefore have an impact on the world.

2. Relevance of personal development and well-being

As teachers we unavoidably and necessarily have an impact on our students' lives and this is how we can influence society and plant the seed for change. This is both an opportunity and a responsibility. Are we ready to take in this role? Are we being inspiring models for our students?

We believe being a role model is a very powerful way of teaching. Children have an innate tendency to imitate and during their early years this is how they learn and develop: through play and imitation (Elisa J. Sobo (2014)). And it goes far beyond childhood, as research has proven (Cruess, Sylvia R et al. (2008); Perrone, K. M., Zanardelli, G., Worthington, E. L., Jr., & Chartrand, J. M. (2002)), and we have all experienced: inspiring models have an impact in our personal development at all ages and stages of our lives.

Awearence on the importance of well-being and personal development is well established (at least at a theoretical level) as enjoying health and well-being is a basic need that every human being should enjoy. In the context of education, teachers are important adults in children's scholastic lives, and there is some evidence that teacher wellbeing, at least indirectly, has significant effects on children's socioemotional adjustment and academic performance (Jennings, P. (2015); Spilt, J.L., Koomen, H.M.Y. & Thijs, J.T. (2011); Malmberg and Hagger (2009); Roth et al. (2007)). In the context of medical practices Taylor CM (1999) points out that: personal and professional development operate in a similar way to education, they both follow a similar cycle of questioning (self-analysis), seeking information, assimilation and knowledge (growth).

We believe that in order to be the inspiring models we would like to be, we need to start by putting our lives in order by living according to our core beliefs. Therefore, we should start the change within ourselves by

taking the time to work on our personal development and well-being. This hands-on session wants to plant the seed of awearence in each of the participants and encourage them to pause their lives, reflect on their values, their beliefs, and their life purpose and take the necessary steps to live accordingly and enjoy life.

A starting point could be asking ourselves, what are our values? and are they different to the values we convey?

3. Personal reflections

What are the values we convey in our classrooms?

(i) We urge the students to pass exams to get a degree.

(ii) Students want the degree because society values people who can get a good job and earn good money.

The focus is always on the future, students pursue a goal: the degree, money, acceptance (external motivation). We can start by shifting the focus to the present moment: the learning process and the joy of learning (intrinsic motivation Edward L. Deci Richard M. Ryan. (2010)).

We wonder if it would be possible to design a curriculum focused on the joy of learning. Our days through high education should be regarded as an opportunity. An opportunity to learn and make mistakes without serious consequences. University should be a safe place where students can (and should) wonder, experiment and make mistakes! because it is by making mistakes that we learn the most (Yerushalmi, E. and Polingher, C., 2006).

Unfortunately, mistakes are not allowed at the university as they are punished with bad marks. Moreover, how can students possibly enjoy the curriculum if it is so packed with information that they barely have time to go through it all and grasp a superficial knowledge? curriculums target quantity (of information) versus quality. There is no time for acquiring a deeper level of knowledge and for working on the so-called transversal skills. How could the curriculums be simplified? What is worth learning and what could be compromised for the more important goal of learning how to think and discern?

Teachers believe they need to transfer a lot of information to the students and therefore marks are needed to guarantee a certain level of knowledge. Knowledge (or rather information) is the pillar of our education system. We argue that in the Information Age this model of education has become obsolete. Perhaps transversal-skills are in fact the only thing worth learning.

We are continuously receiving information not always coherent, It requires us to discern and judge by ourselves and we are not prepared. Do we work on critical thinking skills in our classrooms?

While observing society's reaction to the current events we have noticed worrisome patterns: (a) a few people question the veracity or accuracy of the information they receive, either coming from their teachers, experts or from the TV!; and (b) most of the population follows unquestionable orders. There are a few people that think and create a protocol and the rest just follow the protocols.

Has our society lost the ability to wonder? to think and investigate by themselves? and has it chosen to believe in experts' advice and follow protocols? While there is nothing wrong with specialization or protocols, we need to bear in mind that some information is lost in the process and as a result inconsistencies or contradictions may appear. We should never compromise the ability to see the big picture and we should work on critical thinking skills. These skills need to be trained and practiced but further than that, it is a choice, a way of living and behind this behavior hides a reluctance to accept responsibility.

In our classrooms, most of the time is spent transferring information or solving problems in a particular way (using a given methodology). Practice on how to judge and discern is lacking. (Obedience versus freedom of thought?). How can we foster future engineers who think for themselves (as opposed to engineers with a degree who can follow protocols)? engineers who take responsibility for their learning (and for their lives!). We take away the responsibility from them when we give them the information they need to pass the exams we choose and we grade these exams. We think it is time everyone takes their responsibility (consequences are already noticeable) and the responsibility for learning belongs to the students.

Concerning the ultimate goal in life: earn more money, we invite you to question yourselves, and also your students: what do you want money for? Is money really a goal, or rather a means to achieve something else? what is it we are craving that we believe money can provide? It may be security, pleasure, acceptance or may be it gives us a purpose.

In any case, profit as a goal necessarily clashes with other values such as sustainability and well-being. For instance, a company that produces cell phones sets up its goal to double revenue each year. This is not sustainable for any company in the long term but what is worse is that important values are compromised: the well-being of the employees who have to work harder and the environment that has to absorb the old discarded cell phones.

Engineering projects are designed to be profitable. Our vision is that when one of our former students is facing a decision, whether as the CEO of a company, the chief engineer of a project or as the lab assistant, we would like him to do his job showing respect for nature and people (Mesquita, D., 2019).

We believe that not every so-called technology achievement is a step forward in our development as humanity (Bofill, P., Farreras, M., Armengol J., 2015), It is crucial to consider the impact the project will have on humanity as a hole, sociological aspects, environmental and health related. Sickness and suffering is all around us, is there anything we can do about it from our place as engineers? at the very least we could make sure engineering projects are not harmful (even if investigating the impact on health/environment makes the project less profitable!). It is worth keeping in mind the big picture as we rush through our everyday tasks and make decisions and perhaps change is still possible.

We advocate for a new model of education that is humanistic and holistic. Where students should feel supported on the discovery and development of their skills and talents; and where they can learn to discern, judge and question everything.

PBL and Active Learning are excellent tools for that purpose and they have been applied for a while (Christie, M., & de Graaff, E., 2017). Instead of delivering information to the students, they make them be active, think and judge. Not only does this create a far more solid knowledge, it also enhances skills such as autonomous learning, creativity, team work, critical thinking, and burst self-confidence. It is clear that AL and PBL are necessary but are they enough?

4. Activities

After introducing the activity (5 min), the hands-on session will proceed as follows:

Individual reflection (i.e guided meditation) on where we are going as a society and how education can promote/support the change we need. (15 min)

Debate in small rooms, and preparation of a short presentation with the reflections of your group. (30 min) A text with thought provoking questions will be provided as a source of inspiration. Our own reflections can be found in the introduction of this paper.

Participants will share their presentations. (20-30 min- 5 min per presentation)

Final thoughts and conclusion. (20 min)

5. Expected results

This hands-on session's primary aim is to increase teachers' feeling of fulfilment, as we (teachers) reflect on our values and work towards and according to our beliefs, which in turn gives us a sense of purpose and improves our well-being (and our health).

We see this exercise of self-reflection and introspection as something we should all do, not only teachers. It benefits: (i) the students and humanity as a whole because we set our intention to create a better world for

future generations to live in; and (ii) ourselves as persons to be more aligned with our wishes and therefore have a feeling of purpose in life.

We expect a fruitful discussion and the outline of a plan, or (at least) ideas, for each participant to plant our seed. Our dream is that a similar reflective activity would be used when defining the curriculum of our engineering degrees.

6. List of inspiring questions

After the personal reflection about the world we live in and the changes we would like to see. The main question we would like to answer in this hands-on session is: What is in our hands to pursue the world of our dreams and how could we implement it?

The following questions will be provided as a source of inspiration:

About our life:

- Are we living the way we would like to?
- What are our values?
- Are we creative in our lives/jobs or in our learning?

About our teaching:

- What are the values we convey in our classroom?
- Are we able to transmit the joy of learning or rather contribute to put pressure on them to 'pass the exam'
- Do we leave room for creativity? How?
- How do we support their aspirations/projects, their autonomous learning abilities?
- About taking action:
- What changes are required? curriculum?
- Are AL/PBL tools enough to see the change we are craving in society?

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