How Self-Determination Theory and Situative Learning are concomitant theories

Eduardo Bellani *

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1 Introduction

The problem I will address in this article is the lack of a specific motivation theory for project based learning and the minor number of academic works linking self-determination theory(SDT) to educational settings.

I will approach the problem by demonstrating the foundations used by SDT and I will show how the situative learning(SL) approach relates satisfactory to these foundations.

Summarizing, I intend to contribute the following in this article:

- I will describe both SDT and SL in a concise and straightforward manner, drawing parallels between the two models.
- I will describe how SL is a model that fosters the principles of SDT.

2 Theory review

2.1 Self-Determination Theory(SDT)

SDT is one of the most well grounded Ryan and Deci [2002] and broad theory amongst the current theories of motivation. For SDT, the degree in which people are able to fulfill their base psychological needs affects the pursue and attainment of their goals critically. These needs play a vital part in SDT.

*blog – contact

> Specifically, in SDT, three psychological needs—for competence, relatedness, and autonomy—are considered essential for understanding the what (i.e., content) and why (i.e., process) of goal pursuits. Ryan and Deci [2000]

STD takes the perspective that people will go after purposes and goals that permit the satisfaction of: Ryan and Deci [2000]

- Competence – The need to have an effect and an expertise dealing with your environment.
- Autonomy – The need to feel in control of your own behavior.
- Relatedness – The need to feel connected to your peers, to care and love and be cared and loved.

2.2 Situative Learning(SL)

SL is a framework for research on learning sciences that takes not only and individuals but on activity systems, where the analysis encompass all the environment where the learning takes place. In that environment there are elements like:

> ... learners, teachers, curriculum materials, software tools, and the physical environment. Greeno [2006]

Because SL is a very abstract theory, implementations of it in more specific and concrete situations gives rise to variations such as Constructionism:

> Papert's constructionism views learning as building relationships between old and new knowledge in interactions with others, while creating artifacts of social relevance. ... constructionism focuses on the connected nature of knowledge with its personal and social dimensions. Kafai [2006]

And Project-Based Learning(PBL):

> Project-based learning allows students to learn by doing and applying ideas. Students engage in real-world activities that are similar to the activities that adult professionals engage in.
>
> Project-based learning is a form of situated learning Greeno [2006] and it is based on the constructivist finding that students gain a deeper understanding of material when they actively construct their understand by working with and using ideas. Krajcik and Blumenfeld [2006]

3 How does SL and SDT fit together?

I plan to describe in one variation of SL, project-based learning the points where it is clear that it intercalate with SDT.

I will divide the comparison following along the five key features of PBL: driving questions, situated inquiry, collaboration, learning technologies, and artifacts.Krajcik and Blumenfeld [2006]

3.1 Driving Questions

The main characteristic of PBL is the driving question that guides the process of teaching. The driving question should connect with students, allowing then to find meaning and purpose in answering it.

When the question chosen is of good quality, it is profoundly connected to all three pillars of SDT. That connection steams from the characteristics of a good driving question (note the emphasized words, they are the indication of the connection with SDT):Krajcik and Blumenfeld [2006]

1. feasibility – Students can *design* and *perform* investigations to answer the question.
2. worthwhile – The question contains *rich content* that relates to the *students communities* and to what professionals really do.
3. contextualized – They are *real world, nontrivial, and important.*
4. meaningful – They are *interesting and exciting* to learners.
5. ethical – They do *no harm to individuals, organism or the environment.*

If a task is feasible, worthwhile, contextualized, and meaningful it promotes competence by allowing the students to be effective in a significant way. The ethical and contextualized aspect of the question links with relatedness as the learner affects its community in a positive fashion, driving self-respect and pride. Because the question is selected in a cooperative manner Krajcik and Blumenfeld [2006] it attaches to autonomy.

3.2 Situated Inquiry

One goal of PBL is to echo the environments where the real activity takes place. Take science for example. We can see that science classrooms differ from laboratories, but that does not mean that it cannot consists with the characteristics of laboratories.

As students design their investigations, with or without the help of an instructor, their sense of autonomy is strengthened. And when students conclude their investigation they accomplish something that is of importance to them, and their sense of competence is also strengthened,

3.3 Collaborations

PBL aims to transform the classroom in a community of learners by providing options for all members of the learning environment to collaborate in the investigations performed.

> Students collaborate with others in their classroom and with their teacher to ask questions, write explanations, form conclusions, make sense of information, discuss data, and present findings. ... Collaboration helps students build shared understanding of scientific ideas and of the nature of the discipline as they engage in discourse with their classmates and adults outside the classroom. Krajcik and Blumenfeld [2006]

Because the students investigate and research in a discourse community where they collaborate and are encouraged to flow ideas, the students feel more connected to their peers, their professors and community. That connection feeds their sense of relatedness.

3.4 Learning technologies

Technology is used to augment all other aspects of the process of learning in the context of PBL. That process takes place in the same sense as Engelbart [1962] described in his now classic work.

Because of that characteristic, the correct use of technology can increase all three aspects of SDT.

3.5 Artifacts

> Learning sciences research shows that students learn more effectively when they develop artifacts – external representation of their constructed knowledge. Krajcik and Blumenfeld [2006]

By constructing and reconstructing artifacts as a result of their driving questions, students create strong bounds between ideas that were previously disconnected and to reflect back on their thoughts. That experience is one

of the most powerful ideas that exist Papert [1981] and empowers learners to feel competent and to have a purpose for their efforts in an important context.

On the other hand, the constant feedback of a teacher or a mentor is critical to the process of construction of artifacts. Because of that a teacher must be aware of their students progress and overall competence. Extensive feedbacks given with respect in a proper manner increase the caring and love between all parties of the process.

4 Conclusion

My conclusion is that SL is a learning theory that supports motivation as described in the SDL in a very satisfactory manner. Because both SDT and SL have a very compreheensive body of evidence supporting them, this connection only increases their strenght.

I view this as another call for the people who are responsible for educational institutions to reflect on their assumptions and purposes because the problem of unmotivated students is the fault of our institutions, and not of the students.Krajcik and Blumenfeld [2006]

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