What is Socratic Method?" The Analysis of Socratic Method through "Self Determination Theory" and "Unified Learning Model

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"What is Socratic Method?" The Analysis of Socratic Method through "Self Determination Theory" and "Unified Learning Model"

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Abstract

This paper provides an analysis of Socratic Method as a teaching practice in the context of cognitive science theories, motivational theories and neurobiology of learning. Analysis indicates that this method promotes motivation to enhance better learning as well as being a good match for satisfying the rules-conditions of learning. This paper would be beneficial for instructional designers, teachers and policy makers who would like to understand the impact and use of Socratic Method.

Keywords:Socratic Teaching and Learning, Socratic Method,Unified Learning Model,Self Determination Theory;

1. Introduction

Analyzing Socratic Method within the different perspectives may help us to understand it is impact on learning. Socratic Method may be implemented as teaching processes through which students in a way that enhance student motivation and deep thinking. This paper provides an analysis of Socratic Method as a teaching practice in the context of cognitive science theories, motivational theories and neurobiology of learning. This paper describes the use of Socratic Method as a teaching practice, an analysis of motivational aspects of Socratic Method through "Self Determination Theory" and an analysis of Socratic Method in under the lenses of "Unified learning Model".

This paper would be beneficial for instructional designers, teachers and policy makers who would like to understand the impact and use of Socratic Method.

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2. Socratic Method as a Teaching Practice

   A dialectical thinking, in which learners are thinking to solve a problem and issue with synthesis and analysis methods in a dialogical manner, may be related to creativity and may facilitate creative performance [1]. Socratic Method could be considered a method for dialectical thinking. Socrates believed that "dialectic was the best route to true understanding and that understanding was central to the good life " [2]. Socratic Method can be applicable to various teaching domains [3–7].

   Socratic Method is a technique where teacher asks questions to help learners to examine their existing ideas and the validity of their statements within discussions in which learners are required to think about their reasoning and responses [8]. The question – answer dialog is intended to be used to make students to think on his existing knowledge and discover more knowledge rather than evaluating learner's knowledge and responses as in drill methods. In Socratic Method, asking many questions to test learners' knowledge is not the only objective. In Socratic method is a two-step process [9].In the first step, teacher uses question - answer dialogs to show learners that their current knowledge on the statement is not satisfactory to answer the very first question. This brings learners to a realization that his existing knowledge about the statement has flaws. The second step requires learners to analyze the issue more detail and deeply to reach a solution or a statement. Hence, first step is needed to create awareness for the learners that they need to fill the gap in their existing knowledge and they need to discover the issue more to fill that gap. In other words, this realization helps them to be aware about their needs to learn more in order to answer the initial question. The second step of the method is required to guide the learner in his discovery of knowledge. In second step, teacher has role as facilitator or a guide that helps learner to reach the answer by examining his existing knowledge but not a source of information or an authority that evaluate learners' answer. In this role teacher asks genuine questions to create opportunities for the learner to examine his thoughts in depth. This role of the teacher requires him giving up his authority as well as passing the responsibility to the learner. Socrates' famous quote also shows that Socratic teacher have to give up being an authority of source of knowledge:

   "I know that I know nothing". [68]

   According to the Socratic Method, the teacher should be considered as a learning partner to the learner.   This relationship of being learner partners brings responsibilities and requires some characteristics and skills for each party [10–12]. First of all each party should have be good and open minded communicator which includes the capacity of critical and respectful listening and the capacity of explaining self thoughts. Each party also should respect each other's thoughts (even they are wrong or flawed) and personality. Also parties should be mature enough to accept that their initial existing knowledge may be wrong and they shouldn't take the questions as an attack to them to prove they are wrong. Teachers should be careful in their questions to consider this issue and they shouldn't forget that the main goal is to help student to discover the knowledge not to prove that he is wrong. These mentioned characters and skills may be lacking at the beginning however practicing Socratic Method in the classroom may also improve them both for teacher and learner.   Also The Socratic Method may help to develop autonomy skills for the learners because it can be used to help learners to see when they need to act and more and where they need to [13]. Autonomy and critical thinking skills are also very essential for leadership skills for influencing and persuading other people [14-69].

   On the other hand the need of decreasing authority of teachers may bring issues for teachers and other parties, especially in learning cultures and societies which are close to questioning of existing values [15]. Moreover, not all the learners are capable to carry Socratic discussions due to lack of

mental skills, including intellectual skills, self regulation skills and meta-cognitive skills [16–23]. One should not forget that the development levels of learners are different at different ages for these skills. On the other hand, that does not mean teachers should not use Socratic Method in some degree with the learners who are not ready due to lack of skills. In fact, teachers may use Socratic Method to improve these skills of learners and help them to be an independent critical thinker. Also introducing Socratic Method earlier may bring a realization and awareness to younger learners about expert mental models that cover the techniques of analytical thinking as in Socratic Method. Research shows that teaching strategies of self awareness and thinking has a potential impact on the improvement of meta cognitive skills [24].

3. Socratic Method and Connections to Self Determination Theory (SDT) and Motivation

With its 40 years of history, Self Determination Theory (SDT) explains human motivation [28],[29]. Thus, SDT is a way of understanding motivated human behaviors. In learning environments, teachers' acts have an effect on learner's thoughts and behaviors. SDT explains the cause of human motivation and it helps us to predict possible effect of the acts of teachers on learners in terms of motivation. These acts causing a change in the learning environment also expected to create a motivation factor that may also lead a change in the target agent's behavior toward learning goals. However this change may not occur naturally and automatically. Therefore teachers should realize the factors that create learner motivation toward the learning goals.

SDT takes motivation in two different portion; intrinsic and extrinsic motivation. Intrinsic motivation is the motivation, where learners have the enjoyment in an activity rather than external rewards and events [25]. Contrary, extrinsic motivation comes from outside rewards and events [26-70]. Many studies related SDT indicates that for better learning and well being, teachers should be promoting intrinsic motivations rather than extrinsic motivations because any external rewards stimulates learners to regulate their acts toward the goal of getting reward rather than essential learning tasks [30-42]. As research evidence suggests, any teaching activity supporting learners needs that is integral for intrinsic motivations are also supporting better learning in terms of improvement in achievement and/or pursuit of goals related to learning. Moreover, it has been suggested that learners like and prefer teaching methods that are creating intrinsic motivations [43]. Rewarding learners externally is not helpful to motivate learners intrinsically. In fact, any outside rewards significantly undermines intrinsic motivations of learners [44, 45].

3.1. Importance of Autonomy in Learning-Motivation

Autonomy can be looked as self-sufficiency; where all the resources are presented and a learner has full capability to control; and cooperation; where allthe resources are presented and learner has full or partial capability to control according to a specific relations with others [46]. In learning domain, the main important point SDT explain is the autonomy for the regulation of learning. For autonomous self regulation autonomy needs (as well as competence and relatedness needs) should also be supported [47-50]. Also autonomy support in classroom will stimulate intrinsic motivation [51-56]. Moreover, supporting autonomy in classroom environment creates a positive learning atmosphere. Research claims that autonomy creates more humanistic learning environment where teaching goals are oriented in a learner centered way where their autonomy is supported engaging activities[57].

There is a strong evidence that more autonomous self-regulation in learning environment can lead a better learning and better performance [30, 58, 59, 61-66]. Therefore we could assume that

supporting ACR needs of learners may lead better self regulation of learning due to motivation as the relationship is represented in figure 1.
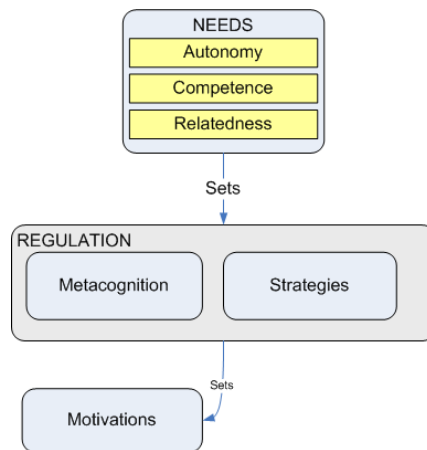

Fig.1.Relationship Between Autonomy and Motivation

SDT takes intrinsic motivations as a process of internalization in which agents assimilate and personalize environmental and social regulations into integrated self [60]. If this internalization fails the regulations becomes partially and/or fully external. Internalization degree is classified as external, introjected, identified and integration. External regulation is the case where agents' actions are controlled by external means. External regulations are considered as the case of extrinsic motivation. Introjection regulation is the partial internalization where agents' actions are controlled by themselves but the internalization of regulation is still partial. Introjection regulations are considered not fully integrated within self therefore the action is not considered self determined. Identification regulation is the case where agents accept the value of the action on their own but the resulting behavior is considered as extrinsically motivated because of not fully being done for a natural enjoyment and satisfaction. Integration regulation is the full internalization where the agents may have precious external regulations and extrinsic motivation become internalized.

The regulation process can be autonomous or can be controlled by other external factors. When learners are capable to control their own learning, they are expected to take control of their regulation process. According to SDT, while in the integration process of regulations, learners should be provided a choice of freely process and integrate values and regulations. Heavily imposed   external controls will hinder the integration of regulations.

4. Socratic Method Promotes Intrinsic Motivation and Enhance Better Learning

As previous section explains, in order to create an environment for a better learning and well being, learners' intrinsic motivation towards the learning goals should be supported by giving them the authority and responsibility for self regulation of their learning by supporting their autonomy. Thus, teachers should adapt their   styles and methods to support autonomy in classroom [67].

Using Socratic Method creates such an environment where the learners required being more autonomous and taking control of their learning by discovering knowledge in dialectical dialogs. Because teacher is a learning partner rather than an authority, this situation creates a positive learning environment to support autonomy of learners. Also application of Socratic Method supports practices of open minded and mature discussion with other parties which may also create a safe and positive atmosphere for autonomous class.

Moreover, Socratic Method helps learners to realize their existing knowledge may have some misconceptions and flaws. This realization shows them the knowledge (or the set of behaviors that is aimed to acquire that knowledge) is not fully integrated within self therefore the knowledge is not considered self determined. As long as the knowledge is not self determined that crates a need for discovering the paths to knowledge. Also this situation may lead to an intrinsic motivation to fulfill this need.

As the research studies described above indicates any satisfying learners' ACR needs may promote intrinsic motivation which also lead better learning. As the relationship is summarized in Figure 2, we claim that including the Socratic Method as a factor in learning environment may satisfy learners' ACR needs and may promote intrinsic motivation and lead better learning.
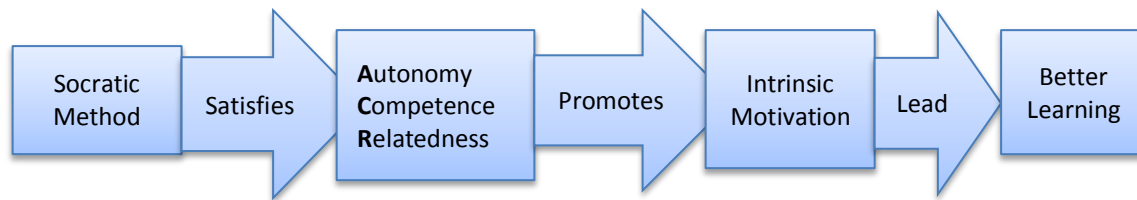
Fig.2. Factor of Socratic Method to Enhance Better Learning

5. General Rules of Learning and Socratic Method

Table 1, provides a five sets of rules to have brief overview of neurobiology of learning and relationships between these rules and Socratic Method. The presented rules forms the foundations of the Unified Learning Model which is a model of a synthesis of theories about learning and a model explaining how people learn and how teaching and instruction should be accordingly [27]. According to this model teaching and instruction work when they provide an atmosphere to create conditions to trigger learning mechanism in a way that the learners' brains work.

Table 1.General Rules of Learning (Shell et al., 2009) and Relationships between Socratic Method

Rule 1. New Learning Requires Attention: *"Teaching and instruction are about getting learners to attend things"*
- In Socratic Method, teachers are directing learners' attention to a specific point by asking questions.
- Using Socratic Method teacher tries to bring the learners to a realization that their existing knowledge is insufficient. Thus, learner may understand in which points they need to attend to learn.

Rule 2. Learning Requires Repetition: "Teaching needs to include retrieving and for skills, practice"
- Socratic Method never aims to teach by lecturing which may lead just rote memorization and storage of knowledge. The exact nature of Socratic Methods aims to build statements in questions according to learners existing knowledge. This will lead retrieving previous knowledge of learning as well as using it in variety of situations.

Rule 3. Learning Is About Connections: "Effective teaching and instruction are about insuring that learners are attending proper connections"
- Using dialogs Socratic Method helps learners to retrieve and create patterns for forming their statements and concepts in order to answer questions. More over dialogic model also help

learners to discover new knowledge by making new connections.

- Socratic Methods give opportunity to test the validity of learners existing connections. Socratic Method works as a check sum for learners to understand if their existing concepts connected to each other should or should not be connected.

Rule 4. Some Learning is Effortless; Some Requires Effort: "Since school is about deliberately learning specific information and skills, learning in school will be difficult (needs effort)".

- Socratic Method dialogs are not like everyday dialogs where we don't have any conscious attention and effort to create connections (learn).
- Socratic Method keeps learners in a dialog where it requires learners to consciously attend to specific information and skills and built up new knowledge by creating connections. Thus Socratic Method creates an environment for learning similar to school where learners are deliberately learning by showing mental effort.
- The nature of Socratic dialogs is dynamic and flexible which leads discovery of knowledge. This nature of Socratic Method requires learners to use their existing knowledge and transfer it to new application domain

Rule 5. Learning is Learning: "At the level of neuron, human learning is human learning, the only difference comes from previous experiences. What we already know impacts what we can learn next or more easily"

- Socratic Method use first phase dialog (see above for the phases) in order to discover what the learner already know. Then in the second phase it builds up on this learner' existing knowledge. Thus Socratic Method treats all learners differently according to their different knowledge level. Basically Socratic Method tailors the dialogs according to student.
- Socratic teacher may start from a dialog that questions basic concepts and may bring the learner to a dialog to more abstract concepts by just asking questions and helping students to making connections. Thus Socratic teacher believes that with effort and attention every learner may learn even most abstract and complex concept.
- Socratic teacher believes that every learner is unique in personality but they all have right and capacity to reach the knowledge.

6. Conclusion

In this paper the use of Socratic Method as a teaching practice, an analysis of motivational aspects of Socratic Method through "Self Determination Theory" and an analysis of Socratic Method in under the lenses of "Unified learning Model" has been provided. Analysis indicates that this method promotes motivation to enhance better learning as well as being a good match for satisfying the rules-conditions of learning. This paper would be beneficial for instructional designers, teachers and policy makers who would like to understand the impact and use of Socratic Method.

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