

# Socratic Seminar

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This chapter will discuss the Socratic Seminar as an instructional method, its historical roots, definitions, uses, and practical considerations. Readers can use this chapter as a practical guide on how to implement the Socratic Seminar in their teaching. A table and infographic (see Figure 2) are provided at the end for practitioners to guide their Socratic questioning.

## What Is the Socratic Seminar?

The Socratic Seminar, also known as Socratic Dialogue, is rooted in the conversations the Greek philosopher Socrates (470–399 BC) had with his pupils (Schneider, 2013). Socrates, known as an excellent teacher, established dynamic conversations with his learners, empowering them to construct their understanding of complex matters, and think critically about evidence (Chowning, 2009). The Socratic Seminar has no single definition (Acim, 2018). From a teaching perspective, Billings and Roberts (2006) explain that the Socratic Seminar is an instructional method that aims to improve understanding of ideas through engaged discussion. Soccio (2015) clarifies that the Socratic Seminar is a dialectical method of inquiry that uses questions to guide a discussion. It is expected that truth comes from learners' discussion (Spencer & Millson-Martula, 2009). Discovering the truth involves a systematic discussion on the nature of verifiable ideas (Spencer & Millson-Martula, 2009). Kessels (2009) adds that it is a collective deliberation of ideas aiming to achieve consensus on the answers to fundamental questions. Attempting to find agreement, instructors can infer that these definitions share two characteristics: first, truth is discovered through engaged and logical discussion; and second, truth comes from within the learner.

## Why Use the Socratic Seminar?

Research on Socratic Seminar has shown that it is an effective instructional method both in K-12 and higher education to support academic performance (Griswold et al., 2017; Smith et al., 2009) and meta-cognitive and critical thinking skills (Darginavièienė, 2007; Oyler & Romanelli, 2014). This section examines reasons to use the Socratic Seminar as an instructional method. It first focuses on academic performance. Then, metacognitive and critical thinking skills gained through the Socratic Seminar are discussed.

## Because It Improves Academic Performance

The Socratic Seminar can help learners meet K-12 science (Griswold et al., 2017) and English language and arts standards (Schmoker, 2012). Desired learner performance can be seen when the instructor devotes enough time to correctly align Socratic Seminar material (e.g. texts, cases) to standardized tests and national standards (Billings & Roberts, 2006). As an example, Billings and Roberts (2006) found an instructor who linked the standard of writing a "reminiscence about an object, place, or person" (p. 3) with an excerpt from "The Hoard" by J. R. R. Tolkien. The material from "The Hoard" was discussed and modeled to meet the North Standard Course of Study for 10th grade. Regarding science focused courses, analyzing and interpreting data is a crucial part of three core elements of the Next Generation Science Standards (NGSS): crosscutting elements, disciplinary core ideas, and science and engineering practices

(NGSS, 2019). It allows learners to “represent, visualize, analyze, identify patterns, and tabulate data” (Griswold et al. 2017, p. 492). Smith et al. (2013) recommend that instructors start teaching statistical concepts with intuitive notions before moving to definitions and calculations.

In addition, previous research has shown that the Socratic Seminar is a powerful instructional method that can support learners’ conceptual understanding and discourse of data (e.g, Griswold et al., 2017). In a case study, Griswold et al. (2017) found that interpreting graphs, tables, and diagrams using the Socratic Seminar instructional method improves learner outcomes (e.g., discourse of data) and teacher interest towards the instructional method. In their case study, learners examined figures displaying data from the Diabetes Prevention Program that showed diabetes cases under three conditions (placebo, metformin, and lifestyle). Learners’ answered multiple questions ranging from literal (“What do the data show?” p. 494) to interpretative (“What do the data mean?” p. 494) and evaluative (“How might this apply to you?” p. 494). Through group discussions, learners discovered misunderstandings that they had about the data and how to read a figure (Griswold et al., 2017). For example, learners realized that they were not reading the y and x axis correctly and were able to correct the mistake (Griswold et al., 2017). Learner outcomes were measured based on the NGSS and teacher interest in teaching using the Socratic Seminar. Overall, results showed that the role of inquiry in the Socratic Seminar enables learners to learn fundamental concepts intuitively.

Improving academic performance also happens at the college level. Although not strictly Socratic Seminar, previous studies indicate that peer discussion improves understanding of in-class questions for undergraduate learners (Smith et al., 2009). Chowning (2009) argues that “shared inquiry and discussion builds greater learner understanding” (p. 41). In a case study, Smith et al. (2009) found that the percentage of correct answers increased after learners discuss with peers compared to when they did not hold a discussion. They also found that understanding of scientific topics improved even when none of the learners in the discussion groups knew the correct answer (Smith et al. 2009). Instructors can encourage peer discussion and then gradually move to group discussions, aiming to achieve a Socratic Seminar format. Another successful example is Berger and Wild (2017) who found that undergraduates exposed to the Socratic Seminar instructional method improved academic performance as measured by class rank and academic recognitions (e.g., honors degrees). They also found that 94% of learners who engaged in a Socratic Seminar course received honors degrees.

## Because It Improves Critical Thinking and Metacognitive Skills

Garrison et al., (2011) define critical thinking as “both a process and an outcome” (p. 8). As an outcome, they explain that learners’ critical thinking is indirectly assessed through individual assignments. As a process, critical thinking is supported through discourse and reflection that demand skills such as creativity and problem solving (Garrison et al., 2011). From a Socratic perspective, critical thinking is defined “as the application and analysis of information requiring clarity, logical consistency, and self-regulation” (Oyler & Romanelli, 2014, p. 1). Thus, critical thinking can be defined as “both a process and an outcome” (Garrison et al., 2011, p. 8). Garrison et al. (2011) explain the process of critical thinking through the practical inquiry model (PIM). The PIM has four phases: triggering-events, exploration, integration, and resolution. Although gradual, these phases are not hierarchical. The process starts by posing triggering events, like questions. Then, learners explore facts and ideas about those questions followed by integration of such through reflection. And, finally, learners resolve questions by testing or defending their solutions.

One can use examples from the literature to understand how critical thinking occurs through the PIM. For instance, Oyler and Romanelli (2014) explain that readily available information (i.e., internet) allows learners to retrieve rote knowledge immediately. One could say that those learners are in the exploration phase of the PIM. Oyler and Romanelli (2014) also argue that fast access to archived information makes critical thinking necessary for learners to avoid empty repetition of facts and be able to connect relevant previous knowledge to new current events (Oyler & Romanelli, 2014). Those learners achieve the integration phase of the PIM in which connections among ideas are made and the real-world. When the Socratic Seminar is used, learners are asked to reason by making inferences, resolve conflicts, solve ill-structured problems, and use evidence to support arguments (Shomoker, 2012). Learners are in the resolution phase of the PIM when they engage in these types of tasks.

Another example of critical thinking is Tempe Preparatory Academy in Arizona which uses Socratic Seminars as model to build their academic programs. At Tempe Prep, learners have daily Socratic Seminars in which they respond to prepared questions about literary and historical masterpieces. On top of that, learners submit monthly essays in which they defend their reasoning about previous topics from the discussed readings (Schmoker, 2012). Learners at Tempe Prep must defend their arguments and interpretations while examining contemporary and historical issues that take them to provide solutions to solve current problems (Veenstra, 2019). In addition, when using the Socratic Seminar individuals learn to regulate their thoughts to find true understanding, which makes this instructional method convenient to nurture metacognition and self-regulation (Darginavièienė, 2007; Oyler & Romanelli, 2014).

In an interventional study, Jensen (2015) examined students' critical thinking skills after implementing the Socratic Seminar three days a week for four weeks. Results showed an increase in critical thinking skills in English Language Learners. Jense (2015) measured critical thinking using the "Holistic Critical Thinking Scoring Rubric" by Facione and Facione (1994) (see the Assessment section below). Similar results have been found with college learners in public relations majors who improved critical thinking and problem-solving strategies in Socratic Seminars in contrast to those who were in a lecture-based course (Parkinson & Ekachai, 2002).

## How to Use the Socratic Seminar

The Socratic Seminar first requires learners to read cases, articles, texts, or events in their context or profession (Parkinson & Ekachai, 2002). Second, the instructor, who is familiar with the material, guides learners in a discussion. As a prerequisite to the Seminar, learners must have prepared the predefined material (i.e., assigned text, article, or case). In that way, the Socratic Seminar can meet its purpose of leading learners to discover the underlying principles of a problem and evaluate it (Parkinson & Ekachai, 2002). Consequently, the discussion avoids superficial aspects of a text and immerses learners in deep thinking of complex issues. It is vital that instructors keep the discussion on target and move in the right direction.

## Instructors' Role in the Socratic Seminar

Although not explicitly stated in the definitions, a vital element of this instructional method is the instructor. Stoddard and O'Dell (2016) clarify that in the Socratic Seminar, the instructor becomes a guide whose role is not to provide answers to learners, but rather accompany learners in the construction of knowledge. Such knowledge construction happens when teachers ask provoking questions that confront learners' beliefs. Challenging questions intend to make learners reflect and deduce answers through higher-order thinking processes (Stoddard & O'Dell, 2016). Thus, a class becomes a seminar when it takes distance from the traditional idea of the teacher as the provider of all knowledge (e.g., lectures) and learners take agency over their learning (Reich, 2003). Reich (2003) explains that the purpose of the Socratic Seminar explicitly involves not teaching as a sage on the stage, but moving to the guide on the side. A common practice in the Socratic Seminar is to debate ideas and concepts raised by a text, case, or a collaborative discussion (Billings & Roberts, 2006). The purpose of the Socratic Seminar is achieving "a deeper understanding about the ideas and values in a particular text" (Chowing, 2009, p. 38) and nurturing a rigorous intellectual activity in which learners think independently and formulate questions (Acim, 2018) to discover the truth.

## The Stages of a Socratic Seminar

Billings and Roberts (2006) from the National Paideia Center describe the teaching cycle of a Socratic Seminar in three stages: planning, practice, and assessment. They explained such phases under the light of the experiences of a teacher who implements the Socratic Seminar during an academic year. The stages' names are similar to any other type of instructional method; it is the role of the instructor that makes a substantial difference in the Socratic Seminar. In this section, readers will find a brief description of each of the stages and recommendations that Billings and Roberts (2006) offer on how to successfully conduct a Socratic Seminar.

## Planning

As with any instructional method, planning is the key to success. However, planning for a Socratic Seminar involves two components: 1) instructor preparation (i.e., selecting text/case/event and preparing questions) and 2) learner preparation (pre-seminar individual activities). The instructor preparation component is deliberately based on the curriculum. Therefore, the selection of the instructional material (i.e. the text, case, or event to discuss) goes hand-in-hand with the national standards required for the American K-12 grade level or with expected competencies in the case of higher education. Standard oriented planning guarantees that learners also meet achievement expectations apart from improving critical thinking and metacognitive skills. Furthermore, a good match between standards and instructional materials eases the process of question preparation (see Types of Questions section below).

The learner preparation component aims to nurture skills that are crucial for the development of the Socratic Seminar. Learners need to engage in collaborative and respectful values to participate in fruitful discussions. Pre-seminar activities should foster collaborative values that allow shy learners to speak up and energetic learners to listen actively. There are three ways of fostering learner preparation: 1) establishing clear discussion rules (see Setting Rules and Arranging the Classroom section below), 2) asking learners to set personal goals for the discussion (e.g., minutes of speaking time), and 3) asking for self and peer assessment (see Assessment section below). A good balance between instructor preparation and learner preparation guarantees that both academic goals and socio-emotional goals are met in the Socratic Seminar. Billings and Roberts (2006) explain that the Socratic Seminar can fail if learners are not well prepared, even if instructors invest significant time in the material and question preparation.

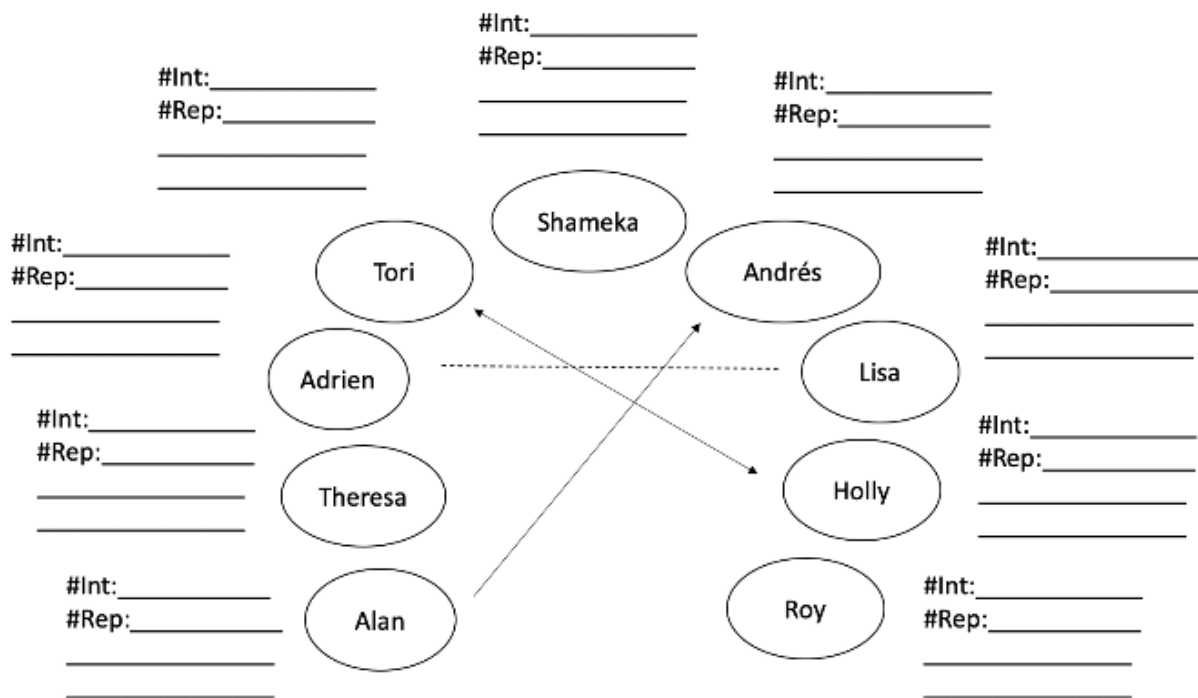
## Practice

Instructors must have in mind the intellectual and collaborative purpose of Socratic Seminars. Therefore, questions formulated during the learning experience must be academic-related and intended to promote social interaction. Consequently, purely social questions or questions with only one right answer deviate from the purpose of the Socratic Seminar. In order to achieve fluent discussion, instructors should emphasize that multiple answers exist. In addition, promoting multiple right answers allows learners to confront ideas and debate with their peers in a respectful environment. In that way, learners are encouraged to compare and contrast ideas. Eventually, learners will build upon each other's ideas and synthesize a collective solution to the problems presented.

Guiding a Socratic Seminar requires developed note-taking and active listening skills. Billings and Roberts (2006) recommend that instructors map out their learners in a graphic chart to support the note-taking process (see Figure 1). While learners speak, instructors can quickly locate who the dominant members are, which arguments have been made, and which learner interactions are most predominant. Those notes are necessary to guide conversations based on learners' arguments rather than on instructors' ideas.

### Figure 1

*Example of Course Drawing to Support Instructors' Note-Taking*



*Note.* #Int.: Number of interventions made. #Rep: number of replies received. One-way arrow: replied to this learner. Two-way arrow: learners exchanged ideas. Dotted line: learners had contrasting opinions.

## Assessment

Billings and Roberts (2006) recommend using self and peer assessment after using the Socratic Seminar. Both types of assessments require learners to take ownership of their learning experiences and regulate their behaviors. For instance, Murray, the instructor in which Billings and Robert report, provides her notes to learners when they are doing peer and self-assessment. Moreover, she asks learners to reflect on their personal goals set during the planning phase and ask whether they achieved them or not. Doing so encourages learners to continue defending their positions, much like during the Socratic Seminar itself. Using learners' personal goals, instructors' map of interactions, and learners' annotations allows participants of the Socratic Seminar to make data-driven assessments of their performance. Assessment does not only happen among learners; instructors are highly encouraged to use their notes to continue improving the Seminar facilitation and the overall learning experience. Instructors can support their assessment using Facione and Facione (1994) Holistic Critical Thinking Scoring Rubrics. Instructors can assign learners points from one to four depending on their demonstration of critical thinking traits. A description of the highest score is "Thoughtfully analyzes and evaluates major alternative points of view." Descriptors of low critical thinking are "Offers biased interpretations" and "Does not justify results or procedures, nor explain reasons."

## Practical Considerations

### Types of Questions

Questions are the building blocks of the Socratic Seminar and instructors use them to build a strong, solid environment to engage learners in constructive discussions. Questioning also involves purposefully selecting questions that encourage learner-to-learner interaction instead of only instructor-to-learner interaction. In Table 1, instructors will find a set of questions to use when guiding a Socratic Seminar and the intended purposes of each question. Before using the questions presented here, it is critical that instructors assess a learner's existing knowledge to select questions that challenge learners without frustrating them (Stoddard & O'Dell, 2016). Stoddard and O'Dell (2016) group Socratic Questions in three clusters: questions to clarify concepts, questions to probe evidence, and questions to explore

implications or consequences. Table 1 is a compendium of questions posed by different researchers' rationale (Griswold et al. 2017; Saran & Neisser, 2004; Stoddard & O'Dell, 2016) and aligned with Krathwohl's revised version of Bloom's Taxonomy (Stoddard & O'Dell, 2016). Instructors can use this table to match questioning to national and state standards.

**Table 1**

*Types of Questions for Socratic Seminars*

<b>Krathwohl's revised Bloom's taxonomy (2002)</b>	<b>Saran &amp; Neisser (2004) – General Socratic Seminar Questions</b>	<b>Stoddard &amp; O'Dell (2016) – Questions focused on medical settings useful for case studies.</b>	<b>Griswold et al. (2017) – Questions focused on database Seminars.</b>
Remember	Asking for Clarification	Questions to Clarify Concepts	Literal Questions
Recognizing, recalling	What do you mean when you say___? Can you elaborate___? Can you explain further___?	What does this mean? What is the origin of this?	What does the data/chart/table/graph show? How are the x- and y-axis labeled? Why are they labeled that way? Does the title of the data/chart/table/graph clearly depict it?
Understand	Probing Assumptions	Questions to Clarify Concepts	Interpretative Questions
Interpreting, explaining, comparing, summarizing	What are you assuming when you say___? Are your arguments based on the assumption that ___?	How does this relate to what we have been discussing/learning?  What do you already know about this topic/issue?	What does the data mean?
Apply	- N/A -	Questions to Probe for Evidence/Rationale	- N/A -
Executing, implementing		Can you give me an example of what you said___?  How did you learn/practice that?	
Analyze	Probing Evidence	Questions to Probe for Evidence/Rationale	Interpretative Questions
Differentiating, organizing	How does your argument apply in the case of ___? In what evidence do you base your argument ___? What is an example of ___?  Viewpoints & Perspectives  Why are you taking this viewpoint instead of the other? How would people	How does X affect Y?  Then what would happen if....?  Why is that issue happening?  How do you know this is the issue?	Can this data be used to support a specific claim?

<b>Krathwohl's revised Bloom's taxonomy (2002)</b>	<b>Saran &amp; Neisser (2004) – General Socratic Seminar Questions</b>	<b>Stoddard &amp; O'Dell (2016) – Questions focused on medical settings useful for case studies.</b>	<b>Griswold et al. (2017) – Questions focused on database Seminars.</b>
	from other backgrounds react to___?		
Evaluate	Implications & Consequences	Questions to Explore Implications/Consequences	Interpretative Questions
Critiquing	What are the implications of your idea/argument/position ___? What effect would that idea/position have on ___ situation?	Why is that important?  What are the implications of X decision?	Does the data have consequences? What are the social/economical/cultural consequences of this data?  Evaluative Questions (Meta-cognitive)  How does data apply to you? What experience do you have with this?
	Questions about the question (Meta-questions)  Why is this question important? How do you think we can answer this question?		
Create	- N/A -	Questions to Explore Implications/Consequences	- N/A -
Generating, producing		Based on the history and physical condition of the patient, can you give a diagnostic?  What can we do now to treat her?	

*Note.* - N/A - : Authors did not provide questions for that level in the taxonomy.

## Setting Rules and Arranging the Classroom

A Socratic Seminar needs a set of rules for participants to take the most out of it. For instance, learners need to time their interventions (Griswold et al., 2017). In that way, Seminar time is more evenly distributed, and participants have more chances to intervene in the discussion. Also, learners should have prepared materials (e.g., text, cases) beforehand and be prepared to listen to others' arguments. Learners could be encouraged to refer by name to others while discussing and to avoid raising hands to promote the natural flow of the discussion. Finally, instructors are encouraged to plan in advance the classroom arrangement. Griswold et al. (2016) suggest using a horseshoe or circle in which learners can see each other. However, they understand that roundtables are not always possible and offer an alternative for large classes: the fishbowl arrangement. Fishbowl means that there are two concentric circles facing inwards. The circle in the center contributes to the discussion while the outer circle listens and waits for their turn to contribute. Members of the outer circle can do peer evaluation using predefined rubrics (Billings & Terry, 2006).

## Other Considerations

The Socratic Seminar does not mean pinging (Oyler & Romanelli, 2014), also referred to as toxic quizzing (Purdy, 2018). Pinging is a popular instructional method in the field of medicine "where persons in power ask questions to their junior



colleagues” (War et al., 2005, p. 185). For the sake of clarity, the term toxic quizzing will be used. Both the Socratic Seminar and toxic quizzing require instructors to question learners’ ideas (Stoddard & O’Dell, 2016). However, toxic quizzing intends to provoke admiration towards instructors and portray them as superior to their learners. In comparison, instructors apply the Socratic Seminar when asking questions to ascertain learners’ previous knowledge (Tofade et al., 2013) and synthesize new information (Stoddard & O’Dell, 2016). Questioning becomes toxic quizzing when instructors’ intentions do not pursue curiosity, but intend to belittle learners (Stoddard and O’Dell, 2016). Therefore, the instructor’s role is vital as they establish a safe space for sharing ideas and encouraging intellectual autonomy.

Although the Socratic Seminar highly encourages independent thinking, unguided instruction could be adverse to learners’ performance (Kirschner et al., 2010). For the novice and intermediate learners, Kirschner et al. (2010) found that instruction with minimal guidance framed under the constructivist approach (like the Socratic Seminar) was not superior to direct instructional guidance. For more advanced learners, minimal guidance was equally effective as direct guidance (Kirschner et al., 2010). Although scientific thinking can occur without guidance, Kirschner et al. (2010) argue that teaching scientific thinking does not have to be the same as the epistemology of science. Furthermore, they say that it is “a mistake to assume that instruction should exclusively focus on application” (p. 84). In the case of the Socratic Seminar, the instruction is the application of scientific thinking itself. Hattie and Donoghue (2016) explain that the low efficiency related to problem-based or inquiry-based methods is due to using them on learners who have not acquired sufficient prior knowledge yet. Practitioners are recommended to assume that higher-level thinking skills require enough prior knowledge when using minimal guidance in instruction (Hattie & Donoghue, 2016). Thus, this chapter strongly encourages practitioners to know their learners before embarking on any instructional methods and to think of pre-planning as the most relevant part of the Socratic Seminar—more relevant than the discussion itself.

**Figure 2**

*Infographic on the Socratic Seminar*

**THE SOCRATIC SEMINAR**

The Socratic Seminar is an instructional method that aims to improve understanding of ideas in a text through engaged discussion (Billings & Roberts, 2006).

**1** Truth comes from within the individual

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