12.3.1 Lesson 7

Introduction

In this lesson, students read and analyze pages 237–243 of *Guns, Germs, and Steel* (from "Once an inventor has discovered a use for a new technology" to "some proportion of societies is likely to be innovative"), in which Diamond discusses many factors that inform the acceptance of a new technology into a particular society. Students analyze how ideas in this excerpt interact to develop the concept of receptivity to innovation within and across societies. Additionally, students continue to surface potential research issues and develop potential inquiry questions. Student learning is assessed via a Quick Write at the end of the lesson: How do ideas in this excerpt interact to develop the larger concept of society's receptivity to innovation?

For homework, students read and annotate pages 243–249 of *Guns, Germs, and Steel*, boxing any unfamiliar words and looking up their definitions. Additionally, students continue the research process by surfacing issues and generating inquiry questions as they read and analyze the text.

File: 12.3.1 Lesson 7 **Date:** 4/3/15 **Classroom Use:** Starting 4/2015

Standards

Assessed Standard(s)	
RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
Addressed Standard(s)	
W. 11-12.9.b	Draw evidence from literary or informational texts to support analysis, reflection, and research. b. Apply *grades 11-12 Reading standards* to literary nonfiction (e.g., "Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy [e.g., *The Federalist*, presidential addresses]").
L. 11-12.4.c	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on *grades 11-12 reading and content*, choosing flexibly from a range of strategies. c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, its etymology, or its standard usage.

Assessment

Assessment(s)
Student learning is assessed via a Quick Write at the end of the lesson. Students respond to the following prompt, citing textual evidence to support analysis and inferences drawn from the text. • How do ideas in this excerpt interact to develop the larger concept of society's receptivity to innovation?
High Performance Response(s)
A High Performance Response should: • Identify two or more ideas in this excerpt (e.g., the "laundry list … of factors" (p. 239) affecting receptivity; innovative vs. conservative societies). • Explain how the ideas interact to develop the larger concept of society's receptivity to innovation (e.g., in this excerpt, Diamond delves into the factors that affect innovation receptivity among societies. First, Diamond introduces a "laundry list … proposed by historians of technology" (p. 239) of physical, societal, and ideological factors that affect a society's receptivity to innovation. Diamond then challenges the "laundry list" (p. 239) by explaining that it "does not exhaust the list of reasons proposed to explain why societies differ" (p. 240) and that "proximate explanations" (p. 240) cannot explain the ultimate causes of continental differences regarding receptivity to technology. Instead, Diamond presents an alternate conclusion: "over a large enough area … at any particular time, some proportion of societies is likely to be innovative" (p. 243). By describing the diversity of New Guinean societies, such as the innovative "Chimbu tribe [who] proved especially aggressive in adopting Western technology" (p. 241) and comparing them with the Daribi, who are "especially conservative and uninterested in new technology" (pp. 241–242), Diamond proves that receptivity to innovation is "essentially a random variable" (p. 243).).

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
• prestige (n.) – high status or reputation achieved through success, influence, wealth, etc. • cachet (n.) – superior status; importance; respect • vested interests (n.) – personal or private reasons for wanting something to be done or to happen • perverse (adj.) – persistent or obstinate in what is wrong • uniformly (adv.) – in an identical or consistent way • ideological (adj.) – relating to the body of doctrine, myth, belief, etc., that guides an individual, social movement, institution, class, or large group • heretics (n.) – people who do not conform to an established attitude, doctrine, or principle • stifles (v.) – makes something difficult or impossible • plausible (adj.) – having an appearance of truth or reason; seemingly worthy of approval or acceptance; credible; believable • benign (adj.) – mild; gentle • tacitly (adv.) – in a way that is understood without being openly expressed; in a way that is suggested • speculation (n.) – ideas or guesses about something that is not known • prevalent (adj.) – widespread; of wide extent or occurrence; in general use or acceptance • myriad (adj.) – of an indefinitely great number; innumerable
Vocabulary to teach (may include direct word work and/or questions)
• None.
Additional vocabulary to support English Language Learners (to provide directly)
• cumbersome (adj.) – complicated and hard to do • porters (n.) – people whose job is to move people around • counterproductive (adj.) – not helpful; making the thing you want to happen less likely to happen • entrenched (v.) – placed (someone or something) in a very strong position that cannot easily be changed • laundry list (n.) – a long list of related things

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Text: • Standards: RI.11-12.3, W.11-12.9.b, L.11-12.4.c • Text: *Guns, Germs, and Steel* by Jared Diamond, pages 237–243	
Learning Sequence:	
1. Introduction of Lesson Agenda	1. 5%
2. Homework Accountability	2. 15%
3. Reading and Discussion	3. 60%
4. Quick Write	4. 15%
5. Closing	5. 5%

Materials

- Student copies of the Surfacing Issues Tool (refer to 12.3.1 Lesson 2) (optional)—students may need additional blank copies
- Student copies of the Short Response Rubric and Checklist (refer to 12.3.1 Lesson 1) (optional)

Learning Sequence

How to Use the Learning Sequence	
Symbol	Type of Text & Interpretation of the Symbol
10%	Percentage indicates the percentage of lesson time each activity should take.
no symbol	Plain text indicates teacher action.
	Bold text indicates questions for the teacher to ask students.
	Italicized text indicates a vocabulary word.
▸	Indicates student action(s).
🗨	Indicates possible student response(s) to teacher questions.
ⓘ	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standard for this lesson: RI.11-12.3. In this lesson, students analyze how the ideas in this excerpt develop the concept of society's receptivity to innovation. Additionally, students continue to surface issues from the text and pose inquiry questions as part of the research process.

- Students look at the agenda.

Activity 2: Homework Accountability 15%

Instruct students to take out their responses to the first part of the previous lesson's homework assignment. (Read and annotate pages 237–243 of *Guns, Germs, and Steel*.) Instruct students to form pairs to discuss their responses.

- Student annotation may include:
  - Exclamation point by the phrase "Throughout history, war has often been a leading stimulant of technological innovation" (p. 240), because it is surprising that innovation can be stimulated by devastation.
  - Numbers next to "relative economic advantage compared with existing technology"
    (p. 237); "social value and prestige" (p. 237); "compatibility with vested interests"

(p. 237); and "the ease with which their advantages can be observed" (p. 238). These numbers are the factors that influence the acceptance of a specific technology within a society.

- Star next to "Thus it is untrue that there are continents whose societies have tended to be innovative and continents whose societies have tended to be conservative" (p. 243). This claim supports Diamond's ideas that "at any particular time, some proportion of societies is likely to be innovative" (p. 243).

Instruct student pairs to share and discuss the vocabulary words they identified and defined in the previous lesson's homework (L.11-12.4.c).

- Students may identify the following words: *prestige*, *cachet*, *vested interests*, *perverse*, *uniformly*, *ideological*, *heretics*, *stifles*, *plausible*, *benign*, *tacitly*, *speculation*, *prevalent*, and *myriad*.

- **Differentiation Consideration:** Students may also identify the following words: *cumbersome*, *porters*, *counterproductive*, *entrenched*, and *laundry list*.
- Definitions are provided in the Vocabulary box in this lesson.

Instruct students to take out their responses to the second part of the previous lesson's homework assignment. (Continue to surface possible research issues and pose inquiry questions as you read and analyze the text.) Instruct student pairs to share and discuss surfaced issues and potential inquiry questions.

- Student responses may include:
  - **Surfaced issues:** Prestige of designer products; government regulation of new technologies; cheap slave labor or low-wage labor; immigration regulation and its effects on innovation; patent law; capitalism; entrepreneurial, risk-taking behavior; religion; war; strong, centralized government; scarcity of environmental resources; conservative outlook to innovation.
  - **Potential inquiry questions:** How does government regulation of an industry impact the financial success of businesses in the industry?; To what degree should a business rely on low-wage labor to increase profit?; How does regulation of immigrant workers impact the agricultural economy?; How do patent laws encourage innovation?; What political structure is the best for stimulating economic growth?; How does a society encourage entrepreneurial, risk-taking behaviors safely?; How do religious views impact economic decisions?; How does war stimulate innovation?; What size government is best for a healthy economy?;

What responsibility does the government have to replenish or regulate scarce environmental resources?; When is a conservative outlook to innovation a benefit?

- See the Model Surfacing Issues Tool at the end of this lesson for more details regarding surfaced issues.

Activity 3: Reading and Discussion 60%

Instruct students to form pairs. Post or project each set of questions below for students to discuss. Instruct students to continue to annotate the text as they read and discuss (W. 11-12.9.b).

Remind students to continue the research process by surfacing issues and identifying potential inquiry questions as they read and analyze the text.

- **Differentiation Consideration:** For additional support, consider providing students with copies of the Surfacing Issues Tool.
- If necessary to support comprehension and fluency, consider using a masterful reading of the focus excerpt for the lesson.
- **Differentiation Consideration**: Consider posting or projecting the following guiding question to support students in their reading throughout this lesson:

  For what reasons do different societies adopt technology?

Instruct student pairs to read pages 237–241 (from "Once an inventor has discovered a use for a new technology" to "makes it easier, not harder, to understand history's broad pattern") and answer the following questions before sharing out with the class.

How does Diamond extend his claim that "invention is often the mother of necessity" (p. 232) in pages 237–238?

- Student responses should include:
  - Diamond extends his claim by stating that "[o]nce an inventor has discovered a use for a new technology, the next step is to persuade society to adopt it" (p. 237). Thus, the "mother" (p. 232) is the invention, and to get society to "accept[]" (p. 237) it, society must find a need for it.
  - Diamond also explains that "a bigger, faster, more powerful device for doing something is no guarantee of ready acceptance" (p. 237). Instead, specific social factors, not including necessity, influence the acceptance of a new technology: "relative economic advantage" (p. 237); "social value and prestige" (p. 237); "compatibility with vested interests" (p. 237); and "the ease with which … advantages can be observed" (p. 238). These

social factors have greater impact on acceptance than necessity, as demonstrated by "the world's continued rejection of an efficiently designed typewriter keyboard" or "Britain's long reluctance to adopt electric lighting" (p. 237).

How does Diamond differentiate between the "four factors" (p. 237) of acceptance and the "laundry list" (p. 239) of factors?

- The "four factors" describe factors influencing receptivity or acceptance of a technology "within the same society" (p. 237). The "laundry list" describes factors influencing receptivity "among societies" (p. 239).

How does Diamond counter the "laundry list" (p. 239) of factors that explain differences in receptivity among societies?

- Student responses may include:
  - Diamond points out that, of the 10 hypothetical physical, societal, and ideological factors, "none … has any necessary association with geography" (p. 240). Therefore, the factors do not explain why "postmedieval Europe" was receptive to technology, but "India or China" was not (p. 240).
  - Diamond states that the list of "14 explanatory factors" (p. 239) does not "exhaust the list of reasons proposed to explain why societies differ in their receptivity to new technology" (p. 240), indicating that the list of factors is not complete.
  - Diamond states that "all of these proximate explanations bypass the question of the ultimate factors behind them" (p. 240), meaning that the factors in the list do not answer the ultimate question of why there are differences in technology and innovation "among societies" (p. 239).

Lead a brief whole-class discussion of student responses.

Instruct student pairs to read pages 241–243 (from "For the purposes of this book, the key question" to "some proportion of societies is likely to be innovative") and answer the following questions before sharing out with the class.

How does Diamond challenge the answer to "the key question" (p. 241) about the "laundry list" (p. 239)?

- Diamond states that "[m]ost laypeople and many historians assume" that the factors on the "laundry list" (p. 239) lead directly to "continental differences in technological development"
  (p. 241). Diamond, however, states that "such claims are based on pure speculation" (p. 241). He states that there has never been a study to compare "systematic ideological differences"
  (p. 241) between societies that resulted in technological differences.

How does Diamond's discussion about "the key question" relate to his explanation of "circular" reasoning (p. 241)?

- Diamond explains that "the usual reasoning" about society's receptivity to innovation is "circular" because historians have "inferred" that "technological differences" between groups exist due to "ideological differences" (p. 241). However, the only basis for that inference is that technological differences exist in the first place; there is no concrete evidence that supports the existence of ideological differences.

- Consider explaining to students the concept of *circular reasoning*: where the evidence given to support a claim is a version of the claim itself.

How does Diamond develop his claims concerning innovative versus conservative societies on pages 241–243?

- Student responses may include:
  - Diamond describes two tribes living near one another in Papua New Guinea: the Chimbus and the Daribi. The innovative Chimbus "proved especially aggressive in adopting Western technology" (p. 241) while the Daribi remained "especially conservative and uninterested in new technology" (p. 241–242). This comparison develops Diamond's claim that "from society to society" or geographic region "on the same continent" (p. 242), two societies can have varying outlooks regarding new technology.
  - Diamond illustrates how receptivity can "vary over time within the same society" through examples of the "conservative" modern Islamic societies that in the past were "technologically advanced and open to innovation" (p. 242). China was also "more innovative and advanced" (p. 242) in the past and "technology was less advanced in Europe" (p. 243).
  - Diamond states that "we think of western Europe and its derived North American societies as leading the modern world in technological innovation" (p. 243). However, Western Europe, a prime example of a "civilized" (p. 243) society, had less technological innovation than China or the Middle East "until the late Middle

Ages" (p. 243). Thus, Diamond reinforces his claim that "receptivity to innovation fluctuates in time within the same region" (p. 243).

How do Diamond's observations and descriptions of native societies on pages 241–243 support his conclusions about receptivity?

- Student responses may include:
  - Diamond observes that "native societies" can "differ greatly" (p. 241) from one another in their level of receptivity, just as industrialized societies do. By using the example of the Papua New Guinean Chimbu tribe who "proved especially aggressive in adopting Western technology" (p. 241), and the Daribi tribe who were "especially conservative and uninterested in new technology" (pp. 241–242), Diamond demonstrates that the lifestyle of a given society (industrialized or stone age) does not determine its receptivity to new technology.
  - Diamond observes that native societies are just as receptive to adopting new technology when it suits them or when it will improve their way of life. His observation of the Chimbus, who "saw white settlers planting coffee, [and] they began growing coffee themselves as a cash crop" (p. 241), and turning over the profits to purchase a modern sawmill, supports the idea that biology or being a similar native group is not a factor preventing certain societies from adopting new technologies.
  - The example of Aboriginal Australians with different levels of receptivity to technology supports the idea that "over a large enough area … at any particular time, some proportion of societies is likely to be innovative" (p. 243). While "Tasmanians continued to use stone tools" (p. 242) despite access to technology across the continent, others in mainland Australia adopted new technologies. For example, fishing tribes in southeastern Australia "devised elaborate technologies for managing fish populations" (p. 242) because it was advantageous to do so.

What leads Diamond to conclude that "at any particular time, some proportion of societies is likely to be innovative" (p. 243)?

- Student responses may include:
  - Diamond explains that the list of factors affecting receptivity do not "differ[] systematically from continent to continent" (p. 241), but "the development and reception of inventions vary enormously from society to society on the same continent" (p. 242). These conclusions are exactly what "one would expect if society's innovativeness is determined by many independent factors" (p. 243), and lead to the idea that the innovativeness of a society cannot be predicted by specific factors.

- Diamond suggests that all of the factors are in play in determining whether a society is receptive to innovation, and that "[w]ithout a detailed knowledge of all of those factors, innovativeness becomes unpredictable" (p. 243). Therefore, innovativeness is "essentially a random variable" (p. 243).
- The "laundry list" (p. 239) fails to provide "ultimate factors" (p. 240) to explain why societies differ in technological innovation. Diamond's observations of societies, such as the Chimbus and Daribi, that live in close proximity and "differ greatly … in their prevalent outlooks" (p. 241) supports the idea that receptivity to innovation varies over time among and within societies.

Lead a brief whole-class discussion of student responses.

Activity 4: Quick Write 15%

Instruct students to respond briefly in writing to the following prompt:

How do ideas in this excerpt interact to develop the larger concept of society's receptivity to innovation?

Instruct students to look at their annotations to find evidence. Ask students to use this lesson's vocabulary wherever possible in their written responses.

- Students listen and read the Quick Write prompt.
- Display the prompt for students to see, or provide the prompt in hard copy.

Transition to the independent Quick Write.

- Students independently answer the prompt using evidence from the text.
- See the High Performance Response at the beginning of this lesson.
- Consider using the Short Response Rubric to assess students' writing. Students may use the Short Response Rubric and Checklist to guide their written responses.

Activity 5: Closing 5%

Display and distribute the homework assignment. For homework, instruct students to read and annotate pages 243–249 in *Guns, Germs, and Steel* (from "Where do innovations actually come from?" For all societies" to "induced numerous investors to lend money to Gutenberg") (W.11-12.9.b). Direct students to box any unfamiliar words and look up their definitions.

Instruct students to choose the definition that makes the most sense in context, and write a brief definition above or near the word in the text (L.11-12.4.c). Additionally, instruct students to continue the research process by surfacing issues and generating inquiry questions as they read and analyze the text.

- Students follow along.

Homework

Read and annotate pages 243–249 in *Guns, Germs, and Steel* (from "Where do innovations actually come from? For all societies" to "induced numerous investors to lend money to Gutenberg"). Box any unfamiliar words and look up their definitions. Choose the definition that makes the most sense in context, and write a brief definition above or near the word in the text.

Also, continue the research process by surfacing issues and posing inquiry questions as you read and analyze the text.

Model Surfacing Issues Tool

Name:		Class:		Date:	

Directions: As you read, look for issues that are suggested in the text. Remember that an issue is an important aspect of human society for which there are many different opinions about what to think or do. Summarize the issue succinctly, and note the page number and what the text says about the issue in the correct columns.

Issue	Page(s)	Key information about the issue from the text
Prestige of designer products	237	Diamond states that "social value and prestige" (p. 237) play a role in whether a society adopts a technology, and he provides the example of designer products.
Government regulation of new technologies	238	British cities still used gas lighting because "regulatory obstacles" (p. 238) prevented electricity companies from establishing electric light systems even though electricity was available.
Cheap slave labor or low-wage labor	239	Although "cheap slave labor" (p. 239) is a factor in increased receptivity to technology, it is not acceptable by modern day standards. However, low-wage work still exists.

Immigration regulation and its effects on innovation	239	Diamond states that "the prospect of changed immigration policies that would cut off the supply of cheap Mexican seasonal labor" (p. 239) was a factor in the development of technology to harvest tomatoes by machines. These policies stimulated innovation that was previously unnecessary because of immigrant labor.
Patent law	239	Diamond states that patents help "protect[] ownership rights of inventors, reward[ing] innovation in the modern West" (p. 239).
Capitalism	239	Diamond states that modern-day capitalism is "organized in a way that [makes] it potentially rewarding to invest capital in technological development" (p. 239).
Entrepreneurial, risk-taking behavior	239	Risk taking behavior is "essential for efforts at innovation" (p. 239) but it can lead to dangerous or even illegal actions.
Religion	240	Religion can play various roles in innovation by either being "compatible" (p. 240) or incompatible with it.
War	240	"Throughout history, war has often been a leading stimulant of technological innovation" (p. 240). War leads to the innovation of weapons, strategies, and modes of transport.

Strong, centralized government	240	A strong, centralized government helped to boost technology development in Germany and Japan, but "crushed it in China after A.D. 1500" (p. 240).
Scarcity of environmental resources	240	The scarcity of environmental resources can drive a society to innovate to work around the scarcity or to replenish the scarce resource.
Conservative outlook to innovation	241	Diamond indicates that many laypeople assume that in those societies with low receptivity to innovation, the society is "conservative, living in an imagined past Dreamtime of the world's creation and not focused on practical ways to improve the present" (p. 241).