

12.3.1 Lesson 22

Introduction

In this lesson, students analyze and synthesize their research to begin making claims about inquiry questions within an inquiry path. Students use at least two Forming Evidence-Based Claims Tools to develop claims about all inquiry paths on the research frame.

Students begin by choosing the inquiry path that surfaced the richest research, while also narrowing the focus to a single inquiry question within the selected inquiry path. Students then skim their research associated with that inquiry question, including annotated sources and notes. Students highlight the pertinent evidence directly on the annotated sources or their notes. Students then select details from the highlighted evidence to make claims about inquiry questions and inquiry paths by completing at least two Forming Evidence-Based Claims Tools. These initial claims are the foundation for the Evidence-Based Perspective that students will develop in 12.3.1 Lesson 27. Student learning is assessed via a Quick Write at the end of the lesson: Choose two evidence-based claims and explain how each evidence-based claim addresses one or more inquiry questions.

For homework, students complete the process of organizing, analyzing, and synthesizing their research, using at least two Forming Evidence-Based Claims Tools to develop claims about all inquiry paths on the research frame.

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Standards

Assessed Standard(s)	
W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
W.11-12.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
Addressed Standard(s)	
W.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

Assessment

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Assessment(s)

Student learning is assessed via a Quick Write at the end of the lesson. Students respond to the following prompt, using evidence from their research.

- Choose two evidence-based claims and explain how each evidence-based claim addresses one or more inquiry questions.
- Consider using the relevant portions of the 12.3.1 Research Rubric and Checklist to assess the Quick Write in this lesson.

High Performance Response(s)

Student responses vary according to the research conducted. A High Performance Response should:

- Choose an evidence-based claim (e.g., “Various forms of technology spur economic growth across all levels of society. Broadband stimulates communication and access to information, and labor-saving technology improves quality of life and saves time.”).
- Explain how the evidence-based claim addresses an inquiry question (e.g., This evidence-based claim addresses the inquiry question, “In what specific ways does technology stimulate a developing nation’s economy?” This evidence-based claim responds to this question by explaining that technology stimulates an economy in a variety of ways. The claim also provides specific examples gleaned from details in the sources like the use of Broadband and laborsaving techniques.).
- Choose another evidence-based claim (e.g., “Education quality is determined by multiple factors, both inside and outside the classroom, including but not limited to cognitive development, skill development, and equity”).
- Explain how the evidence-based claim addresses an inquiry question (e.g., This evidence-based claim addresses the inquiry question “What does quality education look like?” The claim responds to this question by providing examples of the multiple ways one can define quality education. The claim explains that quality education is not limited to the classroom, it must foster cognitive and skill development, and it must be based on equity.).

Vocabulary

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Vocabulary to provide directly (will not include extended instruction)

- None.*

Vocabulary to teach (may include direct word work and/or questions)

- None.*

Additional vocabulary to support English Language Learners (to provide directly)

- None.*

*In their research and reading, students encounter domain-specific vocabulary related to their individual areas of investigation/problem-based questions. Consider instructing students to use a vocabulary journal to track this vocabulary when conducting independent searches during class and for homework.

Lesson Agenda/Overview

Student-Facing Agenda	% of Lesson
Standards & Texts: <ul style="list-style-type: none"> • Standards: W.11-12.7, W.11-12.9, W.11-12.8 • Model Source Texts: “Human Capital Investment in the Developing World: An Analysis of Praxis” by Adeyemi O. Ogunade (Source # 5, http://www.uri.edu/, search terms: Analysis of Praxis, Ogunade); “2005 EFA Global Monitoring Report: Education for All: The Quality Imperative” by UNESCO (Source #7) 	
Learning Sequence: <ol style="list-style-type: none"> 1. Introduction of Lesson Agenda 2. Homework Accountability 3. Research Analysis Activity 4. Research Synthesis Activity 5. Quick Write 6. Closing 	<ol style="list-style-type: none"> 1. 5% 2. 10% 3. 45% 4. 25% 5. 10% 6. 5%

Materials

- Highlighters (one for every student)
- Copies of the Forming Evidence-Based Claims Tool for each student (at least 6 per student)
- Student copies of the 12.3.1 Research Rubric and Checklist (refer to 12.3.1 Lesson 9)

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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.
	<i>Italicized text indicates a vocabulary word.</i>
►	Indicates student action(s).
☞	Indicates possible student response(s) to teacher questions.
①	Indicates instructional notes for the teacher.

Activity 1: Introduction of Lesson Agenda

5%

Begin by reviewing the agenda and assessed standards for this lesson: W.11-12.7 and W.11-12.9. In this lesson, students choose an inquiry path that surfaced rich research and narrow the focus to a single inquiry question within the selected inquiry path. Students then review their research associated with that inquiry question, including annotated sources and notes. Students highlight the important evidence directly on the annotated sources or their notes, and select details from the highlighted evidence to record on their Forming Evidence-Based Claims Tools. Students are then able to make claims about the inquiry questions and inquiry paths. These initial claims serve as the foundation for the evidence-based perspective students develop in 12.3.1 Lesson 27.

- Students look at the agenda.

Activity 2: Homework Accountability

10%

Instruct students to take out their responses to the previous lesson's homework assignment. (Continue conducting searches independently, following the steps taught in 12.3.1 Lessons 16-18 (plan for searches, assess sources, annotate sources, record notes, and evaluate arguments). Additionally, organize your research materials by inquiry path to prepare for the following lesson.)

Ask students:

Which inquiry paths from your research frame surfaced the richest information from the source materials?

- Student responses may include:
 - I noticed that I had several relevant and useful resources for inquiry path 1. These references provided some answers to each of the inquiry questions within this path. So, inquiry path 1 seems to be the richest path in terms of information across multiple sources.
 - I noticed that I was able to answer most questions within each inquiry path, thus, all inquiry paths led to rich information.
- Consider collecting the homework to assess students' research progress.

Activity 3: Research Analysis Activity

45%

Remind students that thus far they have focused on researching and analyzing sources for the individual questions in their inquiry paths. Explain that, in this next step, students take a more global perspective on their research by returning to the research frame and analyzing their evidence across multiple sources to see if they can answer some of their inquiry questions. Inform students that the goal of this activity is to understand what the research says about each inquiry path now that the research is mostly complete.

- Students listen.
- After this lesson's activities, some students may continue researching if they have not yet found enough evidence to directly support a claim about each inquiry path.

Instruct students to follow specific steps to analyze the research in order to think about their developing understanding about each inquiry path. Display and explain each step:

- Step 1: Review the research frame and analyze each inquiry path. Choose an inquiry path that surfaced the richest research across multiple sources. This inquiry path is now your focus inquiry path.
- Step 2: Analyze the focus inquiry path and circle inquiry questions within the path that led to the most useful and relevant research.
- Step 3: Choose one of the circled inquiry questions and skim all the research associated with that one inquiry question, highlighting evidence and details that answer the chosen inquiry question. This step may include reading or skimming across multiple sources for one inquiry question. Ensure that you do not rely too much on any one source.
- Step 4: Repeat this process for as many questions as possible in each inquiry path, even for inquiry paths that did not yield the most interesting or rich research.
- Students may use the inquiry path question itself to analyze research associated with that path.

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- Students listen and examine the steps.
- After the modeling of each step, students use their own research to complete the step independently.

Display the model research frame (from 12.3.1 Lesson 19) for students to see.

- Students examine the model research frame.
- The model research frame is located in 12.3.1 Lesson 19.

Model for students how to follow the research analysis steps. Remind students that step 1 is to “Review the research frame and analyze each inquiry path. Choose an inquiry path that surfaced the richest research across multiple sources. This inquiry path is now your focus inquiry path.”

Explain to students that while all paths have surfaced rich research, the richest research comes from inquiry path 1:

Inquiry path #1: How does education increase a developing nation’s economic prosperity?

This path includes a wide variety of evidence from sources that represent multiple perspectives and synthesis of these perspectives.

- Students listen and follow along with the modeling.

Model for students how to complete step 2: Analyze the focus inquiry path and circle inquiry questions within the path that led to the most useful and relevant research. Explain to students that they should examine the focus inquiry path (inquiry path 1) and all the questions within it, and think about the independent searches they conducted. Explain to students that the inquiry questions within inquiry path 1 that were answered through research include the following:

How does education relate to the development of human capital?

What does quality education look like?

How does education play a role in the development of other human capital areas like technology and healthcare?

Circle the questions for students to see.

- Students listen and follow along with the modeling.

Explain to students that step 3 in the research analysis process is to choose one of the circled inquiry questions, skim all the research associated with the chosen inquiry question, and highlight evidence and details that answer the chosen inquiry question. This step may include

reading across multiple sources for one inquiry question. Ensure that you do not rely too much on any one source.

Model for students how to use the inquiry question “What does quality education look like?” to guide the research analysis. Demonstrate how to skim through a source to find, read, and highlight key evidence associated with the chosen inquiry question. Skim through source #7 and discuss which evidence to highlight for the chosen inquiry question.

- Students listen and follow along with the modeling.

The following are examples of possible highlighted evidence to model from source #7 (“EFA Global Monitoring Report 2005: Education for All - The Quality Imperative” by UNESCO).

- “The quantity of children who participate is by definition a secondary consideration: merely filling spaces called ‘schools’ with children would not address even quantitative objectives if no real education occurred.” (pp. 28-29)
- “[E]ducation is a set of processes and outcomes that are defined qualitatively.” (p. 28)
- “[T]wo principal objectives are at stake: the first is to ensure the cognitive development of learners. The second emphasises the role of education in nurturing the creative and emotional growth of learners and in helping them to acquire values and attitudes for responsible citizenship. Finally, quality must pass the test of equity: an education system characterized by discrimination against any particular group is not fulfilling its mission.” (Foreword)
- Prior to this lesson, students annotated and recorded notes on all their sources; they do not need to read every source closely again, but can skim through for key evidence and details associated with the chosen inquiry question.

Instruct students to look at their individual research frames and follow the first three steps of the research analysis process by choosing one inquiry path on which to focus, circling inquiry questions, and finally choosing one focus inquiry question. Remind students to circle questions within the inquiry path that led to relevant and useful research.

- Students look at their individual research frames and choose a rich inquiry path on which to focus, circle inquiry question(s) within the path, and choose one focus inquiry question.
- Students can choose the inquiry path question itself to guide their research analysis.
- Instruct students to use highlighters to highlight evidence and details that answer the chosen inquiry question. Remind students they are looking for how their sources answer the chosen inquiry question.
- **Differentiation Consideration:** If students struggle with the analysis process, consider modeling with an individual student’s chosen inquiry question to highlight evidence and details that answer the question.

Activity 4: Research Synthesis Activity

25%

Introduce students to the Forming Evidence-Based Claims Tool, which they use to synthesize evidence for their focus inquiry question. Explain to students that it is important to think about how the information gathered through research connects, and what the research says about the focus inquiry question. Explain that this work helps students develop a deeper understanding of the research itself and its connections to the problem-based question. Inform students that this work is the foundation for developing a perspective about their problem-based question in subsequent lessons.

- Students listen.
- Consider providing the following definition: *synthesize* means “to combine into a single or unified entity.”

Distribute at least 6 copies of the Forming Evidence-Based Claims Tool to all students.

- Students examine the Forming Evidence-Based Claims Tool.

Display a Model Forming Evidence-Based Claims Tool for all students to see. Model for students how to complete the top portion of the tool by writing the model sources #5 and #7, and the model inquiry question, “What does quality education look like?”

- Students follow along with the modeling.

Instruct students to complete the top portion of their blank Forming Evidence-Based Claims Tool, writing their chosen inquiry question and the numbers of the sources they analyzed in the previous activity.

- Students complete the top portion of their blank Forming Evidence-Based Claims Tool.
- Remind students of their work with numbering sources in 12.3.1 Lesson 16.
- After the modeling of each portion of the Forming Evidence-Based Claims Tool, students use their own research to complete the tool independently.

Model for students how to select details from the highlighted research analysis to complete the “Selecting Details” portion of the Forming Evidence-Based Claims Tool. Show students several highlighted pieces of evidence from sources #5 and #7. Explain to students that they should choose the most important evidence that answers the focus inquiry question. Model for students how to choose the most important details from the highlighted evidence. Write these details on the Model Forming Evidence-Based Claims Tool for students to see. These should include the following:

- “The quantity of children who participate is by definition a secondary consideration: merely filling spaces called ‘schools’ with children would not address even quantitative objectives if no real education occurred.” (pp. 28-29)
- “[E]ducation is a set of processes and outcomes that are defined qualitatively.” (p. 28)
- “[T]wo principal objectives are at stake: the first is to ensure the cognitive development of learners. The second emphasises the role of education in nurturing the creative and emotional growth of learners and in helping them to acquire values and attitudes for responsible citizenship. Finally, quality must pass the test of equity: an education system characterized by discrimination against any particular group is not fulfilling its mission.” (Foreword)
- “[Quality education] includes experience; practical learning that take place on the job, as well as, non-traditional technical training regimens that enhance skill development.” (p. 3)
 - Students listen and follow along with the model.
- The sources “Human Capital Development in the Developing World: An Analysis of Praxis” and “EFA Global Monitoring Report 2005: Education for All - The Quality Imperative” are referenced in the Model Forming Evidence-Based Claims Tool, but any source may be used to model using the Forming Evidence Based Claims Tool.

Instruct students to analyze the highlighted evidence from their research and select the most important details to answer their chosen inquiry question. Instruct students to write the selected details in the “Selecting Details” section of the tool. Remind students to write the source’s number on the reference line so they do not separate the resource from the evidence (W.11-12.8).

- Students analyze the highlighted evidence from their research and write the most important details on the Forming Evidence-Based Claims Tool.

Model for students how to complete the “Analyzing and Connecting Details” section of the Forming Evidence-Based Claims Tool. Instruct students to consider what the details say about the chosen inquiry question and the connections students can make among the details.

Model this thinking and write the following on the Model Forming Evidence-Based Claims Tool in the “Analyzing and Connecting Details” section for students to see: “Education is evaluated qualitatively, and quality is not the same thing as quantity. Providing students with lots of classroom time means nothing if the students are not developing cognitive skills. Quality is also determined by equity—how equal the education system is—as well as teaching students skills and values for responsible citizenship. Quality education also depends on experience.”

- Students follow along with the modeling.

Instruct students to practice using their own Forming Evidence-Based Claims Tools, by thinking about their details and how they are connected in light of their chosen inquiry question. Instruct students to write their thinking in the “Analyzing and Connecting Details” section on the Forming Evidence-Based Claims Tool.

- Students make connections between the important details and write these connections in the “Analyzing and Connecting Details” section on the tool.

Model for students how to develop a claim that answers the chosen inquiry question by completing the “Making a Claim” section of the Forming Evidence-Based Claims Tool. Instruct students to think about the conclusions or answers they are developing based on their analysis. Write the following claim on the Model Forming Evidence-Based Claims Tool in the “Making a Claim” section for students to see: Education quality is determined by multiple factors, both inside and outside the classroom, including but not limited to cognitive development, skill development, and equity.

- Students follow along with the modeling.

Instruct students to develop their own claims and write them on their tools in the “Making a Claim” section.

- Students develop a claim in the “Making a Claim” section on the tool.

Explain to students that for the previous analysis, they chose only one inquiry question to focus on. They can now analyze the rest of their research evidence and develop more claims about their other inquiry questions.

- Students listen.

Instruct students to review their focused inquiry path with the circled inquiry questions, and to continue to use the Forming Evidence-Based Claims Tool to develop claims about all the circled questions. Instruct students to begin developing claims for their focus inquiry path.

- Students use the Forming Evidence-Based Claims Tool to develop claims about the circled inquiry questions within the chosen inquiry path.
- Remind students to follow the steps of analyzing the research and the process of synthesis for each Forming Evidence-Based Claims Tool outlined in Activity 3 of this lesson.
- **Differentiation Consideration:** Students may feel comfortable forming claims without the support of the Forming Evidence-Based Claims Tool. If so, consider allowing students to work without the support of the tool.
- If students have chosen to focus on the inquiry path question itself, they should still be able to complete multiple Forming Evidence-Based Claims Tools because they should have sufficient evidence to analyze and make a variety of claims about the inquiry path

question. (See the Model Evidence-Based Claim Tool responses at the end of the lesson for an example of this.)

Activity 5: Quick Write

10%

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

Choose two evidence-based claims and explain how each evidence-based claim addresses one or more inquiry questions.

Instruct students to develop their written responses from their Forming Evidence-Based Claims Tools. Remind students to use the 12.3.1 Research Rubric and Checklist to guide their written responses. Remind students to practice the skills outlined in W.11-12.2.4, to which they were introduced in Module 12.1.

- If necessary, consider reviewing the components of W.11-12.4, which include producing clear, coherent writing that employs organization and style appropriate to the task, purpose, and audience.
 - 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 the Forming Evidence-Based Claims Tools to guide their written responses.
- See the High Performance Response at the beginning of this lesson.

Activity 6: Closing

5%

Display and distribute the homework assignment. For homework, instruct students to complete the process of organizing, analyzing, and synthesizing their research, using at least two Forming Evidence-Based Claims Tools to develop claims about all inquiry paths on the research frame.

- Students will need to complete at least 6 Forming Evidence-Based Claims Tools, two for each inquiry path on their research frame.
 - Students follow along.

Homework

Complete the process of organizing, analyzing, and synthesizing your research, using at least two Forming Evidence-Based Claims Tools to develop claims about all inquiry paths on the research frame.

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Name _____
Source(s) # _____

Inquiry Question: _____

SEARCHING FOR DETAILS

I read the sources closely and mark words and phrases that help me answer my question.

SELECTING DETAILS

 I select words or phrases from my search that I think are the most important for answering my question. I write the reference next to each detail.

Detail 1 (Ref.: _____)	Detail 2 (Ref.: _____)	Detail 3 (Ref.: _____)

ANALYZING AND CONNECTING DETAILS



 I re-read parts of the texts and think about the meaning of the details and what they tell me about my question. Then I compare the details and explain the connections I see among them.

What I think about the details and how I connect them:

MAKING A CLAIM

 I state a conclusion I have come to and can support with evidence from the texts after reading them closely.

My claim that answers my inquiry question:

FORMING EVIDENCE-BASED CLAIMS

Name Model

Source(s) # 5 and 7



Inquiry Question: What does quality education look like?

SEARCHING FOR DETAILS

I read the sources closely and mark words and phrases that help me answer my question.

SELECTING DETAILS

I select words or phrases from my search that I think are the most important for answering my question. I write the reference next to each detail.

Detail 1 (Ref.: 7, p. 28-29)
"The quantity of children who participate is by definition a secondary consideration: merely filling spaces called 'schools' with children would not address even quantitative objectives if no real education occurred."

Detail 2 (Ref.: 7, Foreword)
"[T]wo principal objectives are at stake: the first is to ensure the cognitive development of learners."

Detail 3 (Ref.: 5, p. 3)
"[Quality education] includes experience; practical learning that take place on the job, as well as, non-traditional technical training regimens that enhance skill development."

ANALYZING AND CONNECTING DETAILS

I re-read parts of the texts and think about the meaning of the details and what they tell me about my question. Then I compare the details and explain the connections I see among them.

What I think about the details and how I connect them:

Education is evaluated qualitatively, and quality is not the same thing as quantity. Providing students with lots of classroom time means nothing if the students are not developing cognitive skills. Quality is also determined by equity—how equal the education system is—as well as teaching students skills and values for responsible citizenship. Quality education also depends on experience.

MAKING A CLAIM

I state a conclusion I have come to and can support with evidence from the texts after reading them closely.

My claim that answers my inquiry question:

Education quality is determined by multiple factors, both inside and outside the classroom, including but not limited to cognitive development, skill development, and equity.

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FORMING EVIDENCE-BASED CLAIMS

Name Model

Source(s) # 3 and 10

Inquiry Question: In what specific ways does technology stimulate a developing nation's economy?

SEARCHING FOR DETAILS

I read the sources closely and mark words and phrases that help me answer my question.

SELECTING DETAILS

I select words or phrases from my search that I think are the most important for answering my question. I write the reference next to each detail.

Detail 1 (Ref.: 10, p. 36)

Broadband Internet helps people "acquire skills ... and develop social networks ... facilitating peer-to-peer communities and their integration with the economy."

Detail 2 (Ref.: 10, p. 6)

In India, some farming villages are "using a common portal that links multimedia personal computers by satellite."

Detail 3 (Ref.: 3, p. 3)

Countries can "improve ... quality of life by investing in labour-saving technology."

ANALYZING AND CONNECTING DETAILS

I re-read parts of the texts and think about the meaning of the details and what they tell me about my question. Then I compare the details and explain the connections I see among them.

What I think about the details and how I connect them:

Technology is a broad term that includes mediums as different as broadband high-speed Internet and labour-saving technology like plows. But the common thread is that when communication is ignited, information spread, and efficiency increased, people develop skills and work together more efficiently within a country.

MAKING A CLAIM

I state a conclusion I have come to and can support with evidence from the texts after reading them closely.

My claim that answers my inquiry question:

Various forms of technology spur economic growth across all levels of society. Broadband stimulates communication and access to information, and labour-saving technology improves quality of life and saves time.

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FORMING EVIDENCE-BASED CLAIMS