



# Collective Intelligence

## Essential Question

*What are the benefits and drawbacks of people working together to create information online?*

**Estimated time:** 45 minutes

## Lesson Overview

Students analyze the statement “The whole is better than the sum of its parts” as a springboard to understanding the concepts of synergy and collective intelligence. They consider both the benefits and drawbacks of using collective intelligence in different contexts. Students work in groups to develop materials for a website about their school, and then compare their experiences.

## Learning Objectives

*Students will be able to ...*

- learn about the concept of collective intelligence, and how it works both online and offline.
- consider when collective intelligence may be valuable or not.
- explore the benefits and drawbacks of working as a team to create new information or products.

## Materials and Preparation

- Copy the **MySchool Student Handout**, one for each group of four or five students.
- Preview the PhilaPlace website ([www.philaplace.org](http://www.philaplace.org)) and be prepared to explore it with students.
- Butcher paper, or computers with access to Google Docs ([docs.google.com](https://docs.google.com)) as a high-tech option.

**Standards Alignment –**

**Common Core:**

**grades 9-10:** RI.4, RI.7, RI.10, W.4, W.7, W.8, W.10, SL.1a, SL.1b, SL.1c, SL.1d, SL.3, SL.4, SL.5

**grades 11-12:** RL.4, RL.10, RI.4, RI.7, RI.10, W.4, W.6, W.7, W.8, W.10, SL.1a, SL.1b, SL.1c, SL.1d, SL.2, SL.3, SL.4, SL.5, L.6

**ISTE:** 1a, 1c, 1d, 2a, 2d, 3b, 3d, 4a, 4c, 5b, 6a

## Key Vocabulary –

**synergy:** two or more things working together to produce something that each could not achieve separately

**collective intelligence:** knowledge collected from many people towards a common goal

**wiki:** a website created by a group that allows all users in a group to add or edit content

## Family Resources

- Send home the **Wikipedia Family Tip Sheet (Middle & High School)**.

**Note:** This lesson focuses on collective intelligence, which is best exemplified by projects such as Wikipedia and user reviews on sites such as Yelp. In addition, there are many examples of online social activism and civic engagement. These are also valid ways for people to collaborate on the Web, but they are not the focus of this lesson.

# introduction

## Warm-up (10 minutes)

**DEFINE** the Key Vocabulary term **synergy**.

**HAVE** students consider the following statement by the ancient Greek philosopher Aristotle “The whole is greater than the sum of its parts.”

**ASK:**

*What is meant by this phrase?*

Several things working together – in synergy – can produce something bigger or better than they could if they worked separately.

*How does this phrase apply to teamwork or collaboration?*

A team can create something better than its members could produce working individually.

*What are some instances demonstrating this phrase is true?*

Sample responses:

- Producing a movie. It requires the skills of a screenwriter, director, editor, and many other personnel, all doing their parts according to their particular skills.
- Building a winning baseball team. All players have to be skilled – not just one.
- Operating on a patient. Without different types of doctors and nurses doing their jobs, the operation might not be successful.

*Are there any situations when this phrase is untrue?*

Sample responses:

- Experts who have specific knowledge
- Artists painting pictures that reflect their individual vision and creativity
- People responding to a life-threatening situation. Some studies show that “group think” mentality can prevent individuals from taking action. (See “We Are All Bystanders” as background: [www.greatergood.berkeley.edu/article/item/we\\_are\\_all\\_bystanders](http://www.greatergood.berkeley.edu/article/item/we_are_all_bystanders)).

**INVITE** students to indicate whether the following are good or bad uses of collective intelligence by giving thumbs up or down. There are no right or wrong answers, but call on a few students to explain their answers:

*Is it beneficial when many people work together to ...*

- write a novel?
- publish a newspaper?
- write reviews of a novel?
- solve a math problem?
- take a photo?
- build a bridge?

(Based on “The Dumbness of Crowds” by Kathy Sierra, July 2007. [http://headrush.typepad.com/creating\\_passionate\\_users/2007/01/the\\_dumbness\\_of.html](http://headrush.typepad.com/creating_passionate_users/2007/01/the_dumbness_of.html)).

## teach 1

### Explore Collective Intelligence (25 minutes)

**DEFINE** the Key Vocabulary term **collective intelligence**.

**EXPLAIN** to students that there are growing opportunities for people to collaborate online through collective intelligence. On the Internet, people can collaborate without being in the same place, and even without knowing each other.

**INVITE** students to consider the following types of collective intelligence: (1) wikis that allow anyone to create and edit public Web entries, (2) public contests to answer problems or create products, and (3) websites that allow you to see reviews from other users. Tell students that they will consider the benefits and drawbacks of collective intelligence.

**SHOW** students PhilaPlace ([www.philaplace.org](http://www.philaplace.org)), an interactive map made by the Historical Society of Pennsylvania. It allows ordinary people to add their histories and stories about the city of Philadelphia. Many websites are created by an expert or an organization considered an authority on the topic. PhilaPlace, however, was created collaboratively by regular people. It is a good example of collective intelligence.

**EXPLORE** the site with your students. Browse different text, photos, video clips, and podcasts that users have uploaded.

**ASK:**

*What are some of the pros and cons of creating a website like this with a large group of ordinary people?*

Sample responses:

- Pros are that it can be fun, a wider variety of ideas might emerge, and the audience may get a broader perspective.
- Cons are that messages can be fragmented or unclear, the work might take longer with so many voices, and the information may not be as accurate as that of experts.

## teach 2

### Tell Your Stories (15 minutes)

**DEFINE** the Key Vocabulary term **wiki**.

**EXPLAIN** to students that they are now going to create materials for a wiki about their school. (Note: Explain that they will create a mock wiki if they are using butcher paper, or a real wiki if they are using Google Docs). The wiki they create should include images and text that show outsiders what their school is like. They will be working in groups to develop the wiki, and they will be asked to answer questions about the experience of collaborating.

**ARRANGE** students into groups of four or five.

**DISTRIBUTE** the **MySchool Student Handout**, one for each group, and sheets of butcher paper. Allow students 10 to 15 minutes to design their websites and answer the questions on the handout. Students can create their collections of images and stories using Google Docs ([www.docs.google.com](http://www.docs.google.com)).

## teach 3

### Share Your Story (10 minutes)

**INVITE** students to share the images and text they chose for their MySchool website. Have volunteers respond to the questions on the **MySchool Student Handout**.

**DISCUSS** the following questions as a class.

#### ASK:

*What were some of the similarities and differences between what the groups created to represent the school?*

*What do you think these similarities and differences tell you?*

Answers will vary, but students should recognize that the choices represent the perspective of the group that chose the materials for each MySchool site.

*What do you think would be the benefits of working on your MySchool site in a group, as you did, versus by yourself? What might some of the drawbacks be?*

Sample responses:

- **Benefits:** Groups could produce more material than someone could produce working alone; groups could tap into more areas of school life because different group members have had different experiences.
- **Drawbacks:** Groups might find it harder to decide what to include, because they had to collaborate and reach a consensus with others.

*How might this assignment have been different if a school administrator or an expert who had studied the school had created the materials for the MySchool website, instead of teens who attend the school?*

Sample responses:

- There might have been more emphasis on adults and how the school is run.
- There might have been more facts and history about the school that people who run schools tend to collect.

*In what way did this assignment relate to the idea of collective intelligence?*

Students were demonstrating collective intelligence because they were working in a group and were trying to create knowledge about a community from many people's perspectives. Also, websites about schools are typically created by adults in the school instead of teens, its users. Collective intelligence is often a way to pool knowledge from users and ordinary people, which provides a variety of perspectives.

## closing

### Wrap-up (5 minutes)

You can use these questions to assess your students' understanding of the lesson objectives. You may want to ask students to reflect in writing on one of the questions, using a journal or an online blog/wiki.

#### ASK:

*What is collective intelligence, and what are some offline and online examples of it?*

Students should understand that collective intelligence is knowledge collected from many people towards a common goal.

*Offline examples:*

- Doing a group project
- Making a movie
- Publishing a newspaper

*Online examples:*

- Wikis that allow anyone to create and edit public Web entries
- Public contests to answer problems or create products
- Websites that allow people to see reviews from other users

*What are examples of when collective intelligence can be beneficial? When might it be a drawback?*

Sample responses:

- It can be beneficial for creating something that requires a variety of expertise.
- It can be beneficial if you want to get many people's perspectives on the same topic.
- It might be a drawback if a particular type of expertise is needed.
- It might be a drawback if decisions need to be made quickly.

*What future projects might you do in school or outside that could benefit from pooling the knowledge and expertise of many people? Why?*

Answers will vary, but they should reflect students' understanding of the benefits and drawbacks of collective intelligence in various contexts.

# Collective Intelligence

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## Directions

You have browsed the website PhilaPlace ([www.philaplace.org](http://www.philaplace.org)), where people can add their histories and stories about the city of Philadelphia. Now it's your turn! You will be choosing materials for a paper or electronic wiki about your school. Your job is to think of images and stories for the wiki that tell the story of your school community from your point of view.

Follow these steps to choose the materials for your wiki:

1. Have each person in the group think of three things to include on the website. Work on your own, and write down your choices.
  2. Share your choices with one another. Then work together to choose the 10 best things to include on your website.
  3. Once you have chosen your materials, work together to decide how you will arrange them and what your wiki will look like. Then choose a name for your wiki.
  4. Answer the questions below.
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## Questions

### 1. How did you come up with ideas for images and stories for your website?

### 2. How did you decide which images and stories to include?

**3. Was it difficult or easy to make the decisions? Explain your answer.**

**4. Whose perspective is reflected in the materials you chose?**

**5. How do you think the results might have been different if you were working as an individual instead of in a group?**

# Collective Intelligence

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**1. Which of the following is NOT an example of collective intelligence?**

- a) A website that allows users to rate and review restaurants
- b) A man blogging about things he has cooked
- c) A group of hikers using a wiki to make a list of supplies they will need for their trip

**2. *Collective intelligence* means:**

- a) The intelligence of machines and robots
- b) Knowledge collected from many people toward a common goal
- c) A smart way to collect items you like

**3. True or false: *Collective intelligence* is a term that only describes people working together online, not offline.**

- a) True
- b) False

# Collective Intelligence

## 1. Which of the following is NOT an example of collective intelligence?

- a) A website that allows users to rate and review restaurants
- b) A man blogging about things he has cooked**
- c) A group of hikers using a wiki to make a list of supplies they will need for their trip

*Answer feedback*

The correct answer is **b**. A man blogging by himself doesn't involve a group of people working together, so it is not an example of collective intelligence.

## 2. *Collective intelligence* means:

- a) The intelligence of machines and robots
- b) Knowledge collected from many people toward a common goal**
- c) A smart way to collect items you like

*Answer feedback*

The correct answer is **b**. *Collective intelligence* describes the ways people work together to share ideas or create something new.

## 3. True or false: *Collective intelligence* is a term that only describes people working together online, not offline.

- a) True
- b) False**

*Answer feedback*

The correct answer is **b**, False. Although the Internet can make it easy for people to share knowledge or create something new, people also collaborate – or work together – offline.

# Collective Intelligence

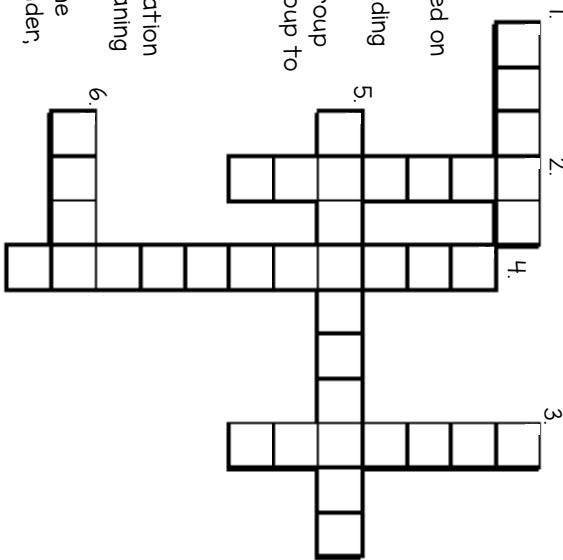


## 1. Family Activity

**\* DID YOU KNOW ...**

Wikipedia is one of the most famous examples of collective intelligence at work. It would take you over 16 years and nine months of reading 24 hours a day to read every Wikipedia article written in English!

### Crossword Puzzle



For Jamal's year-end project, his teacher assigned the class to build a website about a topic they covered during the school year. She gave the class two options: Either work alone on the website or work as a group to turn in one project as a team, so everyone on the team receives the same grade. The only catch was that students didn't get to pick their own teams. Jamal had to tell his teacher whether or not he wanted to be on part of a "collective intelligence effort" (a team), and then she would assign the teams. Jamal was a pretty hard worker and did well in the class, though there were definitely plenty of kids who got better grades. He was confident he could do an OK job on his own, but he figured he might end up with a better grade if he worked with others. At the same time, he was worried that there were a few slackers in his class and he could get stuck without any of the smarter kids and wind up doing the whole project, only to have others get a good grade he earned for them! Jamal couldn't decide whether he should work alone or opt for the team option.

## 2. Think Out Loud!

- ~ What is your immediate reaction to this situation? What seems realistic or unrealistic?
- ~ What are some of the pros of Jamal working with a team on the website project?
- ~ If Jamal does decide to work with a team, is there anything he can suggest or do to help make sure the project goes well?
- ~ What kinds of projects do you think benefit most from having a team and collective intelligence?
- ~ What would you advise Jamal?

## 3. Common Sense Says ...

What's the verdict on Wikipedia? A study in the journal Nature showed that Wikipedia was about as reliable as the Encyclopedia Britannica. At the same time, ANYONE can edit Wikipedia, so the information you see may not be written by an expert. Common Sense says that Wikipedia is a great tool, so long as you don't rely on it too heavily: It should be used only as a starting point for your research!

### \* DO YOU REMEMBER ...

What collective intelligence is and what some of the benefits and drawbacks are of people working together to create information online?

# Common Sense on Wikipedia



## What's the Issue?

Wikipedia.org is where millions of people stop first for information. It's an ever-growing online encyclopedia, amazing in its depth and reach. Tools like Wikipedia are what make the internet so valuable. They also teach an important lesson, one you can start teaching your kids now: don't believe everything you read. Learning how to tell true information from false is the key to developing healthy critical thinking.

Wikipedia.org is an evolving collaborative online encyclopedia. A "wiki" is any site on the internet where users come together to create the content for a web page. There are no staff experts at Wikipedia. Instead, anyone can create or edit an article. Kids go to Wikipedia first when they have to do a research project since it's one-stop shopping and full of links to related articles. There are millions of entries on just about every topic or person imaginable.

While the site does have rigorous guidelines and a system to catch and eliminate false or irresponsible content, editors just can't keep up with the millions of constantly changing entries. Malicious articles are removed as quickly as possible. Carefully researched, comprehensive entries do exist, but a disclaimer states that information may be wrong, and that people should use the site as just one of many reference tools.

## Why Does It Matter?

Because the community creates Wikipedia content, your kids can be caught unprepared with incorrect or biased information if they don't double-check their research. Young kids especially tend to believe what they read if a site looks authoritative, and Wikipedia sure does. Also, there are no filters on Wikipedia, so a kid can input just about anything and get just about anything back. On the positive side, wikis are a great way for kids to contribute and collaborate. They can share their knowledge and participate in "crowd-sourcing," which is just a fancy term for collective wisdom. Using Wikipedia can help your kids learn how to tell trustworthy entries from irresponsible or inaccurate ones.

## common sense says

### Parent tips for younger kids

**Don't let them search alone.** A site without filters means lots of inappropriate content. Remember, the site is not designed for kids. Although there are plenty of kid-friendly entries, a lot of mature content and images exist.

### Parent tips for middle and high school kids

**Help kids view content critically.** Ask your kids how they know if something is true or not. Make sure they use other sources to verify information. Wikipedia articles usually have citations and links to sites where your kids can learn more about the article they're reading.

**Know the rules.** Ask your children or their teachers about school policies on using the site for reports.

**Teach kids how to flag inappropriate content.** Teach your kids that it's cool to write to Wikipedia and report something irresponsible. It keeps the community safe and reliable.

**Find other resources.** Some online reference sites don't require as much adult supervision. Introduce your kids to Social Studies for Kids, Homework Spot, and Britannica.