Essential Question: What are the benefits and drawbacks of people working together to create information online?

Learning Overview and Objectives

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.

Students will:
• 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

Differentiated Instruction

Motivated or striving learners can spend time logging their favorite news and websites on social bookmarking sites such as Digg (http://digg.com), Reddit (http://www.reddit.com), and Stumbleupon (http://www.stumbleupon.com). Encourage motivated students to create tags for what they find so they can add to collective knowledge.

Materials and Preparation

Materials
• MySchool Student Handout
• Butcher paper, or computers with access to Google Docs (https://docs.google.com) for the high-tech option

Preparation
• Preview the PhilaPlace website (http://www.philaplace.org) and be prepared to explore it with students
• Copy the MySchool Student Handout, one for each group of four or five students

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

teaching plans

Introduce (to minutes)

(Note to teachers: 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.)
RESEARCH AND EVALUATION

Collective Intelligence

LESSON PLAN

TEACH 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: http://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. (Based on “The Dumbness of Crowds” by Kathy Sierra, July 2007 (http://headrush.typepad.com/creating_passionate_users/2007/01/the_dumbness_of.html).)

ASK Is it beneficial when many people work together to …

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

Teach 1: Explore Collective Intelligence (25 minutes)

TEACH the Key Vocabulary term collective intelligence.

EXPLAIN to students that there are growing opportunities for people to collaborate online through collective
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 (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? Samples 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)

TEACH 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 (https://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

1. 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.)

2. 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.

3. 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.

4. 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.)

Wrap Up and Assess (5 minutes)

Review students’ MySchool materials and the responses on their MySchool Student Handout to assess what they have learned. Use the following questions to further assess students’ understanding of the learning objectives.

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?

Samples 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.)

Extension Activity

Have students work in groups to learn more about Wikipedia, the international encyclopedia created entirely through collective intelligence. (Note: A study in the journal *Nature* showed that Wikipedia was about as reliable as the Encyclopedia Britannica [http://news.cnet.com/2100-1038_3-5997332.html](http://news.cnet.com/2100-1038_3-5997332.html). Nevertheless, many students overrely on Wikipedia. Point out that Wikipedia is a great tool, but that it should be used only as a starting point for research.)


Sample responses:

**Benefits**
- With thousands of contributors, Wikipedia contains more information on more subjects than any individually authored book or website ever could.
- Because people can edit one another’s work, most errors on Wikipedia will eventually be corrected.
- Most Wikipedia entries cite their sources, so it is a good place to find other materials on any given subject.

**Drawbacks**
- Since anyone can edit a Wikipedia entry, you are not always reading work by an expert.
- There may be errors on the site that have not yet been corrected, so you need to check the information with a second source.

Homework

Have students choose a favorite book. They should first look for an online newspaper review or blog post about it by a professional critic, and then find a handful of reviews of the book from ordinary users at a site such as Amazon.com or Goodreads.com. Then ask them to answer the following questions:

- Do you trust the critic’s review more than the general sense you get from the site’s users? Why or why not? (Answers will vary, but guide students to think about whether the stated expertise of the reviewer makes a difference. Also have students consider how having one person’s opinion versus many is beneficial or a drawback.)
What biases might user reviewers have that a critic might not, and vice versa? (Guide students to consider the motivations of users who write reviews. Maybe those who are unhappy write more often. On the other hand, there are articles about how some people are paid to write reviews, and such reviews would likely be more positive.)

Alignment with Standards – National Educational Technology Standards for Students® 2007
(Source: International Society for Technology in Education, 2007)

1. Creativity and Innovation
   a. apply existing knowledge to generate new ideas, products, or processes
   c. use models and simulations to explore complex systems and issues
   d. identify trends and forecast possibilities

2. Communication and Collaboration
   a. interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
   d. contribute to project teams to produce original works or solve problems

3. Research and Information Fluency
   b. locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
   d. process data and report results

4. Critical Thinking, Problem Solving, and Decision Making
   a. identify and define authentic problems and significant questions for investigation
   c. collect and analyze data to identify solutions and/or make informed decisions

5. Digital Citizenship
   b. exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity

6. Technology Operations and Concepts
   a. understand and use technology systems