

Visible Thinking and the Implications for Instruction Librarians

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As educators, we are continuously looking for new and more effective methods of teaching. We wish to guide our students to a world of intrigue and provide them with tools for their independent success. As librarians, we have a unique situation in which we can try new methods of teaching with our students, without the constraints from strict political guidelines for school education. Visible Thinking is a method of teaching that emphasizes student learning through observation skills. Generally speaking, Visible Thinking is a way to encourage students to use thinking skills they have already developed *outside* the classroom. The methods of Visible Thinking routines help promote a deeper understanding of how we think, and allows for deeper learning on the part of the students. Currently, Visible Thinking routines have been adopted into traditional education fields, yet not into other instructional fields such as library instruction, museum educators, etc. There are a number of important implications and benefits for instructional librarians to become aware of Visible Thinking routines as a method of instruction, and adapt the routines into their teaching. Therefore, this review addresses (1) the development of Visible Thinking as a relatively new teaching method, (2) the Visible Thinking Framework, and (3) provides examples of how Visible Thinking routines may be adapted to a library instruction setting. In addition, this review also makes note of how Visible Thinking is being used with technology today in the digital age.

Background on the Visible Thinking Method

Visible Thinking is a relatively new concept within the field of education. Articles and research projects exploring the concept of *making thinking visible* began to appear in educational journals in the early 2000s. Visible Thinking is generally defined as a “broad and flexible framework for enriching classroom learning” (Visible Thinking, Introduction, 2016). Perhaps the most well-known project dedicated to Visible Thinking research is based out of Harvard University’s Graduate School of Education. Titled *Project Zero*, researchers are collaborating to explore how to make thinking visible through routines that guide learners’ thought processes and encourage active processing (Project Zero, 2015). Project Zero was started as a research-based approach to teaching thinking dispositions and has developed into a new school-wide culture of thinking (Project Zero, 2015).

Key investigators in this field are David Perkins, Ron Ritchhart and Shari Tishman, faculty members at Harvard University. These researchers and promoters of Visible Thinking agree that theories of education have moved past teaching students what to know to teaching students how to find information (Tishman, 2000). Research conducted to explore Visible Thinking arose after educational studies found that skills and abilities alone are not enough to cement knowledge and

learning for students. Learning is more apt to happen when content is addressed with alertness and positive attitudes on the part of the students (Visible Thinking, Introduction, 2016).

Visible Thinking, according to the researchers for Project Zero, “helps to facilitate a pattern of thinking useful for day-to-day life” (Visible Thinking, Introduction, 2016). Visible Thinking promotes a culture that values thinking as a process that requires time, can be modeled, and that “the process and products of thinking are present in the environment” (Visible Thinking, School Wide Culture of Thinking, 2016). When it comes to thinking, there is an interrelatedness between cognition, affect, physical environment, and social context (Ritchhart, 2007). Visible Thinking routines are practices that help learners’ spot occasions for thinking outside the classroom, and pursue those occasions (Ritchhart, 2007).

Though library visits and library educational programs are short, they do provide opportunities to create and support this new culture of thinkers. There are two main ways library educators can join the Visible Thinking project and promote a culture that thinks: by (1) incorporating the Visible Thinking framework core routines when planning programs, and (2) showing genuine interest in students’ ideas and thoughts during their time with them (Ritchhart, 2007). Both make use of the interrelatedness between cognition, physical environment, and social context (Ritchhart, 2007).

The Visible Thinking Framework

There are a variety of practices and resources associated with Visible Thinking. First we need to understand the goals associated with Visible Thinking. The goals are: (1) deeper understanding of content, (2) greater motivation for learning, (3) development of learners’ thinking and learning abilities, (4) development of learners’ attitudes toward thinking and learning, (5) increasing learner’ alertness to opportunities for thinking and learning, (6) a shift in the classroom culture toward a community of enthusiastically engaged thinkers and learners (Visible Thinking, In Action, 2016).

In order to accomplish those goals, researchers, such as those at Harvard University, have compiled a set of core routines for educators to adopt and adapt within their curriculums. These routines are patterns of thinking in action. Educators can use multiple routines in a single lesson. Currently, there are seven core routines used in Visible Thinking teaching methods: (1) What Makes You Say That?, (2) Think Puzzle Explore, (3) Think Pair Share, (4) Circle of Viewpoints, (5) I Used to Think... Now I Think..., (6) See Think Wonder, and (7) Compass Points (Visible Thinking, Core Routines, 2016).

Visible Thinking Routine 1: What Makes You Say That?

The purpose of this routine is for students to build their explanations based on observations. The key questions associated with this routine are: “What do you see? What’s going on? and What makes you say that?”. These questions open the door for deeper observations and interpretation. In turn, this routine forces students to justify their explanations with evidence-based reasoning (Visible Thinking, What Makes you Say That? 2016). Such a routine is useful for looking at artwork, historical artifacts, or stories and poems.

Application:

Here is a general example of *What Makes You Say That* routine in action from Project Zero: use an image to explore and inspire students at the beginning of a unit. For example, Project Zero recorded a third grade class being presented with “The Numbering at Bethlehem” by Peter Bruegel, a busy scene in winter. The teacher was launching a social studies unit focused on community (Visible Thinking, *What Makes You Say That?* 2016). The teacher asked students to categorize similar ideas about what the scene portrayed, and group them in terms of community activities. Community activities such as gathering food, getting shelter, trying to stay warm, preparing for war, and religion (Visible Thinking, *What Makes You Say That?* 2016). Each one of those group activities were backed up with explanations provided by the students when prompted with the question “what makes you say that?” creating a deeper investigation on what makes community (Visible Thinking, *What Makes You Say That?* 2016).

What Makes You Say That has potential in both an academic and public library setting. When we think about the sorts of educational programs available in a library setting, they usually focus on helping students navigate through the physical library and online networks. Instead, engage learners in discussions about why they would choose certain resources over others, or why they would look in certain areas of the library (or online databases) for specific information. By doing so, opens interrelatedness between students’ previous experiences and using those skills in a new environment. Key documentation for this routine is to record the lists of learners’ ideas (Visible Thinking, *What Makes You Say That?* 2016). Such recordings can be done by the librarians or the students. Such documentation is useful later when students can revisit what they originally thought about a topic, and see how their thinking changed since the lesson.

Visible Thinking Routine 2: Think Puzzle Explore

The purpose of the *Think Puzzle Explore* routine is to have students practice connecting prior knowledge to current investigations that then lead to exploring new questions (Visible Thinking, *Think Puzzle Explore*, 2016).

Application:

Here is a general example of *Think Puzzle Explore* routine in action from Project Zero: Make a chart with columns for students to write what they think, what they are puzzled about, and what they want to explore, about a specific topic. For example, in a biology class starting a unit about bones, a teacher gave her students a replica of a bone joint, and asked her students to make observations based on the evidence in front of them (Visible Thinking, *Think Puzzle Explore*, 2016). Students were asked to write down what they initially thought about bones and joints in general, what puzzles them about bone and joint physiology, and what they could explore (i.e. flexibility, different joints in the human body, how these joints are different in animals) (Visible Thinking, *Think Puzzle Explore*, 2016).

Think Puzzle Explore has potential in both an academic and public library setting. Many libraries teach specific computer skills and technologies to both adults and children. In such programs, the *Think Puzzle Explore* routine could be immensely helpful. The instruction librarian could

structure the class around the three components of this routine. For example, beginning a class in Microsoft Excel, ask what learners already know about Excel, what puzzles them concerning the application or use of Excel, and what specifically they want to know about Excel. Key documentation here would be to record the learners' answers and come back to those lists throughout the program. Such a structure shows the instructor's genuine interest in what the students already know, and what they wish to learn during the session. In addition, there is a lot of promise for beginning and ending a class with the *Think Puzzle Explore* activity. Topics and questions the students come up with in the "Explore" portion of the routine could be used as an assessment by librarians. Such documentation will show how well the class addressed what the students wanted to learn, and therefore, the success of the session.

Visible Thinking Routine 3: Think Pair Share

Think Pair Share is another routine that promotes active reasoning and explanation. In particular, the purpose of this routine is to also develop articulation skills when students are asked to share their thoughts and findings with peers (Visible Thinking, Think Pair Share, 2016).

Application:

Here is an example of *Think Pair Share* routine in action from Project Zero: *Think Pair Share* is a great routine to use at the end of a unit to see what students have learned and what they are still confused about. For example, a third grade teacher used this routine after completing a unit on multiplication and division with her students (Visible Thinking, Think Pair Share, 2016). She gave her students a math problem and two hypothetical answers. After students individually looked over the math problem and chose their answer, they paired up with another student to share their reasoning for choosing that answer (Visible Thinking, Think Pair Share, 2016). Finally, students, in pairs, presented their final answers, whether right or wrong, to the class.

Think Pair Share has potential in many library settings. Simply adapted, an instruction librarian can ask students to write down what they think about the topic of study. From there, the instructor can have the students break into pairs to compare answers. Finally, the library instructor will have students share their findings with the group as a whole. If answers offered by the students are correct, then the instruction was successful, if the answers are not, or students have questions, then certain portions of the session can be revisited. For example, the topic at hand is for students to learn the differences between primary, secondary, and tertiary sources- a great skill to use when conducting research, and a course that is usually offered in a library setting. The instructor provides an overview of the definitions of primary, secondary, and tertiary sources, then provides the students with a list of sources that they then must organize into the appropriate category. Once the students independently make their decisions on which sources are fall under which category, the instructor has students pair up and discuss the reasoning behind their answers. Finally, the pairs will then share with the rest of the class which sources they think are primary, secondary, and tertiary. Conducting a lesson in this way will help students feel reassured or validated in their choices with their partners before sharing with the entire group, as well as helps instructors know what is still confusing to their students.

Visible Thinking Routine 4: Circle of Viewpoints

Circle of Viewpoints is a great routine for exploring diverse perspectives surrounding a topic. In addition, this routine helps students understand that many people have different feelings and thoughts surrounding topics and that these diverse opinions are just as valid as their own (Visible Thinking, Circle of Viewpoints, 2016).

Application:

Project Zero has a great example of *Circle of Viewpoints* routine in action. *Circle of Viewpoints* is generally used when making observations from historical artifacts or images. For example, a sixth grade teacher asked her students to look at a historical etching of a slave trade in their social studies class (Visible Thinking, Circle of Viewpoints, 2016). The image depicted a slave trade involving an ambiguous negotiation. Around the image was a white board, on which students could write the various perspectives connected to the image: “Who would be interested in this image? Who might care about this image? What people might be affected by this image?” (Visible Thinking, Circle of Viewpoints, 2016). From those questions, the students developed characters associated with those perspectives, and investigated more deeply the reasons for their chosen character’s perspective on the topic of slavery.

Circle of Viewpoints has more potential in a public library setting when applied to a literature or even story time session. After reading a short story, have learners pick out the individual perspectives proposed in the story. A great example of this would be with the children’s story “Peter’s Chair” by Ezra Jack Keats. The story illustrates a dilemma Peter faces with his new baby sister: his parents are giving her all his things! Students should pick out the characters Peter, Mom, Dad, Baby Sister, and (for fun) Peter’s Dog. From there, learners will write down the story or the dilemma from each characters’ point of view (Cale, 2011). Such a routine asks learners to look at issues from multiple viewpoints. Key documentation for librarians using *Circle of Viewpoints* would be to record what their students say about who the characters are and what they think the characters’ perspectives are. A great way to do this would be on poster boards. As discussion continues, changes can be made to the poster boards, creating a very interactive story time.

In addition, in an academic library setting, *Circle of Viewpoints* can also be used to help students with topical essays. For example, topics such as gay marriage, legalization of marijuana, etc. have many controversial viewpoints to address. The method forces learners to investigate all sides to an argument or the many points of view, which in turn helps them discover where to search for specific information regarding the topic, and begin to know who cares about the topic and why.

Visible Thinking Routine 5: I Used to Think...Now I Think...

The purpose of this routine is to get students to reflect on the hows and whys of their thinking process. *I Used to Think...Now I Think* is also useful in situations when opinions or beliefs have changed, and students can recognize the cause and effect of that change (Visible Thinking, I Used to Think...Now I Think, 2016). *I Used to Think...Now I Think* is a great routine designed for circumstances in which students’ opinions will most likely change as a result of instruction (Visible Thinking, I Used to Think...Now I Think, 2016).

Application:

Specifically, *I Used to Think...Now I Think* routine is used after new information is presented, after watching a film, at the end of a unit of study, etc. (Visible Thinking, I Used to Think...Now I Think, 2016). Learners get a chance to share and explain their shifts in thinking and reflect on why their opinions changed or didn't change (Visible Thinking, I Used to Think...Now I Think, 2016).

I Used to Think...Now I Think is a routine applicable to many areas of library instruction. At the end of an instruction session, librarians can ask their audience what students learned from the session, and how their thoughts have changed on the topic of study. However, researchers have identified an issue of inconsistency through the use of *I Used to Think...Now I Think* (Knox and Mainero, 2016). If this routine is used after learning has occurred, students have a difficult time recalling what they originally thought about the topic at hand (Knox and Mainero, 2016). A solution to this would be to break up the routine into two parts. The first, *I Used to Think...* could be conducted before the unit of study, and the second part *Now I think...* could be used at the end of the unit of study and a discussion could ensue when students observe the changes.

It is important to note that due to the short length nature of library instruction sessions, students may not experience immediate changes in their thinking. In addition, addressing topics of a sensitive nature where students may have predisposition of opinion regarding a topic such as immigration or gay marriage, *I Used to Think...Now I Think* may be emotionally toiling for some students. Instructors need to be aware and know their audience for this routine to be successful.

Visible Thinking Routine 6: See Think Wonder

See Think Wonder encourages students to make careful observations and thoughtful interpretations. The key questions to use when implementing this routine are: "What do you see?", "What do you think about what you see?", and "What does it make you wonder about?" (Visible Thinking, See Think Wonder, 2016). *See Think Wonder* is most successful when the three questions are used together when introducing students to new ideas, art, or units of study.

Application:

There is great potential for the *See Think Wonder* routine within many curriculums. Project Zero has recorded instances of its use in a variety of scenarios including math, topics of human rights, and observing art and objects (Visible Thinking, See Think Wonder, 2016). A great example of this comes from a school in Michigan. A Physical Education teacher used the *See Think Wonder* routine to explore organic and non-organic farms and foods (Knox and Mainero, 2016). Each student was given a template on which they wrote what they saw in the images the teacher provided regarding organic and in-organic foods, as well as what they thought about the topic, and what the images made them wonder about (Knox and Mainero, 2016).

In a library setting, *See Think Wonder* has huge potential in a variety of educational scenarios. An example of *See Think Wonder* in action is during a session in which students are asked to look at a particular library database. The instructor asks them what they see, think, and wonder

about the functionality, the aesthetics, the user friendliness, and types of information they will find there.

Visible Thinking Routine 7: Compass Points

The *Compass Points* routine is used for evaluating propositions in a way that prevents personal reaction or quick judgement (Knox and Mainero, 2016). The routine works by using the four directional points N (north), W (west), E (east), S (south) to propose specific prompts. E is used for the question “What *excites* you about this idea or what is/are the upside(s)?”. W stands for the question “What do you find *worrisome* about this idea? Or what is the downside(s)?”. N asks learners “What else do you *need* to know or find out about this idea?”. Finally, S asks learners “What is your current *stance* or opinion on the idea?” (Visible Thinking, Compass Points, 2016).

Application:

The application of *Compass Points* routine in a traditional classroom setting is relatively simple. Set up a large compass, and have students write, or place sticky notes with their answers to the NWES points (Visible Thinking, Compass Points, 2016).

In a library instruction setting, the *Compass Points* routine may be used in a variety of ways in both academic and public libraries. The answers the learners give to the NWES questions may serve as a guide for librarians that directs the course goals towards what it is the students wish to learn about the topic, how they feel about the subject already, and what they think will be most challenging. *Compass Points* is also helpful for learners to start brainstorming about possible paper topics.

Technology and Visible Thinking Methods

There are a variety of resources online for educators looking to use Visible Thinking routines in their classrooms. Current research about Visible Thinking routines is prominent in the field of formal education, rather than library instruction settings. Harvard, Johns Hopkins University, and a variety of educator blogs can be found on a google search. A large collaboration between educators from all educational fields exists on the web (Visible Thinking, VT Network, 2016). A Culture of Thinking movement is growing in traditional education circles with Visible Thinking at its center (Visible Thinking, VT Network, 2016). However, the routines can be easily adapted to most instruction settings. Educators are sharing their experiences with Visible Thinking routines on the internet for others to view. Collaborations exist between schools around the world (Visible Thinking, VT Network, 2016).

Once Visible Thinking routines are recorded in library settings, instruction librarians should also link their research to the internet either through [Project Zero](#), or the [Visible Thinking webpage](#).

Already, within social media, there are a plethora of examples of Visible Thinking routines are being used in all manner of curriculum. Sites such as Pinterest, Facebook, and even YouTube, are searchable for further viewings of Visible Thinking routines in action. Such links are provided in the bibliography of this review.

One area that is lacking in research is how Visible Thinking can be adapted for use in our increasingly “digital age”. As mentioned, there are a plethora of resources for educators to compile a toolbox of how to use Visible Thinking routines in their own classrooms. However, there are no studies concerned with using technology based media to enhance Visible Thinking. Nor are there examples of Visible Thinking routines being adapted for use with digital media such as computers and phones. Therefore, this may be an area that librarians can expand and experiment with Visible Thinking Framework.

Conclusion

Finding resources on the topic of Visible Thinking methods being used outside of the sphere of traditional education is very minimal in quantity. Research and studies conducted on Visible Thinking routines used in a library or other nontraditional learning environments is non-existent. However, that is not surprising due to the fact that Visible Thinking as an education method is relatively new and has not yet taken root in all educational spheres. The potential of the Visible Thinking Framework in instructional library settings is astounding. In the future, more research and experiences will most likely begin to crop up that are applicable to other instruction fields outside of traditional education.

In addition, very little documentation exists on the topic of how Visible Thinking routines can be applied to electronic or digital environments. Further research requires visiting how the digital age is affecting thinking patterns in learners and how educators are using technology to promote or hinder student thinking. Here is where librarians and other teaching institutions may be of immense help in continuing research. Typical library instruction involves a plethora of technology based information sessions: from searching databases to finding reliable sources, from emails to connecting social media sites, from adobe to excel, all of which are important skill sets patrons wish to learn for success in the digital age. Therefore, by adapting and trialing Visible Thinking routines with these types of instruction topics, instruction librarians are creating resources for education researchers to see how technology is affecting learning and assist in the development of new ways to address instruction in the our rapidly increasing digital age.

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Online General Search Resources:

Visible Thinking on Facebook. Retrieved from <https://www.facebook.com/MakingThinkingVisible/>

Visible Thinking on Pinterest. Retrieved from <https://www.pinterest.com/explore/visible-thinking/>

Visible Thinking on YouTube. Retrieved from https://www.youtube.com/results?search_query=visible+thinking