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Book Learning: The Cognitive Potential of Bookmaking
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ABSTRACT
A TA/researcher looks deeply into the thinking that takes place in the context of book-making projects.

Book Learning: The Cognitive Potential of Bookmaking

Exploring the relationship between art and thinking has busied educators and cognitive psychologists for decades. Efland traces the dialogue from Piaget through Vygotsky, Arnhem, Eisner, Parsons, Gardner, and others. He points out that early cognitive theories relegated the arts to what was then understood as the noncognitive realm of emotions. This bias against the arts, as nonrational and noncognitive, can be traced back to Plato’s preference for abstract thinking over perception and is “deeply ingrained” (p. 2) in the history of psychology. Efland argues that the definition of cognition broadened during the later decades of the twentieth century but work is still needed. He concludes that while we may have arrived at agreement that the arts are indeed cognitive activities, they are frequently still seen by general educators as promoting substantially different (and often lesser, that is nonrational) forms of cognition than other disciplines.

Art educators have worked to identify and define specific cognitive processes associated with art behaviors (Efland; Eisner; Hetland et al.; Slywester). Eisner highlighted the potential of the arts to encourage flexibility, expression, imagination, a tolerance for ambiguity, and attention to relationships. Hetland et al. developed a framework they call “Eight Studio Habits of Mind,” which includes both ways of thinking and ways of behaving in the visual arts: expressing, envisioning, exploring, reflecting and evaluating along with developing craft, observing, persevering, and understanding the art world.

Artists and researchers must continue to provide documentation of the thinking that takes place while working in the arts (Hetland et al.). This study is an attempt to contribute to that effort by considering a single art activity, bookmaking, and eliciting the participants’ accounts of their own thinking, or that of their students as they became the authors, illustrators, designers, and builders of books. In this study a full range of cognitive experiences were considered including the traditional (focusing, organizing, analyzing,
generating, integrating, and evaluating; Marzano et al.) as well as those specific to art (such as expressing, exploring, envisioning, and imagining; Eisner; Hetland et al.).

Burkart argues that “by exploring artists’ books, students and educators can investigate ideas relevant to interdisciplinary and integrated curricular approaches, postmodernism, and multiculturalism, as well as the symbolic and iconic nature of the book” (261). I argue that there is an additional and perhaps more compelling justification for the inclusion of book arts in the K–12 curriculum. This justification is centered on the learner. Bookmaking is a powerful and holistic means of engaging students physically, emotionally, socially, and intellectually. I will first discuss the characteristics of books and bookmaking that can contribute to students’ development in these areas. I will then focus on the cognitive processes that are encouraged through well-designed bookmaking units. Finally, I will contrast the potential of bookmaking with the reality found in some art classrooms and offer suggestions for sound practice.

**Methods**

Several art education students and I gathered the data for this qualitative inquiry from art teachers and students who were asked to describe the learning, thinking, and problem solving that they either observed or experienced as they worked through the process of planning and building books. The participants were involved in one of three separate components. Two of these involved art education students and me leading adolescent students (ranging in age from twelve to eighteen) in separate bookmaking activities. In each of these environments the student participants were considered at risk of failing in a regular academic setting and attended small alternative schools. Art was neither required nor offered in either of these alternative environments. Our intentions were to provide students with an experience in bookmaking as an active approach to learning, to teach students to use a variety of visual communication strategies, and to encourage students to set up and solve individual, meaningful problems.

The first of these projects was an integrated art and social studies unit that required students to report on and respond to a current issue through the making of a book. The topics students chose were varied and included the Iraq war, substance abuse, several local shooting incidents, and so on.

Based on the subject of smoking, this book was created by a 14-year-old girl.

The second component was a bookmaking unit presented to adolescent girls living in a residential treatment center and dealing with a variety of social and personal problems. These students were asked to focus their books on the general idea of patterns. Together they identified patterns existing in both the natural and human built environments. During their brainstorming session, the discussion moved quickly away from visual patterns and toward the behavior patterns that led to their treatment, such as drinking, running away, and self-cutting.

Unlike a painting or sculpture, where the viewer’s experience is largely unstructured by the artist, or a film or theater performance, where the viewer’s experience is tightly structured, books allow a balance between the author or artist’s authority or control and the user’s autonomy.
The students in both groups were observed throughout the process and were encouraged to record their thoughts and comments in a journal. At the end of each activity, the students presented their finished work, were interviewed, and shared their journal reflections.

The third component of the study involved interviewing twelve art teachers at various levels of instruction who had engaged students in bookmaking projects in their art classrooms. The definition of what constituted a bookmaking project was left up to the individual teachers. The teachers were interviewed to determine (a) the purpose for engaging students in book art, (b) how bookmaking lessons were designed, (c) the integrative connections teachers have made through book problems, and (d) the types of thinking teachers observed in their students along with the evidence of that thinking.

In addition to the interviews and observations, the books produced or observed in all three components of the study provided evidence of the problem solving and thinking that took place. We also examined curricular documents related to bookmaking with the hope of clarifying specific goals and objectives.

To understand the ways in which bookmaking can contribute to the cognitive, social, physical, and emotional development of learners, one must first understand some of the unique characteristics of the book form.

**Characteristics of Books**

For the purpose of this study, books made by students under my supervision as the researcher may be understood as any three-dimensional aesthetic product that holds meaning in a booklike or sequential form (electronic or digital files are excluded). The teacher participants had varying definitions of student-made books, as seen in their upcoming comments. In either case, books generally exhibit certain unique characteristics that set them apart from other products of learning. These characteristics affect how both the maker and the user interact with the object.

**Books as Physical Objects**

Books have a physicality, a physical presence with which the viewer interacts. The particular physical nature of a book usually mandates an intimate encounter by a single viewer or a small group. Books are meant to be held, opened, each page viewed, and closed by the viewer's own hand and at their own pace and rhythm (Smith). Unlike a painting or sculpture, where the viewer's experience is largely unstructured by the artist, or a film or theater performance, where the viewer's experience is tightly structured, books allow a balance between the author or
artist’s authority or control and the user’s autonomy. Additionally, viewing a book is a multisensory experience involving sight, feel, smell, and even the sound of the pages rustling though the air as they are turned at a particular pace and rhythm (Burkhart; Smith; Spector).

The physicality of interactions with books emerged as a theme in various ways with the participants in this study. It was used as a point of comparison with other works of art. For instance, a 14-year-old student observed, “At least in Western culture, art is sacred and holy. No one would dare to touch art hanging in a museum. But books are meant to be held, even art books.” An elementary art teacher participant added, “[Bookmaking] is satisfying; you create something and it is concrete and you can parade around, show your friends. It’s transportable.”

Books in Society

Books, in their traditional capacity to carry thoughts and information, have held an elevated status in our society. Burkhart points out, “The book as an instructive authority is a longstanding tradition” (255). As vehicles for ideas, books inherently provide a way to reach out to others, a means of connecting, “an object that invites interaction with someone else” (teacher participant).

Students demonstrated an acute awareness of the book as their opportunity to be heard on a particular topic, to convince others, or simply to share their feelings. They made both aesthetic and content decisions in order to enhance the power of their meaning. Several of the teacher participants pointed out that students “see
it as very democratic,” “an opportunity to share ideas with a larger audience.”

As a learning tool, books remain inherently integrative. All educational disciplines use books. Burkhart calls books the “poster children for integrated and interdisciplinary curricular approaches” (263). From childhood on, books provide us with information presented through this integration. Several students felt it was easier to make their point and to communicate with their audience when given implicit permission, by the book form, to use both words and images together. They seemed drawn to the complementary relationship between the linear style of words and the layered nature of images. A student commented that “the use of words also makes handmade books different than other art works. You can talk about how you feel by using words any time.” Teachers agreed: “The imagery and writing become one in the same. They wove in and out of each other.”

Books and the Emotions of the Learner

The mature person must be able to identify, analyze, and work within, through, or around parameters. Bookmaking may help students manage and negotiate structural boundaries. This characteristic was discussed by nearly all of the teacher participants in one way or another. For instance, the safety provided by the structure was a common theme. “Bookmaking was that perfect balance of creativity and having structure; the safety of the boundary and then finding ways around it” (teacher participant).

Books can encourage an intimate level of engagement (Drucker). Several teacher participants used their own childhood memories to explain the relationship they have and want their students to have with books. “I’ve always loved books since I was a little girl. Books were always filled with treasures. ... I grew up on a farm with no TV, so books were my special friends. I want that for my students” (teacher participant). Through brain studies, educators have come to understand that learning requires emotional engagement (Caine and Caine; Egan; Slywester; Zull). Zull stresses that the emotional centers of the brain are closely linked to thinking areas. He concludes that learning must evoke emotion and it must be about the things that naturally engage the learner.

No one of the characteristics just discussed sets bookmaking apart from the making of other art forms. It is rather the all-sidedness of this particular engagement that makes it potentially nourishing to the developing learner. Taken together, bookmaking emerges as a unique activity that can involve students holistically.

Book Thinking

The characteristics of books and the ways those characteristics relate to the learner provide a rich opportunity for encouraging complex cognitive processes. The following is a summary of the types of thinking described by participants in the three components of this inquiry, beginning with simpler forms and moving to more complex.

Teachers discussed organization more often than any other thinking skill. The serial and linear order of the traditional book causes both the creator and the user to reflect in a sequenced manner. The artist/author must organize and prioritize data to fit the format while the viewer is required to reflect upon the part to whole relationships of the words and images on each page. Several teachers discussed the need to think “four or five steps ahead in the process.” “They really have to organize their ideas about the book before they get started. And then they have to reexamine it all through the process because their ideas evolve or things don’t work out like they wanted” (teacher participant).

While some may applaud art specifically as a subject that breaks from linear thinking, in reality art engagement requires a balance of linear and nonlinear approaches.
Bookmaking is a powerful and holistic means of engaging students physically, emotionally, socially, and intellectually.

requires a balance of linear and nonlinear approaches. Processes are linear. Throwing a pot, executing a multicolor relief print, saving whites from watercolor washes, and planning a bound book require the learner to engage in linear and nonlinear thinking simultaneously. Participants found this aspect of bookmaking to be important and challenging.

When probed further, it became clear that “organization” was used to describe a variety of processes including comparing, classifying, and prioritizing. Several students described the need to prioritize and edit their content before ordering and representing it. That prioritization required evaluating the information according to the students’ standards for judgment and predicting audience response. In other words, “organization” was used to describe far more complex processes including the critical evaluation of the information student’s had gathered. A 14-year-old who created a book on the problem of underage drinking in her community explained, “I just wanted the good stuff so people would really realize. I got rid of a lot more.” Another 14-year-old student who focused on the war in Iraq also dealt with this need to edit carefully. He wanted his book to help keep soldiers motivated so he needed to judge “what reasons would be most motivational.” Some students reported editing not only information they gathered but also the visual products they generated themselves. A 16-year-old girl explained, “I created a lot more pictures than I put in the book. Every time I did one, I decided to do another one better.” For her, the serial nature of the book interacted with the standards she had set for herself and pushed her to achieve at a higher level.

Organization was used to describe the need to carefully compose the visual elements of the book as well. Along with the organization of information, almost all students demonstrated a desire to maintain...
visual consistency or aesthetic continuity from one page to the next. For example, a 15-year-old student, whose subject was the issue of legalizing marijuana continually expressed concern that his pages should be similar in format. He wanted to maintain a for/against or yes/no approach to each set of open pages. Another student included only images and colors that fit the design she wanted to maintain from page to page, while a third wanted to keep each page stark and simple and use high contrast to make his point clear and straight forward.

Each time a student generates a new and unique book, that student is envisioning, predicting, and elaborating. Designing a new physical entity also requires practical thinking in areas such as measuring, cutting and assembly. A teacher explained the complexity of these seemingly simple technical and physical tasks:

In order to make books, you really have to think spatially and you have to think about the larger structure and how the parts fit together. You have to make decisions knowing that every decision is going to affect something farther down the line.

Despite the technical challenges, many students demonstrated a strong desire to build interactive elements into their books that would more fully engage their audience. They expressed their own desire to interact and “play” with gadgets often found in books. For example, a 13-year-old student, who wanted to install a wheel that the viewer could turn to reveal an assortment of words and images through a window, constructed the window three separate times before he was satisfied. An older student exploited the interactive and physical nature of the book form to deal with difficult experiences in her past. She created a pocket in which she placed a string of scarves. On the back of each scarf, she attached a note describing a past experience. As the reader pulled out each of the scarves, they could reflect upon the meaning before moving on and ultimately tucking them back into the pocket.

At least one teacher explained a particular challenge associated with the prevalence of technology. To help her digital age students conceptualize the possibilities of a simple book, she explained that she needed to frame the discussion in terms they would understand. In doing so she underscores the need for integrating linear and nonlinear thinking:

When I talk about foldouts, pop-ups, and tabs, I tell them, “These are your hyperlinks.” It’s like you can be reading and then all of a sudden a pop-up, and it takes us over here. You have to make connections for them ... how can we take the linear structure of a book and then make it non-linear and more like a computer but with physical form.

The ability to analyze and employ metaphors was repeatedly discussed by the teacher participants and demonstrated by students. A 14-year-old decided to ink and print various patterned objects to represent the members of her family. She printed a feather to represent her mother because “she is so proud of her culture.” Her father was represented by a leaf, which the student felt connected to his love of nature and freedom. She used leather for herself, “hard on the outside but soft and warm on the inside.”
Patterns became metaphors for the personality traits of this student and her family members (left and below).
A 16-year-old used a twig as her book structure. She explained that the treelike form was a metaphor for her own pattern of growth and development. Losing herself in her own narrative, she described each component of the book:

... a bud because that’s where you start and you can’t change it but then you develop into someone. And then you’re a leaf and you’re not alone. The branch is like your whole support system and eventually you can have other things growing on you that make you happy and you can support others.

Book building has the capacity to engage students in a full range of thinking processes from the physical engineering of a pop-up to the metaphoric thinking described earlier. Students may be called upon to evaluate information and prioritize it accordingly. At the same time, they may wrestle with aesthetic choices as they search for visual continuity and strength of message. These varied forms of thinking have the potential to involve the student intellectually, emotionally, socially, and physically—a holistic experience.

Promise Versus Practice

“In your research you will be able to see bookmaking taught certain ways and it’s going to influence it because if it is taught linear, just step by step, it’s going to stay linear” (teacher participant).

Indeed a great variety of approaches to book arts were described by participating artist/teachers. Some discussed projects in which their students simply crafted a blank book according to a given set of instructions with no attention to content. Others had students create an empty receptacle to be filled with content in the regular classroom. Still others engaged students in both constructing a book and filling it with words and images. However, they may have prescribed the book form, its contents, or both. In each of these cases, students were denied some of the physical, social, emotional, and intellectual connection to the problem to the extent that these were taken over by the teacher.

Unit and lesson objectives did little more to define the holistic benefits students were expected to experience as a result of these bookmaking activities. They included such things as “following step by step instructions with accuracy and neatness,” “organizing work space,” and “understanding vocabulary.” The majority of teachers in this study did not address, in their objectives, the cognitive benefits of bookmaking that they themselves had described in our interviews (prioritizing, representing, envisioning, employing metaphors, and so on). While teachers were able to discuss the virtues of bookmaking, as evidenced in their comments above, that did not mean they were teaching bookmaking in a way that capitalized on these possibilities.

The gap between the possibilities and the practice occurred most strikingly when teachers defined a specific book form and centered their lesson on that form (“We made origami books.” “This is my star book lesson.”). These book projects elevated the particular process (the physical and technical tasks of assembling a book) over the intellectual, emotional, and social components. Lower level thinking, such as learning vocabulary, was highlighted...
while higher level thinking, imagining and envisioning, for example, was neglected. This way of approaching bookmaking casts the child as simply an assembly line worker expected to produce the prescribed object in a prescribed manner. One teacher noticed this dilemma during our interview and was puzzled herself.

*I try to figure out a project that will help them learn a process. I'm not really sure why I want them to learn the process. I think it's like a vocabulary. The more processes you've learned, the larger your vocabulary is.*

Of course, building vocabulary (in language or in processes) is never sufficient if one is not given an opportunity to use that vocabulary in a self-defined and meaningful way.

### Crafting Nourishing Book Lessons

According to Eisner, arts programs that best promote cognitive development are those that

*ask students to conceptualize their own aims in the art form they are to work with, programs that are problem solving in character, programs that invite students to be metacognitive about their own work—that is, reflective about their own thinking processes—and that encourage them to be articulate about their judgments about art.* (37)

With regard to bookmaking, one of the fundamental ways to encourage higher level thinking is by designing book problems in which the student chooses a book structure and content that complement each other; in other words, “conceptualize their own aims.”

In an exemplary lesson described by a participating elementary art teacher, students were given as many choices as their level of development would allow. She taught a single book structure, a circle book, to a mixed age group of 5- to 7-year-olds. She expected each student to design content using just the theme of circles. Students could collage, draw, use paper clay, yarn, and so on, to fill their books with anything related to circles. The teacher explained, “One little boy made his book like cookies and he made little clay M&Ms so the pages were little M&M cookies strung together. Others did circle patterns. It’s about choice. Choice creates a little bit of chaos but that’s fine.”

Planning bookmaking lessons with choice and ownership involves not only chaos but also a tolerance for ambiguity and flexible purposing (Dewey), unique abilities taught by activity in the visual arts according to Eisner. When first and second graders are asked to reflect on the idea of “circles” or their adolescent counterparts were encouraged to brainstorm “patterns” and then respond in a book form, the teacher must be prepared for a classroom full of unique dialogues with media, continual and individual goal shifting, improvisation, and endless surprise. There will also be problems large and small. “That, after all, is the beauty of art: finding solutions that didn’t exist before” (teacher comment).

The same teacher who led the circle book activity (mentioned earlier) described another compelling and well-rounded book unit for fifth graders. She asked students to identify good things in their life (perhaps family, friends, music, food) and then “not such good things”; things that they want to see changed. From this, students created books in which they could use a variety of structures and devices to display and comment on each category. At the same time, “we talked about designing quiet places where your eye could rest, colors that would create harmony together, and establishing continuity between the pages” (teacher participant).

Through well-designed bookmaking units, students may be engaged in intellectual, social, physical, and emotional problem definition and problem solving. The social component is evident as books connect students with others and integrate with any and all other subject areas. It has a physical component that requires technical problem solving associated with spatial management, construction, and craft. Bookmaking by students at any level of instruction has the potential to engage them in cognitive processes from the simple to the complex. Students may be engaged in collecting data, managing it, organizing, prioritizing,
sequencing, analyzing, creating comparisons and metaphors, and evaluating. They may be called upon to transform and integrate their results into a state of visual organization that is befitting and meaningful to them. All of this takes place in the heightened emotional landscape of interacting via the book form. However, for students to get the most out of this potentially fertile and all-sided activity, teachers must be especially thoughtful and deliberate in deciding how meaning will be made and by whom.

Note

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Works Cited


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