

**Creating Comics:
Visual and Verbal Thinking in the Ultimate Show and Tell**

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Chapter 1

Introduction

This exploration is specifically geared to investigating how creating comics may be educationally valuable in developing students' capability in language arts. Using research on visual-spatial thinking and established theories of learning styles and best practices in the language arts, this exploration is an attempt to understand how creating comics in the classroom could enrich a language arts curriculum. In recognizing that understanding the medium of comics will provide the teacher with the necessary knowledge of the potentials of comics, this study will include a review of literary devices unique to comics, such as interdependence of pictures and words, as well as devices that are more often used in the study of literature. Next, using this knowledge of comics, I will investigate how students can benefit from the process and outline possible teaching approaches. This endeavor will include reviewing present literature and case studies on how different teachers have developed and made recommendations for the use of student created graphic stories in the classroom, as well as theories of visual literacy and spatial reasoning. Thirdly, I will investigate how this process can help bridge gaps in skill development and what particular learning differences or intelligences may benefit most from the inclusion of the creation of comic strips in a writing program. The teacher resource in chapter 3 takes the form of a web site and also includes methodology that may be appropriate in different instances. By outlining background information, possible methods, resources and supporting theories and research for creating comics in the classroom, I intend to provide recommendations for implementation and a foundation for action research.

I became interested in the educational value that comics provided when I overheard a group of elementary students talking excitedly their writing project. They were passionately discussing character development, plot and stylistic approaches. When I looked to see what they were working on, I saw that it was a cartoon strip that was wholly created by these boys. I realized that these boys were engaged in story creation and progressing through all the stages of the writing process as a collaborative group. I also realized that they were doing so with a kind of literature with which I had very limited experience, and even less understanding. Knowing that student reading ability is closely linked to student interest in reading and writing, I wondered what the complete absence of comic books in my repertoire would mean for students who experienced that medium as being the most accessible to them. How could I use their interests to develop their writing and reading skills and then transfer these skills to other written work? Seeing the engagement with which the students interacted with the story and each other around the project, I wondered about the potential of this kind of literature in the classroom. What are its strengths and the best way to use it? How could it contribute to an effective writing program? Are there particular student differences that can especially benefit from it? Most importantly, can a writing program that incorporates the creation of graphic novels and cartoons help to make up the difference in the literary achievement of students who traditionally have had difficulty? The issue of gender is often applied in this case, citing references to studies that show underachievement of boys in language arts. This large scale underachievement that may be due to a discrepancy between a student's strengths and the educational program is precisely one of the issues I intend to address. Comic books and graphic novels as well are more widely read among boys than girls.

However, any correlation of comic book reading and interest to underachievement in traditional language arts is not the purpose of this study, nor is the specific achievement of boys apart from girls. Rather it is to flesh out the educational value of creating cartoon strips and graphic novels in the classroom. Can creating comics in the classroom assist students who have difficulty developing their writing and verbal skills? Can creating comics in the classroom assist the verbally fluent student in developing visual-spatial communication skills? Comics present a possibility for integrating spatial and linguistic abilities, thus enabling the student to develop greater fluency in the language arts. The primary questions to be addressed are

1. What are the benefits of creating comics in the classroom beyond the motivational novelty?
2. How could teachers effectively go about planning lessons and assessing students in order to make the most of the educational opportunity that creating comics provides?

Within the context of these questions I will address both the nature of the visual-verbal connection that creating comics makes as well as the creation process that is understood as a higher level cognitive process by Anderson and Krathwohl (2002) in their revised taxonomy of thinking skills. In the process of answering these questions, I will create a web site to function as a teacher resource for a concise overview to theory, benefits and implementation possibilities for a program of creating comics. Because little research has been found on actual programs of comics creation in the classroom, this study will review the possibilities that flow from theories, other applicable research and how teachers have

used visual-verbal connections to support language arts; however, it cannot speak from a post-implementation perspective. Furthermore, many of the specifics of how a program of creating comics is introduced into the classroom is determined by the curriculum, instruction style and assessment strategies in each situation. Consequently, rather than laying out one program, this effort will attempt to address questions of implementation and purpose without prescribing a particular methodology or context.

The integration of visual and verbal information exists in nearly all facets of 21st century American life. From the internet, to advertising documents, to television and film, and even to print media in the form of newspapers, proficiency in the integration of visual and verbal literacy is crucial in effective communication. Picture books are everywhere in the early elementary classroom. The interaction and mutual support of text and pictures provide meaning, context and interaction with the book. Many students learn to write by exploring their ability to draw and developing their concepts of how information can be documented and expressed. Their pictures provide context and meaning cues for their early writing. Over the course of the next few years, however, it is likely and often hoped that our students will learn to value removing pictures from their writing and consistently attempt to funnel visual-spatial thinking into verbal-linguistic form. In recent years, a greater understanding of learning styles and communication channels has led to the reemergence of pictures, diagrams and drawings in textbooks and even recognition of the usefulness of graphic organizers in the classroom. Students are encouraged to employ these methods of visual communication in the context of presentations and projects. But in the context of student writing, the role of visual-spatial thinking often remains limited to what can be written in words. The value of proficiency

in verbal-linguistic communication in education is significant. However, the possibility remains that if students are given the opportunity to continue to grapple with visual-spatial meanings and expressions as their thinking becomes more sophisticated, they will develop more sophisticated methods of communication as well as experience greater accessibility to their own writing development and potentials.

Comics created by students in the classroom can potentially provide a rich language arts opportunity for students to explore visual-spatial thinking and communication skills in conjunction with the meaning of words and how the visual and verbal can interact to create broader synergistic meaning and effect. And yet, many elementary teachers have a limited experience with the potentials and forms of comics.

In his book *Understanding Comics*, Scott McCloud defines comics broadly: “**comics n.** plural in form, used with a singular verb; juxtaposed pictorial and other images in deliberate sequence, intended to convey information and/or produce an aesthetic response in the viewer” (1994, p.9). After outlining the historical development of comics from the earliest examples of the Mexican Codex discovered by Cortes in 1519 and the Bayeaux Tapestry, he identifies the basic elements and techniques of comics that provide the form with meaning. He identifies cartooning as a style apart from comics, hence venerated works of art such as Masereel’s *Passionate Journey* and Max Ernst’s “collage novel” *A Week of Kindness*, fall within his definition (McCloud, 1994). His definition also allows creativity in picture forms and media used to create pictures. The comics creator is not limited to cartooning or even drawing. Much of McCloud’s contribution lies in an understanding of techniques that enable comics to be compelling methods of expression, to have meanings on many levels, and to create aesthetic and

meaning effects that can only be created through the use of integrating pictures and words. McCloud also identifies significant concepts such as the icon, the comics version of negative space (what happens between frames), and variations of picture-word interdependency (McCloud, 1994).

As an art philosophy theorist and comics creator himself, McCloud presents an understanding of the value of comics as its own form. He also suggests that the value judgments in comics have separated the form into picture books and comics. In this examination, he suggests that comics outside of the traditionally recognized picture books are the expression of skills developed in reading picture books and engaging in the language rich activity of show and tell in the classroom (1994).

The value of recognizing visual literacy and visually representing as a method of the language arts is asserted by Gail Tompkins (2002) and other authors who have recognized that the changing nature of technology and access have changed the nature of communication beyond written form. Authors in the early 1980s with the emergence of multimedia capabilities recognized the need to create guidelines and an effective “grammar” of visual literacy. This effort grew out of the recognition that as visual media grew, some visual-verbal pairings were more effective than others in conveying information (Braden & Walker, 1980). Many theorists suggest that the value of fostering visual thinking and visual literacy goes beyond communication fluency to developing creative thinking and problem-solving skills, a crucial component of success in education and achievement. (Hedley, Hedley, & Baratta, 2001; Dyc & Milligan, 2000; Mylan, 2002).

Some authors have also suggested that teaching comics as an art form in itself is valuable due to the fact that this art form has developed conventions that are appropriate vocabularies and grammars, used in the media of television, film and advertising. While Elliott, makes the somewhat dated conclusion that computer literacy is valued over the conventions of media literacy while more people have access to television and read comics than have access to computers (1985), his conclusion is still valid. The Internet is a medium best used when visual-verbal information is effectively integrated in support of a message. He suggests that writing comics may be the best way to teach this kind of integration of skills. The significance of his argument is that it creates a groundwork for understanding the relevancy of integrating visual and verbal communication skills in the form of comics to effective communication in a technologically advancing society.

Another strand of theory in support of the use of students creating comics in the classroom stems from Howard Gardner's theory of Multiple Intelligences and the characteristics of successful implementation of this theory that Project SUMIT identifies (Harvard Project Zero, 2000). In the effort to further explore the role of visual-spatial thinking and reasoning in the life of the professional artist, LaPierre conducted a naturalistic research study. This study conducted interviews with professional artists, asking them to describe their experiences of communication, thought process and relationships. Documented in this study was the concept that spatial reasoning employed a nonlinear logic, yet still thoroughly explored the elements of reasoning and implications (LaPierre, 1992).

Dr. Mel Levine in his book *A Mind at a Time* also suggests the importance of realizing the difference between spatial and sequential ordering. He suggests that students

who have difficulty writing may need the opportunity to use art connections to develop their ability to express themselves and their understandings. (Levine, 2002). Hughey and Slack identify the value of spatial and linguistic connections and describe methods of incorporating visual thinking into the writing process through the use of picture cues, picture drafting and using drawings to give context to dialogue. They even cite illustrators' descriptions of the value of their perspective and understanding in thinking and interacting with text (2001).

The value of making visual and spatial connections to the process of writing is explored in articles by Richardson (1987), Tompkins (1987) and Suter (1987), published together by the Oklahoma Writing Project. Gail Tompkins (1987) also discusses methods of using wordless picture books to help develop older students' writing skills. Wordless picture books fall within McCloud's definition of comics and in effect, students are writing the text that does not just describe the picture, but adds to the meaning, or focuses the meaning. In these activities, students explore the interaction of pictures and words as well as develop awareness of narrative and dialogue conventions.

Finally in this series, Suter (1987) specifically addresses the use of comics to teach writing. She specifically suggests different comics that can be used to help students write dialogue, or investigate and correct spelling errors, sentence fragments, etc. The usefulness of having students experiment with different dialogue or wording in developing writing skills and awareness of how language works to change perceptions is certainly valid. Interestingly though, Suter's suggestion that the form ought to be corrected ignores the intention of the artist and any attempts at using dialogue or form to convey speech style, information about the characters or general experience of the reader.

The question that would follow such an exercise in correction would be then, how does this change the effect of the comic strip itself?

Other mentions of the use of creating comics in the classroom generally describe how to use a pre-made “blank” strip and then have students write captions, narrative or dialogue (Tompkins, 2002). Some authors also mention that it is valuable to have students create the pictures as well (Moffett & Wagner, 1991; Hughey & Slack, 2001). But most of these mentions are asides in a list of ideas to implement into the classrooms. Other articles make mention of using comics as a tool for language acquisition or for conveying crucial health information to low-reading literacy populations (Elliott, 1985; McKoski, 2000). While the validity of these uses is not denied, these applications either in their brevity or the unique parameters of their purpose, do not address the full value that is inherent in the whole creation process. It is my contention that an understanding beyond the casual reading of comic strips will enable teachers to bring the process of creating comics into the classroom in a way that is engaging and uniquely educationally relevant.

Comics is a medium that integrates spatial and linguistic abilities which creates a reader effect that is unique to the possibilities of this integration. In *Differently Literate*, Millard (1997) documents survey and interview results on reading habits in boys and girls. She identifies that boys more often than girls chose to read comic books and more often identified humor and adventure/action as their genre of choice. While comics can be created in any genre, she suggests that humor and action are specifically suited for the comics medium because of the fast-paced delivery nature of integrating words and pictures. As McCloud suggests in his discussion of the concept of negative space in terms

of what to show, effective use of this medium is done not by being lazy in terms of drawing what can be written, but using what is shown and what is not shown deliberately to convey meaning and mystery to the reader. The fact that comics are a medium that can incite interest in students who may have low interest levels in other forms of literature is important. Specifically, using creating comics as an approach to the writing process can provide more accessible entry points than more traditional approaches.

Chapter 2

Creating Comics in the Classroom

Many writers lament the predominance and even favoritism of verbal thinking and skills over the role of the visual in education (Olsen, 1992; Mylan, 2002). The cultural development of language based on abstract phonetical language rather than pictorial representations also lends itself to the preference of linguistic ability over visual-spatial thinking (Olsen, 1992; Levine, 2002; Dyc & Milligan, 2000). By recognizing this preference and even cultural bias, we can begin to integrate visual-spatial thinking into the curriculum not just for the individuals who rely on visual thinking styles, but also in the effort to include students whose culture is built on a written language that makes use of pictorial representation (Dyc & Milligan, 2000), as well as develop every student's creative thinking and problem-solving abilities.

Creating comics in the classroom provides an opportunity to integrate visual thinking and verbal thinking skills, and thus build on students' strengths in each area to develop their strengths in the other. This is because comics is a medium that uses visual thinking and spatial skills to communicate. Most teachers however, do not realize the depth, wealth and potential of the medium of comics and how it can be used to meet the needs of students for three reasons. First, most teachers' experience of comics does not go far beyond the newspaper, and while these comics are valuable, they reflect a small portion of the potential of comics as a medium. Second, many teachers have relied on the strength of their verbal-linguistic skills with the occasional supplement of visual skills in their writing and education experience. Finally, over the course of the 20th century, comics as a medium has often been associated with that part of the adult genre

susceptible to charges of obscenity and corrupting youth (Wright, 2001). Often this charge is levied because of the inference that comics is a medium only appropriate for children. Consequently the existence of adult themes equates with an attempt to corrupt youth. This is an inference that McCloud (1994), Mylan (2002) and others point to as one among many evidences of how visual thinkers and learners are marginalized in society and education. Furthermore, if we remember that as a medium, comics, like a web site or book, has the potential to include genres of historical fiction, nonfiction, comedy and action-adventure in all their manifestations, then we realize that comics is only limited and characterized by the interests, tools and imaginations of the artists or creators.

Even so, the negative connotations of comics, the lack of experience and understanding that many teachers have in relation to comics and the preference of verbal abilities over visual in society, have kept the creation of comics in the sidelines in education and kept educators from realizing the full educational potential that it provides.

The Role of Art and Visual Thinking

Although most of this discussion of visual-verbal connections focuses on the utility of art and visual expressions in the classroom, it should not be inferred that this is the only argument for including arts in the curriculum. Art has a place in the classroom for its own sake, regardless of its ability to stimulate creative thinking or make information or skills more accessible to certain kinds of thinkers. This is because educational goals include the development of the culture and arts and the continual innovation. Visual art is extremely useful as a communication tool. Regardless of this utility, contribution and innovation to the human experience of a culture and the

individual life is significant enough of an endeavor to merit the inclusion of the integration of art into the curriculum. The SUMIT project of project zero identifies the integration of the arts as a “compass point” or characteristic of programs that successfully implement Multiple Intelligence theory (Harvard Project Zero, 2001). The REAP project also reiterates the intrinsic value of integrating the arts into education while also recognizing that the significance of standards and testing makes the utility of such methods relevant to the methods although not necessarily relevant to the question of whether or not they should be there at all (Winner & Hetland, 2003).

In her book, *Envisioning Writing: Toward an integration of drawing and writing*, Janet Olsen (1992) addresses the question of how to use visual thinking to facilitate the development of writing skills. It may seem at first glance that she is using the utilitarian approach of forcing arts to be useful to the traditional disciplines of education. But rather, she points out that the separateness of visual art and language arts in the traditional curriculum has provided a disservice to the students who are proficient in visual thinking skills. She admonishes traditional art education for educating the “child as artist” rather than the “child as learner.” Her argument sets the foundation for the value of integrating skills and disciplines by providing a framework for understanding how skills in one area can be used to develop skills in another. Olsen (1992) also points out how the traditional inclusion of visual skills more often reveals the teacher’s creativity in discovering print, film and digital resources, instead of actually focusing on the students’ visual thinking skills.

By using students’ visual expressions as substance for exploration, explanation and translation into other forms, Olsen (1992) makes the argument that students who

learn visually, in any capacity, can have an opportunity to improve their language skills. She specifically cites Albert Einstein's reflection on his own thinking process:

The words of the language, as they are written or spoken, do not seem to play any role in my mechanism of thought. The physical entities which seem to serve all elements in thought are certain signs and more or less clear images which can be "voluntarily" reproduced and combined.

The above-mentioned elements are, in my case, of visual and some muscular type. Conventional words or other signs have to be sought laboriously only in a secondary stage, when the mentioned associative play is sufficiently established and can be reproduced at will.

(As cited in Olsen, 1992, p.5).

Her inclusion of Einstein's reflection points to a greater understanding of both the value of visual thinking and the process by which visual concepts are able to be expressed through words. Specifically, it becomes important to understand that the role of words in visual-spatial thought are not necessarily the origination of the thought but may be functioning as the elements of translation. In other words, the act of writing is in some cases also an act of translation. If we understand that verbal-linguistic activities for some students involve translation, then teaching and developing these skills of internal translation become a significant part of developing writing skills.

In her action research, Olsen categorizes students into four groups while also recognizing that student abilities fall along a spectrum. These four categories were equally represented in her experience and are based on thinking style proficiency: high visual and high verbal, high visual and low verbal, low visual and high verbal, and low

visual and low verbal. She uses this method of understanding different learning styles to explain how many students, including the identified exceptional as well as others, can benefit from a program that incorporates the use of visual thinking skills in developing writing and other verbal skills. The visual thinking skills significant to developing writing skills include the creation and exploration of self-expression. In other words, this means allowing the student to explore the process of creating meaning through the development and expression of ideas in both visual and verbal contexts, and then using the student's expression to support the process of developing writing and other verbal abilities.

Sheryl Mylan (2002) cites the same passage on Einstein's views on visual thinking, creativity and language in conjunction with research that indicates that verbalization impedes the process of solving a problem that requires insight. She uses this discussion to suggest the necessity of encouraging visualization in the writing process. In other words, she suggests that teaching and fostering metacognition is aided through developing visual thinking skills and visualization. Mylan (2002) goes on to suggest that employing methods of visualization or visual thinking in the writing process will help students develop this metacognitive and insightful depth, as well as improve their writing skills and ability to apply metacognition to the writing process.

Mylan (2002) also emphasizes the importance of how a teacher uses the visualization process and the student's own vision to maintain the integrity of the student's vision and the student's ownership of the work. Burmark (2002) similarly applies an awareness of student vision to a discussion of the practices of decontextualizing words through the use of spelling and vocabulary lists. She reflects on how imposed words do not necessarily connect to students' internal images and

understandings and argues for activities that help students to verbalize their own images and experiences. She also uses this discussion to impart the importance of using precise images when a specific concept or understanding is necessary in order to avoid the personal construction of theories.

Her reflection on the concrete nature of images and the decontextualized words that may make little sense to students mirrors McCloud's (1994) recognition that words are "non-iconic abstractions." This means that they do not, in shape or any other concrete way, reflect or indicate what they are referring to. Burmark's (2002) and McCloud's (1994) discussions recognize that in moving from concrete to abstract, images give meaning to words. National math standards advocate using the process of moving from concrete to representational to symbolic in understanding mathematics operations. The implication of these understandings for comics suggest that some students may benefit from the more representational and even concrete nature of combining images with words as a scaffold in learning how to verbalize their dreams, visions and understandings.

Hobbs (2002) describes the interconnectedness of words and images in the writing process as it has developed over the centuries to advocate for visual-verbal "hybrid literacy". She points out, like McCloud (1994), that the innovations in the printed word further divided the worlds of image and text. She specifically refers to a resulting movement in education, whereby teachers, realizing that text now most often existed without words, made a concerted effort to show students that text could relay imagery and everything that a picture could. She then suggests that the tensions between text and images can be a creative one as students learn to "translate between modes" (2002, p.42). Using the idea of translation implied by Einstein's reflection combined with an

understanding of the history of writing in education, she suggests that the richness of writing need no longer be limited to the necessities implicated by the printing tools of an earlier age. She ends her argument by recognizing that for Leonardo da Vinci, writing and drawing were the same thing, and suggests that such “hybrid literacy” may help 21st century students to reach to greater heights and depths of potential.

Author J.K. Rowling credits this kind of visualization and image scaffolding with the vivid and engaging descriptions in her Harry Potter books. In an interview with *60 Minutes*, Rowling describes how she began her writing process by drawing detailed pictures of the characters (Stahl, 2003). This process of visualizing or drawing creates the concrete base for exploration of possibilities, thoughts and implications. Burmark (2002) provides research implications using Gardner’s Multiple Intelligence theories and other brain research to suggest the synergistic value of combining words and pictures and consequently, the necessity of employing this connection in teaching. Burmark (2002) specifically responds to the argument for lowered vocabulary and linguistic skills as a result of graphically-laden media in culture by suggesting the potential for drawing on the symbiotic relationship of images and words to enhance each other.

The implication of this discussion is that the sophisticated visual thinker may or may not experience difficulty writing. Yet by exploring the visual-verbal connections in the creative process as students’ understandings and visions become more sophisticated, we create the opportunity to scaffold the articulation of that sophistication. This scaffolding also facilitates students’ ability to apply insight and depth to their writing and other verbal communication.

Eisner (1994) also makes the concise argument that with different modes of thinking and expression, there are different capacities for these modalities. He suggests that therefore, a responsible curriculum will employ the critical review and process of creation in each of these modalities in order to make education accessible to as many individuals as possible. Eisner (1994) also makes a distinction between the aesthetic and the artistic, with aesthetic as receptive language and artistic as expressive language. He argues that most educational programs that incorporate the arts incorporate the process of creation without the evaluation and revision that is indicated with an aesthetic understanding. The implications of his perspective suggest that the value of taking artistic creation through a process similar to that of writing, with editing, conferencing and revision, enables the development of greater meaning, quality and cultural innovation. The necessary problem that Eisner (1994) encounters is also suggested by Olsen (1992): How does a classroom teacher, who is likely to be verbally proficient but may or may not be proficient in visual thinking, incorporate visual thinking to support, rather than supplement, the processes of understanding and educational development.

The value of integration in light of these theories and other educational research is undeniable. Yet each of these explorations of integrating the arts in education implies a need for a broader understanding of integrating disciplines and especially the arts. Specifically, by employing a visual-spatial approach as a method of fundamental differentiation, not just a method of enrichment, students are equipped and empowered to tap into their thinking abilities and strengths in developing new skills. The key is to adjust teacher conceptions to include an awareness of different methods of knowledge and

meaning construction, rather than just an awareness of the value of providing multi-sensory experiences.

The Role of Creating

Howard Gardner (1999) makes a case for the similarities of creators and leaders in their endeavors of influencing others, persuading, contributing to a story and producing a product or “embodiment” as Gardner terms it. He further makes the point that the difference is in the directness of the method and that creators use an indirect method through symbolic representations. (Gardner, 1999, p. 130). Gardner separates creativity from intelligence and notes that it can be applied within the context of any of the intelligences. While Gardner (1999) speaks mostly in the context of a creativity that creates novel and far-reaching change within a particular domain, his implications suggest that developing creativity is just as important if not a part of developing leadership skills.

Anderson and Krathwohl (2001) also recognize the significance of the creative process in their revision of Bloom’s taxonomy. This new taxonomy recognizes creating as a higher level skill above evaluating. Specifically, the verb create is identified as “put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure.”(Anderson & Krathwohl, 2001, p.84) This role of creation is not only a synthesis of ideas and elements, but an application of evaluation, analysis and personal intention. Creation is the interjection of educated thoughtful post-synthesis self-expression into a domain or conversation. Gardner (1999) specifically makes the point that in the creator’s indirect communication, the creator makes use of domain-specific

techniques, tools and vocabularies, implying a literate audience. Specifically, this understanding of creation is shown in how Virginia Woolf can break the rules of literature and generate a whole new understanding of the novel, its style, techniques and effects. This understanding also helps illuminate the “my child can do that” modern art.

The act of creating comics employs the use of visual and artistic techniques as well as linguistic techniques. It employs the metacognitive understanding of purpose and decision-making regarding use and styles of available techniques. Creating comics has the potential to influence the thoughts and behaviors of others. It is ultimately, an act of creation that integrates multiple skills, understandings and processes. In other words, it is extremely complex, rich and even daunting for something so often perceived as child’s play.

Techniques

McCloud (1994) identifies many significant and sophisticated techniques in making comics. His understanding of comics does not require words, but yet it does require communication. With his understanding of comics, any technique applicable to visual art is applicable to comics. Likewise, devices used in traditional literature or storytelling, such as foreshadowing, perspective and sequence are also applicable. This wealth of techniques is certainly enough, but there are techniques available to the playwright and filmmaker that are also available to the comics creator. For example: what happens off-screen? What is included in the focus of the picture? What words in relation to the picture create greater synergistic meaning? What is the sequence and pace in which events are shown? What sounds, speech patterns and intonation are conveyed? Comics is

one of the few media that accepts the rampant use of font changes to create sound effects. Comics also blends facial expressions with words and uses other visual techniques such as sound lines and perspective to create the impression of sound (McCloud, 1994). Furthermore, spacing, and time implied through picture and text information infers sound as well (McCloud, 1994). Comics, as well, makes use of the technique of manipulating reader inferences of concepts and ideas. Cartooning techniques juxtaposed with realism uses “closure” to help the reader identify with the less realistic depictions of individuals and to recognize more realistic depictions of individuals as “others” distinct from the reader’s self (McCloud, 1994).

In her exploration of whether reading comic books influences writing style, Jenkins (1994) developed a list of characteristic techniques of comics. The techniques and characteristics she identified are “mutual dependence of pictures and text, a fast moving plot with a high action content, use of onomatopoeia and varied print styles, use of puns and slang phrases, elimination of speaker tags, use of narrative bridging captions, use of irony, and use of foreshadowing” (Jenkins, 1994, p.4). She made the conclusion that all of these elements were incorporated into the writing of the identified avid comic book readers. The techniques she identified are characteristic of comics, and yet, McCloud would also emphasize that comics are not limited to having to employ all of these techniques. In *Reinventing Comics*, McCloud (2001) notes that diversifying the content and characteristics of comics opens up the possibilities for what comics can be and do. The possibilities for developing written narrative concepts, oral and written communication skills, and critical thinking and problem-solving skills through creating

comics is simply limited by teachers' ability to conceive of what can be done, and their ability to recognize where these skills are applicable to the medium.

Implementation

Comics are the ultimate integration of experimenting with visual and verbal communication simultaneously. The process of creating comics allows for the translation and development of both visual and verbal thinking and expressive skills. Comics as classroom projects also provide substance for discussion, review and revision. This is an art form that has been separate from the world of education, and yet authors like Olsen (1992), suggest that visual-verbal connections like the ones they provide, offer a wealth of opportunity for developing skills. Gardner (1991) as well reflects on the value of introducing projects and activities that engage students and represent knowledge in different ways, as well as encourage the student to reflect on and begin to take ownership of the learning process. The effective implementation of the following methods depends on the teacher's awareness and ability to make the creative process a thoughtful, deliberate, reflective one.

Another awareness and point that is central to using creating comics as a rich project involves an awareness of the creative act that is categorized as a higher level cognitive process in Anderson and Krathwohl's taxonomy. "Create" in this context is concerned with a student making "a new product by mentally reorganizing some elements of parts into a pattern or structure not clearly present before" (2001, p.84). Anderson and Krathwohl make the point that creating involves many elements and sources as well as employs other cognitive processes. A teacher's questioning and

parameters can focus on a certain cognitive process during each step, as well as require the use of certain content knowledge as well. Creating comics, because of the wealth of student expression and multiple methods of communication can provide all students with the opportunity to experience and reflect on the synthesis of knowledge and cognition. Furthermore, the research on employing the visual thinking skills and problem-solving implies that through such a method all learners may have access to expressing greater depth and insight in their communication. The following methods discuss strategies and approaches that can be used to support the educational value of creating comics in the classroom.

Storytelling and Storyboarding

David Millstone (1995) makes an interesting argument for the use of comic strips and the integration of writing and other language arts with visual arts. The connection is made through the art of storytelling, which is separate from writing. Some of his students use a written outline, while others use a less flexible script. Yet he discusses the value of allowing students to adjust, innovate and deviate from a specific version of the story in making it their own while remaining true to the spirit of the story (Millstone, 1995). Sometimes the truest reflection of reality is a work of fiction. Students who are able to make adjustments to the story in light of the point or main themes, are exhibiting a significant depth of comprehension of the story. Many state standards include the ability to tell a story in the early elementary grades.

Millstone (1995) makes use of student created storyboards, which are in McCloud's (1994) definition comics themselves, and more traditional forms of comics.

He does this after conducting years of conversations with professional storytellers that he invites into his classroom. One storyteller relays how his story is told with the assistance of visual images that he has created in his head, rather than through a script (Millstone, 1995). When he gets lost, or forgets where he is, he looks at the images in his head that are rolling “like a movie.” This storyteller also encourages the use of visualization in the audience through encouraging the audience to create the images as he tells them and also through dimming the lights, creating an environment of shadows and darkness, limiting distractions and encouraging imagination. The use of visual images to convey the meaning of a story and show comprehension is intuitive. Asking a student to draw a picture of what they think a character should look like and why can elicit a great deal of information about the student’s comprehension of the character (Millstone, 1995). Asking the student to recreate a visual expression of an interaction between the characters further elicits information about that student’s comprehension of the character’s relation to each other, their roles in the story and even major themes. The affective role of these pictures reveals a great deal that is sometimes not easily expressed or understood in words. Polaroids of facial expressions and interactions are also comics in the sense that is understood here.

The visualization that Millstone (1995) and his storytellers are advocating here are methods of understanding a text or orally delivered tale. The student who is able to visualize or attempts to visualize a story or what is being expressed is engaging in the act of reading and listening, seeking information not for another purpose such as worksheet answers, but for the purpose of the creation. Consequently, the act of visual creation in the form of mental imagery or tangible product is an exploration of theme, implication

and personal interpretation. The critical thinking skills involved in determining what that kind of character would be wearing or doing that is not explicitly stated is integral to the process of visualization and creation. The question “How close are they when they are talking?” requires a quick estimation in the process of visual imagining and continually adjusted as the individual considers different possibilities or gets more information.

Millstone (1995) then uses the process of visualization to lead into storytelling and art creation that expands on the themes of the story and ideas, while also requiring students to synthesize the specific information and their inferences into an expressive response and demonstration of comprehension to the story. Some of these retellings or visual creations employ nuances or different perspectives that lead into evidence of higher level skills involved in creating, making meaningful inferences and manipulating stories (Millstone, 1995). Millstone (1995) also makes note of the fact that some of his students who show strong natural ability as storytellers demonstrate difficulty in writing. This supports Olsen’s (1992) observations of thinking styles and further supports the idea that the process of visual storytelling can help provide stepping stones in the process of translating from thinking style to written word.

Visualization

Although Millstone (1995) uses visualization as a support or entry-point into storytelling, Mylan (2002) goes a step further in describing how visualization techniques can be applicable to each step in the writing process and can, when effectively implemented, develop a student’s sense of self-efficacy in writing. Mylan’s (2002) argument suggests that all students can develop depth of thought and insight through the use of visual thinking in the writing process. She details how students can gain insight

about themselves, their own writing process and problems through visualization. But she makes the point that teacher's need to be careful of "hijacking" a student's vision for how piece of writing should come together or find resolution by imparting the teacher's vision. She also suggests that too many examples of how things should be done can hinder a student's vision for what their writing can become. Rather, she points out the necessity of modeling effective writing processes that are tailored to students and build on their strengths in creative cognition and visualization.

Creating comics uses visualization in the same sense that Millstone's (1995) storyboarding and comics used visualization. Understanding how visualization strategies can be applicable to all phases in the writing process, helps the teacher tailor the process to the needs of the student and can answer Eisner's (1992) question of how to foster visual thinking to support the writing process. Visualization in the process of creating comics has implications for the drawing techniques, what a frame looks like and what it looks like on the whole. It is important to note that in the creation process, the picture may come before the words, or the words before the picture. A student may know what the frame looks like but not be able to explain how it fits into the whole story until further along in the process. Yet within the context of Mylan's (2002) position, the role of the writing teacher is to help students develop methods of writing that build on their own vision and strengths.

Visualization is a process by which students can explore story possibilities and support the comics creation process. Millstone (1995) used guided visualization and found this method especially helpful for students who were challenged by the process of visual thinking. Mylan (2002) suggests the use of open visualization as well. The

facilitation of visualization in the creative process helps students to explore methods of approaching writing and creation in ways that can build on their own strengths, styles and methods of understanding the world.

Picture Narratives and “Real” Comics

In her discussion of the role of the art teacher, Olsen (1992) advocates the use of picture narratives as an element of helping students to understand stories, narrative elements such as beginning middle and end and characterization, similar to J.K. Rowling’s use of character pictures. The methods that Hughey (2001) describes in terms of the illustrating process in story development and understanding also support this dual approach to story creation.

Teachers should also remember that visual thinking and spatial intelligence do not require the ability to draw well. McCloud (1994) identifies the techniques of iconic representation and realistic representation as having their own significance in the reading experience and intent of the creator. Consequently, it is appropriate to use other methods of visual representation and artistic expression beyond drawing. These methods include the use of dramatic reenacting photographs, magazine cutouts, student manipulation of effects and clipart through the use of computer graphic editors and creative software such as KidPix (McCloud, 2001), and any other method that students and teachers can think of. McCloud (2001) himself discusses the limitless potential of the comics media in the face of changing technology and the greater access to these tools.

The actual comics creation and organization process is determined by the needs and abilities of teacher and students. Anderson & Krathwohl (2001) identify the original

creation process in the revised taxonomy including ability to generate, design and construct. The metacognitive implications for this process are limitless as students decide what techniques to use, choose storylines, how to develop characterization, etc.

Recognizing that the create cognitive process is the highest level identified and employs the use of thinking skills in all of the other levels, the comics production necessarily requires a development process tailored to the individual needs and abilities of students and purposes of the teacher.

Tompkins (1987; 2002) discusses the use of having students create captions and dialogue for pre-made pictures, while Olsen discusses having students create narrative pictures without the use of words initially and Rowling uses a method of using pictures for characterization in support of her writing process. Possibilities include writing a funny caption for a serious picture, or recreating an actual experience. Comics are not necessarily fiction, and the visualization process or the method improvisation outlined by Pam Prince Walker (1993) can be appropriate for inspiration depending on the comfort of the teacher. Specifically though, beginning with short sequences, modeling techniques or even singular frames begins to orient the students to the idea without necessarily requiring a script or full pictures first. With the different learning styles and the wealth of strengths able to be employed, students will need the freedom and choice to build on their strengths and begin with their conceptions whether they are visual or verbal. From this point, discussions of purpose and decisions can reflect on the effective use of techniques in support of the whole purpose.

As with any other writing enterprise, the editing, review and revision process is applicable and significant in the process of developing writing and thinking skills. The

success of a program that uses comics to develop writing skills uses the elements of editing and revision along with oral articulation. Using comics and student-created pictures as the substance of scaffolding conversations builds on student abilities and challenges students in their zones of proximal development in partnership with the teacher.

It is entirely appropriate for students to apply content knowledge and understandings as comics is a medium for communication. From historical events to scientific processes and even mathematical concepts, students can employ all varieties of techniques of visual representation in the process of communicating ideas and understandings. The teacher however must keep in mind, as Mylan (2002) suggests, the importance of allowing for the full expression of the student's vision. This means that the teacher's own expectations for specific content inclusion must be clearly stated and allow the wealth of imagination and creativity that may result through the process of employing both image and text.

Collaborative Projects

Because the process of creating comics employs many different skills and students have a variety of strengths, along with the benefit of collaboration in approaching challenging tasks and problem-solving, comics presents a profound opportunity when created in collaboration. The collaboration setting itself, can provide more opportunity for students to verbalize concepts and ideas and provide scaffolding conversations as students work out understanding their individual ideas and group purpose. Collectively students can decide where to employ what techniques and engage

in metacognition. Opportunities for collaboration include having each student function as a different character and apply their own concepts of how that character acts in conjunction with plot development and the actions of other characters. Likewise, students can each take a segment of the story as a part of the whole, or students can take roles in relation to editing (plot development and continuity of purpose), illustrating, writing captions and dialogue, with everyone having a hand in discussing plot development and effective technique application. The possibilities for differentiating within this context and using different grouping strategies are limitless. Even individual projects reviewed in the context of peer groups provide opportunity for the social construction of knowledge. Specifically, how a teacher chooses to focus and guide discussion and reflection determines the development benefits. However, the fact that students are employing their visual thinking skills as well broadens the opportunity for students to apply skills and understandings to both the construction of projects and the demonstration of concepts. Furthermore, the visual integration approach of comics in general provides a context for visual thinkers and multiple entry points for different learning styles.

Who Benefits

The practice of integrating drawing and writing is employed regularly as primary students learn to write words and sentences. Yet this practice is often abandoned as students move into the upper grades in favor of “pure” writing. But for the same reasons that integrating pictures and writing is a valuable scaffold in integrating skills and understandings for the primary student, the upper elementary student can potentially

benefit as their writing tasks, understandings and ideas become more abstract and sophisticated.

Exceptional Students

In Olsen's (1992) identification of learners as visual and verbal, she argues that traditional education as a reflection of a society that has developed from the phonetic language system favors the verbal faculties at the expense of the visual. She further argues that more and more visual learners are referred to special education and she suggests that many children with learning disability labels can potentially benefit from the inclusion of visual thinking and the scaffolding of the process of articulating inner visions, images and ideas. Olsen (1992) also makes a point that students she classifies as having high verbal abilities and high visual abilities are often identified as gifted for their problem-solving and ability to meet challenges. She further suggests that integrating the drawing and writing processes for these high ability students enables them to express and develop their visual thinking skills.

Reactive Writers

In her article, *Reaching Reactive Writers: Using Pictures for Writing*, Richardson (1987) classified her experience with student writers into two categories reflective writers and reactive writers. What she discovered, is that students who were having difficulty in the pre-writing phase of writing, showed a greater fluency in developing ideas and elaborating when given a picture of photograph to respond to or use for context. Olsen (1992) and Mylan (2002) as well, discuss the value of incorporating visual experiences in

terms of creating or viewing in helping students who seem to stall at one or many points in the process of writing.

Different Learning Styles

Levine (2002) makes a distinction between spatial and sequential ordering and discusses the effects on learning and demonstrating success in school. This distinction can be understood as similar to Gardner's distinction of spatial intelligence as separate from the linguistic and mathematical intelligences. Furthermore, LaPierre's (1992) investigation into understanding spatial reasoning in the artist learning style suggests the distinction of the visual/spatial thought process. LaPierre (1992) and Levine (2002) articulate a fundamental difference in the communication styles of individuals and the need for artistic endeavors in the process of expression and communication. Both imply that traditional methods of written and verbal communication for these individuals are, to use Einstein's term "laborious." For these individuals, scaffolding from the zone of proximal development which must necessarily draw on visual thinking skills is indicated as well as the opportunity for expression by visual means.

This is not to say that the expectation should be that all ideas, concepts or impressions can always be adequately articulated. Olsen (1992), McCloud (1994) and others recognize that there will always be ideas which can only be adequately expressed through the use of images or the synergy of images and words. This means that understanding can only be broadened when students are allowed to apply all of their thought processes to the educational process. Furthermore, such a conception indicates that all students can benefit from experiencing each others ideas and understandings in

different ways. The research supporting the use of visual thinking in increased problem solving ability and creative thinking supports this conclusion. In other words, all students can benefit through developing their visual thinking skills and understandings.

For all the benefits of making visual-verbal connections in promoting insight, facilitating creative problem-solving and scaffolding students' ability to verbalize their thoughts, the medium of comics also provides a strong hook for student motivation. Comics can be a novel approach in the classroom, by which students discover new ways to document their vision and thoughts. Comics as a medium has traditionally lent itself to humor and action because of its unique ability to manipulate timing and affect reader pace. Students may experience new found freedom as they discover new ways to express themselves and create. However, it is important for the teacher to remember what every pre-adolescent knows: teachers have the power to take the fun out of anything. Like any other activity, the fun of the idea will only take it so far. The teacher's craft must take it the rest of the way. Comics have the power of communication on many different levels. As teachers become more aware of its possibilities in relation to learning needs of students, they can begin to use comics as another tool to help students develop greater ability to understand themselves and engage in human culture.

Chapter 3 Web Site Content

Creating Comics in the Classroom

The Ultimate Show and Tell

Site Map

- **[Home](http://jecomb.people.wm.edu/599/index.html)** (Links to <http://jecomb.people.wm.edu/599/index.html>)
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 - Definition and Possibilities
 - Techniques of Comics
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jecomb@wm.edu

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Benefits

What Can Comics Do For Me and My Class?

Creating comics in the classroom provides an opportunity to facilitate student engagement in making visual-verbal connections. Helping students to make and use visual-verbal connections in this creative process can both make the writing process more accessible to learning differences and help students to develop and apply higher level thinking skills. Visual-verbal connections provide opportunities to access a process based on student learning differences and thinking strengths. By developing an understanding of the sophisticated communication and visual-verbal connections possibilities within the medium of comics, teachers can use the process of creating comics to

- teach communication techniques
- develop creative and higher level thought processes
- develop composition techniques in students of different strengths through facilitating visual-verbal connections

Why are Visual-Verbal Connections Important?

Within paradigms and theories of cognition and learning that recognize different ways of thinking there is a distinction between visual (or spatial) and verbal thinking and expressive skills.

- In his Multiple Intelligence theory, Howard Gardner identifies a distinction between spatial intelligence and linguistic intelligence.

- LaPierre (1992) explores this difference further and suggests a distinction between spatial reasoning and linear reasoning.
- Levine (2002) defines spatial ordering and sequential ordering as distinctive from each other. In his understanding, sequential ordering includes logical and linguistic abilities.
- Olsen (1992) also recognizes a distinction between visual and verbal as well.

The art of writing is an art of both communication and translation.

Albert Einstein describes his difficulty in the translation of visual thought as laborious (Olsen, 1992).

While for **Leonardo DaVinci**

(Mylan, 2002), **J.K. Rowling** (Stahl,

2003) and **Joyce Carol Oates** (2001), visual thinking abilities are an integral part of their writing and communicating process, giving them depth and insight.

Making visual-verbal connections through activities involved in creating comics *provides an opportunity to*

- Support students with **learning differences** and help **visual thinkers** approach the writing process by building on their strengths.

The words of the language, as they are written or spoken, do not seem to play any role in my mechanism of thought. The physical entities which seem to serve all elements in thought are certain signs and more or less clear images which can be "voluntarily" reproduced and combined.

The above-mentioned elements are, in my case, of visual and some muscular type. Conventional words or other signs have to be sought laboriously only in a secondary stage, when the mentioned associative play is sufficiently established and can be reproduced at will.

~Albert Einstein (as cited in Olsen, 1992, p.6)

- Stimulate **visual thinking** and thus the application of **insight** and **creativity** to the writing and problem-solving process (Mylan, 2002)
- Encourage **depth** and **elaboration** in written communication as well as student-generated words and concepts.
- Develop skills in **modern communication** that is often based on media that incorporates the use of visual-verbal connections such as television, the Internet, film and posters for mass communication purposes such as advertising, politics and public awareness
- Integrate **artistic development** and understanding into student expressions of **self** and **learning**
- Develop student ability to **self-evaluate** and engage in reflective thinking through oral discussion of work (Raney & Hollands, 2000)

Who Can Benefit?

Of course, students who are excited and interested in comics benefit from their motivation and affective engagement in the creating process. The following researchers and theorists provide specific references to students who may benefit from such a program. Based on their theories, every student has the potential to benefit from the process of creating comics in the classroom, but the process can especially benefit students with spatial and visual strengths.

- Richardson (1987) identifies writing students in her classroom as reflective or reactive. She observed that **reactive writers** engaged in the writing process with

much more fluency and depth when inspired through the use of images and visualization.

- Olsen (1992), for the sake of her action research, developed a construct of understanding students as having high or low abilities in visual thinking and high or low abilities in verbal thinking. The result was 4 groups with an even number of students in each. She recognized that students who had high abilities in both methods were often also students with identified giftedness and she suggests that integrating drawing and writing helps **students in every category** to develop their visual thinking skills. Her observations suggest that an approach that incorporates visual-verbal connections provides many opportunities to differentiate.
- Gardner (1999), LaPierre (1992) and Levine (2002), in their understandings of the different ways in which individuals think, all recognize the value of enabling **all students**, and especially those with spatial skills, to communicate in more spatially coherent ways and in support of developing their skills in more linear expression.
 - LaPierre's (1992) work implies that it enables individuals who think spatially to think through reasoning and understand an idea before having to translate it.

Levine (2002) suggests the value of allowing **students who are strong in spatial skills but more challenged in “sequential” areas**, confidence in self-expression and consequently improve the affective experience and engagement in school.

What About SOLs and Curriculum Alignment?

Certainly the history of comics and educational focus on the importance of linguistic abilities creates a tendency to assume that learning to create comics is not immediately educationally valuable or relevant to skills identified in standards of learning. However, given the higher order cognitive skills in the creation process and the accessibility of making visual-verbal connections, creating comics can allow students of different interests and strengths to develop their thinking and writing skills.

Creating comics can be relevant to

- Using available technology
- Planning, designing, organizing and sequencing
- Writing descriptive paragraphs, stories and dialogue
- Developing narrative techniques and story grammar
- Creative problem-solving and communication skills
- Integrating content knowledge and assessing overarching concepts
- Diverse student representations of concepts and understandings

Anderson and Krathwohl (2001) created a revised taxonomy that recognizes the difference between knowledge and cognitive process. Within this construct, the creating process includes processes of generating, planning and producing or constructing. Within the create level of this taxonomy, students can employ some or all of the other processes including apply, analyze and evaluate. The taxonomy also includes a knowledge dimension that includes conceptual, procedural and metacognitive knowledge. Andersen and Krathwohl (2001) suggest that teachers can use the matrix to analyze and align

objectives, activities and assessment. Using this taxonomy, teachers can ensure that the process of creating comics in the classroom meets and aligns with objectives, and supports their assessments.

About Comics

What Is Comics?

In his book *Understanding Comics*, Scott McCloud defines comics broadly:

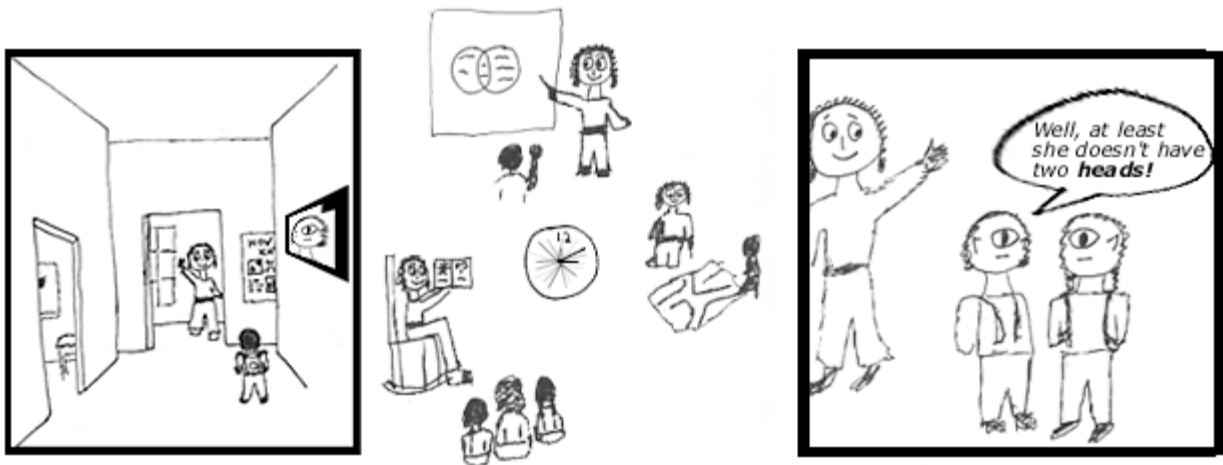
- “**comics n.** plural in form, used with a singular verb; juxtaposed pictorial and other images in deliberate sequence, intended to convey information and/or produce an aesthetic response in the viewer” (1994, p.9).

After outlining the historical development of comics from the earliest examples of the Mexican Codex discovered by Cortes in 1519 and the Bayeaux Tapestry, he identifies the basic elements and techniques of comics that provide the form with meaning. He identifies cartooning as a style apart from comics, hence venerated works of art such as Masereel’s *Passionate Journey* and Max Ernst’s “collage novel” *A Week of Kindness*, fall within his definition (McCloud, 1994). His definition also allows creativity in picture forms and media used to create pictures. The comics creator is not limited to cartooning or even drawing. Much of McCloud’s contribution lies in an understanding of techniques that enable comics to be compelling methods of expression, to have meanings on many levels, and to create aesthetic and meaning effects that can only be created through the use of integrating pictures and words.

As an art philosophy theorist and comics creator himself, McCloud(1994) presents an understanding of the value of comics as its own form. He also suggests that the value judgments in comics have separated the form into picture books and comics. In this examination, he suggests that comics outside of the traditionally recognized picture books are the expression of skills developed in reading picture books and engaging in the language rich activity of show and tell in the classroom.

McCloud's definition and examination certainly opens possibilities for what constitutes comics in the integration of text and images to allow for different abilities, comfort levels and visions of what this kind of integration can look like.

How Do Comics Convey Information?



This is the first comic strip I have ever drawn, and yet it, on some level, conveys humor, the concept of time, some of my vision of myself as a teacher and my vision of what parts of a teaching day look like. In creating the strip, I chose how to convey the passage of time or montage feel through removing the frame and even using a “moving” clock to represent the concept of time. The poster on the wall in the first frame foreshadows the

joke at the end. The final wording was chosen to imply the monster with two-heads as well as to make the point of the joke. I also drew the pictures to center on the teacher, with the students facing away from the reader. In this case, I chose when to reveal descriptive elements of the students for the point of the story. Furthermore, it is interesting to investigate how this approach may play with how the reader identifies with the characters until the final frame. The point of this example is to show that even in a first attempt, it is possible to see parts of a creator's understanding, approach and intent, as well as how the creator chose to problem-solve conveying more abstract ideas and concepts. Ultimately, any artist, including all types of writers, must problem-solve the limits of their medium in their efforts of effective self-expression. It is these limits which give the beauty and innovative possibilities to the art form and writing form. Comics presents the possibility of employing many different ways of thinking in conveying an idea, concept or story.

Space, time and frames

Time in comics is flexible and exists in the form of space and implied sound. Time and pacing (how fast information and action happens) can be indicated in many different ways.

- Dialogue and sound effects imply time by how long it normally takes a person to say something or the sound effect to happen (McCloud, 1994). Batman's POW! and Dilbert's business meetings can both only take up one frame and yet indicate very different amounts of time.
- The frame shape or lack thereof can indicate elongated time or timelessness (McCloud, 1994).

Storyline, sequence and narrative techniques

Any story technique applicable to storytelling and writing is applicable to the story when conveyed as comics.

- Setting, character development, foreshadowing, climax and resolution are just as vital to the integrity of the story told in the form of comics as in other material.
- Sequence is manifested in comics not just in terms of the order of plot events, but in terms of the order of visual images in relation to each other and the text. In other words, how does the meaning change with different orderings, the concurrence of text and images or the separation?

Image-text and image-context dependence

Many different possibilities exist in terms of the interrelation of text and images.

McCloud (1994) describes how text and images can fall along a spectrum of dependency.

Depending on a creator's purpose, text and images can support the meaning to allow for greater understanding of what is taking place, or text and images can work together to create multiple layers of or even synergistic meaning.

Images as well as text create a context for the succeeding images. How much is asked of the reader to infer and make connections between pictures is a stylistic and intentional decision by the creator, and another technique open for exploration as students align purpose and goals with available techniques and purposes.

Text can also occur as captions, thought bubbles, dialogue bubbles and in many different fonts according to technology and purpose.

Image creation and focus

The style of an image creation creates different experiences for the reader and provides clues to the characters. Less detail provides more opportunity for identification and a friendlier and more universal tone, while more detail can indicate that the character or a particular aspect needs to be recognized as different (McCloud, 1994). Detail of a character can also provide more clues to the setting, or particular aspects about the character, or how that character is viewed from a certain perspective. Images can be caricatures, open, very realistic or photorealistic. Yet each can provide the creator with a wealth of tools for conveying information or creating an experience for the reader.

Implementation

How Should We Begin?

In planning instruction that includes creating comics, teachers should allow for the varied artistic skills of students. Teaming with art teachers can be very helpful and assist the students in developing confidence and creativity in exploring the possibilities of their work (Olsen, 1992). However, teachers can also be aware of and encourage the use of media other than drawing through using magazine cutouts, photographs and available classroom technology.

The goal in providing different approaches to the creative process is to first teach students the different possibilities for developing ideas, and then to allow them to practice and apply the metacognitive and procedural knowledge gained as they create their own comics.

Anderson and Krathwohl's (2001) revised taxonomy highlights the importance of creating as a high level cognitive process. They break the process of creation down into 3 categories: generating, planning, and producing. By understanding that this creative process can include other processes such as apply, analyze and evaluate, teachers can plan instruction to focus on and support these different processes as necessary, as well as include content, procedural and metacognitive knowledge. This taxonomy and understanding of creation presents a new awareness of the depth of possibility for the writing process in a student-centered or workshop classroom environment.

Many of the following techniques can be used to begin the writing and creation process and to support drafting as well as provide opportunities for further insight in the revision processes. All of the techniques can build on one another in any order. Conferencing and student self-assessment may also help build student ability to apply their metacognitive knowledge about strengths and thinking skills to the cognitive process of creating.

What Activities Can Facilitate Creating Comics?

Visualization & Predrawing

Mylan (2002) makes the point that visualization is a process that can be employed to generate, problem-solve and explore at any stage in the writing process. Visualization can be guided as Millstone (1995) describes, or more free and calling on students own exploration of their visual ideas. One important element to remember is to allow ample time for exploration and manifestation before limiting the students to what can be conveyed in their immediate vocabulary and verbal skills. Some possibilities include

- Imagining a scene with guided questions that call for descriptions of look, smell, feel and hearing. Then probe deeper by asking students why those sensations are present.
- Have students draw a scene or series of pictures and then write descriptions or stories that answer probing questions for each frame or provide more detailed descriptions. Olsen (1992) particularly describes the significance of this drawing process in helping students to develop their descriptive writing abilities beyond the repeated conjunctions often characteristic of primary student's work. She suggests that the context of the picture, along with the process of drawing and creating it scaffolds students ability to create more complex descriptions.
- Have students draw detailed depictions of characters. Then, have students imagine and describe what happens when two or three different characters meet.

Storyboarding

Millstone (1995) used this technique in conjunction with visualization to support students' oral storytelling. Olsen suggests a similar technique in terms of graphic narratives. The real empowerment and creativity of this technique, however, comes from McCloud's (1994) discussion of the creator's deliberate decision of how much the reader will need to provide an interpretation or link between images. Possibilities include:

- Have students create two or more images and provide written descriptions of what happens in between
- Have students put given images into an order (whether or not they imply an order) and then create applicable text to give meaning to the order

- As a group, take an image and develop story and images to go before and after. Use an actual board where the class can move images around as new images are created or as the decision is made to provide more visual information between frames. Later, have students write their own versions of the story and allow them to choose which images from the board to include.

Filling-in-the-Blanks

Authors, such as Tompkins (2002) have suggested the use of having students write captions and dialogue to predrawn comics. This technique, however can also involve the use of filling in the visual blanks such as faces or objects as well. This technique can also include student pre-planned or impromptu pantomimes where others provide a narrative or other written explanation. Furthermore, providing students with a dialogue or caption and then having them create images to go along with the text can provide insight for the different ways to interpret and understand text.

Scriptwriting

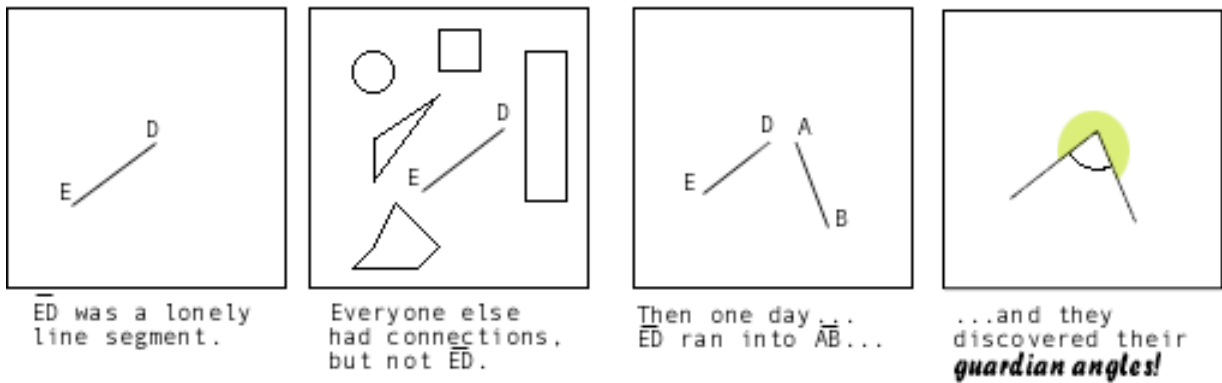
This technique is a more verbal-based approach and can help students with verbal skills develop their visual thinking skills. Scriptwriting can build from the earlier mentioned techniques, but it can also lead into them.

- Have students write a dialogue or joke from imagination or from their memory
- Have students create a characterization chart
- Have students write a plot description

- Have students write concept/ideas for stories in the form of “what would happen if x and y, and then z happened?”

Content Knowledge Integration

The possibilities for integrating content knowledge into the creation of comics are limitless. Teachers can specify content to be contained in an assignment such as in making comics about a particular historical event, retelling a piece of literature, including certain elements about the life cycle of a frog or other science concepts such as habitat and environment, or even mathematics:



Although this example includes a humorous play on words and the geometric understandings of line segments and angles, comics need not be humorous, but can be expository as well. In this creation process, students are able to represent and articulate their understandings of these ideas while also communicating these understandings with each other. Looking closely at the content knowledge contained within this example, we realize that students need to discuss how a line segment is to be represented and if it even

makes sense for it to be a line segment or a line. Other questions to be addressed in the creation of such an example are should a circle be included in the other connections box, and if so, should the wording change? Maybe, ED is not really lonely but bored because he only goes in one direction, or maybe ED just wants to be part of something bigger like a shape. But in the end, ED may just be content knowing that together with AB they create an angle (and not just one either!). The example of these possibilities highlight the importance of a teacher's awareness of the process, discussions and decisions made when assessing and guiding the creation and not just the final product.

How Can Students Create Comics in Collaborative Groups?

Because of the many different elements of visual and verbal interaction in the process of creating comics, the possibility for collaboration is immense. All of the earlier mentioned activities can be employed within the context of collaboration, especially if students need experience and practice developing an idea. Collaboration can also be employed at each stage in the writing process in terms of peer editing, revising, publishing and even drafting and prewriting. Some possibilities include

- Each student in a group creates and owns a character in the strip throughout the whole process
- Students take on roles as scriptwriter, illustrator, and “director.” In this the director’s role can be one of facilitating and also making sure the creative efforts align with stated purposes and plot points.
- Students advise and contribute to each others’ individual comics.

- Students join in the process as a group, deciding how to go about the creation process.

Student collaboration can also be helpful in facilitating oral language skills as students engage in discussing ideas and plans. However, it is important to be aware of group dynamics and the need of some students for visual exploration before the "laborious" process that Einstein identified of having to put ideas into words, even spoken ones.

Assessment

How Can We Assess Comics and the Process of Creation?

The possibilities for assessing student work and progress in the creation of comics are based in large part on formative assessments of the process as well as review of the comics themselves. Factual and conceptual knowledge required for specific assignments, such as a comic strip using a particular habitat, can be assessed through its appearance in the product itself, while procedural and metacognitive knowledge can be assessed through student-teacher conferencing, observation and student self-assessments.

Cognitive processes can be assessed through self-assessments as well as the product itself and oral presentations. Possibilities for assessment include portfolios, checklists, presentations, conferencing and self-assessment.

Assessing comics is two-fold and just as much information can be gained in assessing the process as in the final product. The process gives insight into the students cognitive processes and application of metacognitive and procedural knowledge. The question of what is left out and why is also important, as is the internal dialogue and decision-making

process. Students may struggle over whether or not to make the line a segment, a ray or true mathematical line. The process of this decision can reveal a student's understanding of the differences of these definitions and what factors into a student's final decision such as accuracy or overarching purpose. The process can be assessed through individual discussions, student self-assessment and other methods of reporting about the process, such as journaling, progression of changes, and student presentations. Raney and Hollands make the point that through engaging in talk about their work, students can develop self-evaluative and reflexive skills (2000).

How to assess the final product is another issue which teachers must reconcile with their own philosophies of assessment. Ideally, enough information and awareness is gained through the creation process that the final product assessment is only the next step in the process of ongoing assessment. The real question is, how much knowledge and cognitive skills involved in creating as well as in communication gained in the comics creation process is applied to the next project. By answering this question, growth and development can be assessed as a teacher removes the scaffolds of the creating process and challenges students to grow in their abilities to communicate, create and explore.

What Are Some Assessment Questions?

Following are possible questions to guide assessments and can be adapted to rubrics, checklists or conferencing as necessary. Within the context of the following possible assessment questions, teachers should allow for the student's deliberate decision-making in creating the story. In other words, if a certain element is missing or appears incongruent, seek out the student's reasoning for why it is that way.

- How is the assigned content represented?
- What is the creator's purpose?
- How do words contribute to or support the meaning?
- How do images contribute to or support the meaning?
- How do story elements appear and how are they developed?
- What image styles or word conventions are used and why?
- What narrative techniques are conveyed in images and how are they conveyed?
- How is setting and plot conveyed?
- How is characterization shown?
- How is climax and resolution achieved and shown?
- How are pacing and timing conveyed and how do they support the theme and intent?
- How do text and images work together?
- What is conveyed through the succession of images?
- What is implied between images? How does this affect the meaning?
- What is implied through limited text or dialogue? How does this affect meaning?
- What was most difficult about the process?
- What was the easiest decision to make?
- How did you begin the process? How did you plan?
- What obstacles were encountered and how did you respond?
- What changed between beginning ideas and final product?
- Why did you choose to make the images the way you did?

Within the context of assessing development, it is important to understand the reasoning behind a student's decision to choose one image style over another or a certain amount of words over another. In other words, in some cases, a stick figure or limited text is the most appropriate. Teachers can use conferencing and an awareness of student purpose to recognize this and give value to the student's ability to align visual and verbal methods with purpose.

More Information: Bibliography

Theory Resources

Dyc, G. & Milligan, C. (2000) Native American Visual Vocabulary: Ways of Thinking and Living. Proceedings National Association of Native American Studies section in *National Association of African American Studies & National Association of Hispanic and Latino Studies: 2000 Literature Monograph Series*. (ERIC Document Reproduction Service No. ED454010) This is a particularly interesting discussion of how a culture can influence visual thinking and understandings.

Eisner, E. W. (1992, August) *The Role of Education in the Cultural and Artistic Development of the Individual*. Paper presented at the UNESCO International Conference on Education, 43rd Session, Geneva, Switzerland, September 14-19, 1992. (ERIC Document Reproduction Service No. ED367586) Eisner presents a valuable awareness of the role of art in education and outlines his perceptions of where the cultural and artistic development of students has fallen short throughout the western world.

Harvard Project Zero. (2000) *Project SUMIT*. Retrieved June 3, 2003 from Harvard University, Harvard Project Zero Web site: <http://pzweb.harvard.edu/sumit/> This site is a particularly relevant site for educators interested in how Multiple Intelligence theory impacts schools and the research for effective implementation.

Hedley, C.N., Hedley, W.E., & Baratta, A. N. (1994) Visual Thinking and Literacy. In *Literacy: A Redefinition* (pp109-126). Hillsdale, NJ: Lawrence Erlbaum Associates. This exploration of the necessity of visual thinking and how it relates to learning and problem-solving highlights ways in which teachers can bring visual thinking skills into the classroom.

Hobbs, C. L. (2002) Learning From the Past: Verbal and Visual Literacy in Early Modern Rhetoric and Writing Pedagogy. In K. S. Fleckenstein, L. T. Calendrillo & D. A. Worley (Eds.), *Language and Image in the Reading-Writing Classroom* (pp. 27-

- 44). Mahwah: NJ: Lawrence Erlbaum Associates. Hobbs provides an interesting examination of how visual and verbal literacy split in the development of education and describes the value of reintegrating these two literacies.
- LaPierre, S. D. (1992, April). *The Professional Artist's Thinking Style: An In-Depth Study*. Paper presented at the Annual Meeting of the National Art Education Association, Phoenix, AZ. (ERIC Document Reproduction Service No. ED349219)
- LaPierre conducts this exploration of spatial reasoning and spatial intelligence through interviewing professional artists and noting and categorizing their perceptions and experiences. She provides an informative discussion of spatial reasoning and the implications these understandings have for learning and teaching.
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- Millard, E. (1997) *Differently Literate: Boys, Girls and the Schooling of Literacy*. Washington, DC: The Falmer Press. Especially relevant for teachers who may be interested in the gender differences associated with genre and reading preferences as well as issues of teaching style and how it can be relevant to student gender and learning.
- Oates, J.C. (2001) To Invigorate Literary Mind, Start Moving Literary Feet. In New York Times (Ed.) *Writers on Writing: Collected Essays from the New York Times*. (pp. 165-171) New York: Times Books. Joyce Carol Oates describes her visual process of developing and nurturing an idea for writing through walking, as if through a movie or the setting of the book. She presents some interesting inspirations and accounts of how visualization can work in relation to writing.
- Stahl, L. (2003, June, 15) The Magic Behind Harry Potter. *60 Minutes*. Retrieved June 16, 2003 from <http://www.cbsnews.com/stories/2003/06/12/60minutes/main558428.shtml> In this report of Stahl's interview with J.K. Rowling in anticipation of the release of the fifth Harry Potter book, *Harry Potter and the Order of the Phoenix*, Stahl describes how drawing contributes to J.K.Rowling's writing process.
- Winner, E. & Hetland, L. (Eds.). (2003). *The Arts and Academic Achievement: What the Evidence Shows, Executive Summary* (Full Set of Articles Published in The Journal of Aesthetic Education University of Illinois Press Volume 34, nos. 3/4, Fall/Winter, 2000). Retrieved June 3, 2003 from <http://pzweb.harvard.edu/Research/Reap/REAPExecSum.htm> This summary describes the significance and importance of arts in education and how it can be relevant to academic achievement.

Comics Resources

Law, D. A., *Creating Comics*. Retrieved July 12, 2003 from <http://www.members.shaw.ca/creatingcomics/index.htm> This site is a wealth of resources applicable to all levels of comics creators. Along with many articles and information on writing, illustrating, techniques and publishing options, this site includes links to other sites about creating comics and creators themselves as well as a listing of applicable books and magazines. The research listing is of particular relevance to those interested in integrating content knowledge into the comics creation process, and is a useful starting place to any kind of Internet research.

McCloud, S. *Scottmcccloud.com*. Retrieved June 23, 2003 from <http://www.scottmcccloud.com/index.html>. McCloud's site has a wealth of explorations of the potentials of comics. His online comics especially are good examples of the creativity and possibilities for creation, and are also very informative for understanding the art of communicating through comics. His inventions section is particularly interesting for individuals interested in his innovations developing this art form and how it is conceived.

McCloud, S. (1994). *Understanding Comics: The Invisible Art*. New York: HarperCollins. This is a valuable resource for understanding what comics are, their significance and how comics convey information. What teachers may find most valuable however, is McCloud's ability to use the medium of comics to explain the depth and possibilities of comics in a concise, straightforward and thought-provoking manner.

McCloud, S. (2001). *Reinventing Comics: How Imagination and Technology Are Revolutionizing and Art Form*. New York: HarperCollins. This follow-up to McCloud's earlier work does an excellent job of describing how technology innovations along with demographically expanding interest provides a wealth of opportunity for redefining what comics as a medium of image communication can be. It may be particularly interesting to teachers who, either through access to technology or high interest from older students, want to explore the possibilities of this art form.

United Media. *Comics.com*. Retrieved July 12, 2003 from <http://www.comics.com>. This site, owned by United Media, is a listing and archive of recently published comic strips and editorial cartoons. It includes a categorized index of recent comics as well as listing of comics exclusive to the Internet.

Wright, B. (2001). *Comic Book Nation: The Transformation of Youth Culture in America*. Baltimore, MD: Johns Hopkins University Press. This is an excellent resource for understanding the history, development and significance of comics. It may be particularly interesting for teachers who may want to understand more of

the connotations of comics in larger society as well as for teachers who want to understand more of how comics has addressed the needs and interests of children, adolescents and adults.

Planning Resources

- Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001) *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. New York: Addison Wesley Longman. This is an excellent resource for teachers to examine the higher level thinking skills involved the cognitive process of creation. The taxonomy matrix provides a method for setting, meeting and assessing objectives within the process of creation.
- Burmark, L. (2002). *Visual Literacy: Learn to See, See to Learn*. Alexandria, VA: Association for Supervision and Curriculum Development. Burmark not only articulates the value of visual communication in education, but discusses how to facilitate and include visual communication in the traditional curriculum.
- Hughey, J. (2001) *Teaching Children to Write*. Upper Saddle River, NJ: Prentice-Hall. Hughey presents interesting articulations of how the illustrating process can support and enhance story and writing development.
- Millstone, D. H. (1995) *An Elementary Odyssey: Teaching Ancient Civilization Through Story*. Portsmouth, NH: Heinemann. Millstone describes how the art of storytelling and visualization along with multi-age student collaboration recreated his unit on Ancient Greece and inspired the development of creative, writing and storytelling skills in his students.
- Moffett, J., & Wagner, B.J. (1991). *Student-Centered Language Arts, K-12*. Portsmouth, NH: Boynton Cook Publishers. This resource has many different ideas for creating and conducting a writing program that makes use of comics in the writing process and developing language arts skills.
- Mylan, S. A. (2002) Sight and Insight: Mental Imagery and Visual Thinking in the Composition Classroom. In K. S. Fleckenstein, L. T. Calendrillo & D. A. Worley (Eds.), *Language and Image in the Reading-Writing Classroom* (pp. 71-83). Mahwah, NJ: Lawrence Erlbaum Associates. This is an excellent resource for understanding how to facilitate visualization in the writing process and exploring how visual thinking can promote the development of insight.
- Olsen, J. (1992) *Envisioning Writing: toward an integration of drawing and writing*. Portsmouth, NH: Heinemann. Olsen describes her theories of understanding how drawing can support and enrich writing, as well as providing specific examples and details of how she has used this integration in early elementary classrooms.

- Raney, R. & Hollands, H. (2000) Art education and talk: from modernist silence to postmodern chatter. In Selton-Green, J. & Sinker, R. (Eds.), *Evaluating Creativity* (Ch. 2, pp. 16-42). New York: Routledge. Raney and Holland discuss the value of talk and the benefits of making visual-verbal connections in art education specifically, but with implications for assessment and conferencing for all teachers.
- Richardson, J. (1987) Reaching Reactive Writers: Using Pictures for Writing. In G. E. Tompkins & C. Goss (Eds.), *Write Angles: Strategies for Teaching Composition* (pp. 43-46). Oklahoma City, OK: Oklahoma Writing Project. This is an interesting account of how one teacher found that using pictures and visual thinking addressed a challenge she experienced in teaching descriptive writing to students.
- Tompkins, G. (2002) *Language Arts: Content and Teaching Strategies* (5th ed.). Upper Saddle River, NJ: Merrill Prentice Hall. This text provides an articulation of the value of visual language arts and examples for how they could be incorporated.
- Tompkins, G. (1987) An Untapped Writing Resource: Wordless Picture Books. In G. E. Tompkins & C. Goss (Eds.), *Write Angles: Strategies for Teaching Composition* (pp. 75-82). Oklahoma City, OK: Oklahoma Writing Project. Tompkins suggests how childhood picture books, which are included in the definition and understanding of the graphic narrative and comics, can be used to facilitate the writing process.
- Walker, P. P. (1993) *Bring in the Arts: Lessons in Dramatics, Art, and Story Writing for Elementary and Middle School Classrooms*. Portsmouth, NH: Heinemann. This is an interesting resource especially for teachers interested in collaborating with art or drama teachers for understanding how these processes can support student development in writing and visual thinking.

Chapter 4

Teacher Resource Web Site Benefits

Web Site Format Benefits

The creation of a web site means that teachers can access the resource at any point in the process of implementing a program of creating comics in the classroom. The site is specifically designed to be concise and clear, presenting an overview of important points and opportunities for further investigation through the availability of the project's reference list and a categorized annotated bibliography as well. The benefit of this kind of resource is that it is cost-effective for teachers who already have access to the internet and can be updated, making the updated version available to everyone. The limitations of a web site are two-fold: not all teachers access and search the internet regularly, and the utility of a web site is limited to how easy it is to find on the internet. Search engines make this process easier, as does the inclusion of descriptive meta-tags. The circulation of a site is also well served through the networking nature of the Internet, in which large portal subject-categorized sites or respected independent subject-specific sites contain annotated lists of links relative to a visitor's interest.

Creating Comics Benefits

The benefit to teachers for understanding and reviewing the information in this resource includes an understanding of the value of visual-verbal connections in a student's thinking and creation process. Whether or not a teacher chooses to implement a full-fledged comics creation program, the awareness of student differences and ways to meet those needs through facilitating visual thinking skills can enhance the teacher's ability to differentiate. Furthermore, an awareness of how schools value verbal over

visual communication skills, can equip teachers to help students develop ways to translate their visual thinking into verbal articulations. An awareness of visual thinking can help teachers build on student strengths and help students to develop their visual thinking abilities and the development of insight and creative problem-solving.

Because comics can be defined broadly, teachers can also use the creation of comics in different content areas to engage students in the specific content knowledge. The National Council of Math Teachers has specifically articulated the value of different student representations and articulations of solutions and understandings for the benefit of developing deeper understandings of mathematical concepts, teacher awareness of student conceptions and peer conceptual understanding. Bringing the creation of comics into the mathematics curriculum provides an opportunity to enable students with limited verbal skills to engage in this process as well.

Students specifically can benefit through the integration of creating comics in the classroom through the differentiation opportunities and the higher level cognitive processes of creation as articulated by Anderson and Krahtwohl's revised taxonomy. Not only can creating comics be a project that investigates the skills of evaluate, analyze, apply and create, but it can also be a project that enables the use and development of visual thinking skills and scaffold verbal development. Mylan (2002) cites specific studies that show the importance of visual thinking skills in solving problems that require the use of insight, while Raney and Hollands (2000) suggest the value of talking about artwork in student development of self-evaluative and reflexive ability. Olsen (1992) also documents examples of how primary students' writing can change from endless conjunctions in the attempt to convey depth, to more complex descriptions after using the

drawing process to explore the visual conception and idea. Once again we return to Einstein's reflections on his own thought processes to recognize that understanding and hypothesizing can exist in a sophisticated manner beyond the linguistic realm. Certainly language shapes thought, but so do visual conceptions. Enabling students to continue to engage in content, creation and communication by building on their visual skills in support of their verbal abilities opens up the possibility for students to experience the relevancy of their thinking skills and visual hypotheses to their own education and exploration of the world. Comics, by nature of the broad definition, equips students to integrate their verbal and visual skills, thus building both. By understanding the possibilities and depth of comics as an art form and communication tool, teachers can begin to facilitate this form in the classroom in a way that equips students to develop and express their visual thinking sophistication.

Traditional education has made the assumption that to be taken seriously, students need to develop the ability to convey their ideas completely without the use of images as they develop their thinking abilities. Yet, we value images in textbooks and other methods of communication to increase understanding. The suggestion that this project makes is that by continuing the practice of simultaneous visual and verbal communication beyond the early primary grades as student thinking and concepts become more sophisticated, we are better able to equip students to bring their strengths and skills to the classroom and better able to develop their abilities. In other words, we are more capable of making students able to use their visual and verbal skills in a symbiotic relationship in which both visual and verbal abilities benefit. Burmark (2002) herself suggests the value of understanding this relationship as symbiotic. By recognizing

how comics can be representations of student visual thinking, knowledge and conceptions as well as a process by which students explore their own ideas and communication, teachers can enable students to engage in the ultimate show and tell, much more sophisticated and complex than the traditional understanding of it, and yet supportive of the presentation, visual thinking and insight skills students are capable of developing and which can help them succeed in higher education.

Chapter 5

Next Steps

As teachers become more aware of the possibilities that the medium of comics can provide, more action research is needed to show how well the use of creating comics develops students writing and thinking abilities, as well as what specific points are more useful than others in developing an effective program. The research suggests that integrating visual and verbal connections provides benefits to all students and enhances their conceptual abilities and insight as well as developing communication skills. Little research exists however, for how a program of creating comics can specifically accomplish these ends. What creating comics does, is build from the skills developed in early primary grades rather than attempting to put visual communication back into a program after it has been devalued and left undeveloped. Many of the researchers and curriculum planners referenced in this paper identify this gap that can be filled by the sophistication that professional comics creators recognize in their craft. The access of technology in the classroom can support the creation of comics, but it is not necessary. What is necessary, are teachers who are willing to build methods from student strengths and interest and are aware of how visual thinking can be sophisticated and valuable to the learning and writing process. Collaboration with art teachers is certainly ideal in such a program.

As teachers understand more of how creating comics can meet the needs of their differentiation and higher level thinking goals, a broad dialogue is needed whereby the use of comics can be explored in the actual classroom and teachers can revise and

reinvent their methods of making visual-verbal connections and enabling more students to experience success and engage in their own dialogue of learning.

One challenge in all of this for teachers is the recognition that they will need to use and develop their own visual thinking and communication skills. Within this context, we must come to the recognition that most teachers have experienced success in education through their linguistic abilities. Consequently, the teacher may need to risk taking a journey and engaging in the challenge of self-development concurrent with the students' journeys. Teacher education programs can assist in this process by challenging teachers to develop their own visual thinking skills through reflection on their own thinking skills as well as creating products that integrate visual and verbal skills. These methods include creating comics in the broad context understood here and even as applied to ESL education as described by McKoski (2000) and Dyc & Milligan (2000). Other projects that can develop visual-verbal connections and visual thinking skills include web sites, film and slide presentations, all of which are beneficial presentation skills for the classroom and can help teachers to engage in the higher level cognitive process of creating something unique and innovative.

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