Transformation through Technology: How HyperStudio Updated Middle School Research

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I've got an idea,” I said. We both smiled. Like most teachers, we’re always full of ideas in August before school starts. We were sketching out our school year and had come to a discussion of our eighth grade research project. While we valued many aspects of the project, we were dissatisfied with the end product the students produced. At a brief demonstration the previous spring, we had seen HyperStudio, a multi-media computer program that enables users to present information using an integration of text, images, and effects; we suspected that HyperStudio might be just right for revamping our eighth grade research project, but we had absolutely no experience using the technology—and certainly no experience teaching it. To our surprise, however, we, a pair of middle school English teachers, successfully revised a traditional research project by using HyperStudio. This article assumes a reader who may be unfamiliar, as we were, with such technology and attempts to provide an encouraging model for how computer technology can be used to enhance research presentation, foster collaboration, and serve multiple learning styles.

The Original Project

Several years ago a group of middle school English teachers discovered an article in English Journal entitled “‘I-Search a Word’: Reclaiming the Library’s Reference Section” (January 1990) in which Gaylen Karle Anderson describes her adaptation of Ken Macrorie’s “I-Search” paper. In Anderson’s adaptation, students chose an abstract noun (love, jealousy, joy, curiosity, etc.) and used a variety of sources to investigate how a word has been used in different contexts throughout time in order to write a paper of extended definition. The sources that Anderson’s students used went beyond the typical encyclopedias to include an unabridged dictionary, a book of quotations, concordances to the Bible and Shakespeare, the Oxford English Dictionary, and Granger’s Index to Poetry. Mary Jane and her colleagues felt that the research approach Anderson described would provide the kinds of experiences and growth they had in mind for their students, one suitable for making a transition from an introductory library skills class to more rigorous high school research.

In our first modified version of the project, which we call “Word Search,” our middle school students submitted a two-part portfolio instead of writing a paper, as Anderson’s high school students had done. The first part of this portfolio consisted of bibliographic entries and specific information about their abstract noun. The second part consisted of response logs, journal-like entries that included students’ reactions and reflections on the research process and on the choices and discoveries they had made. For example, for the entry from Granger’s Index to Poetry, students included the bibliographic information about a poem they found that uses their noun, as well as a copy of that poem. Then they wrote a response log about the process of choosing their poem. In addition to the portfolio,
as a way to share their projects with a larger audience, students gave short oral presentations about their words, which included visual representations, which they showed and explained to the class.

We were quite pleased with the research part of the project. The students discovered a world of reference books beyond encyclopedias, and their experiences with these materials built confidence in their ability to use all kinds of library resources. Just exposing students to the existence of such formidable-looking books as the *OED* verified for them in a very concrete and visual way that words do have histories and multiple meanings. In addition, students clearly enjoyed the freedom to choose a favorite quotation or poem and were highly engaged, sharing their discoveries and frustrations freely and taking pride in being the expert on their words. The informal response logs provided an effective way for eighth graders to reflect on their own learning and make sense of the research.

However, the final product of this research was anticlimactic and dissatisfying. In oral presentations, the students worked hard to explain what they found interesting about their words, but the presentations felt somewhat perfunctory, and the student audience found them monotonous. Though we informally displayed the completed portfolios, we found few students interested in thumbing through them to benefit from their peers’ research. Despite the collaboration that took place during the project, the bulk of the work ended up essentially with an audience of one: the teacher.

When we saw HyperStudio being used in the computer class, we thought about its potential to improve the word search project. As with a stack of cards, only one hypercard is visible at a time, and the rest are “under” it in the stack. To enable users to move among cards on the computer monitor, students add “buttons” that can be shaped like arrows or include text that informs readers where they will go by clicking the button with the mouse. Similarly, students can also make words or icons “hot,” which means that clicking on the “hot” item causes a sound or visual effect to occur.

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A particular advantage of HyperStudio is that it allows for work to be done in stages so that important text can be completed before students get involved in creating effects and elaborate designs. We required that text be completed first, not because we considered the effects, pictures, and colors to be unimportant, but because we predicted that students might tend to work more on this part of the project than they would on the text. Our rubric, presented below, demonstrates that we consider the text on each card—the bibliographic and other information about each source that they used—to be an important part of the overall grade of the project, since it represents the library research that is still the basis for this project.
Rationale

To us, HyperStudio is more than a flashy way to draw students into the word search assignment; it enhances our research project in several important ways. First, it provides experience with computers that goes beyond word processing. In interfacing design technology, links, and text, students gain a wide range of experience. According to our technology coordinator, who helped us learn and troubleshoot HyperStudio, when used as authoring tools, such multimedia platforms can enable learners to be manipulators and disseminators of information. In doing so, students move from being passive consumers and users to very active designers and producers of that information. In creating a stack of cards about their abstract nouns, our students are creating and communicating meaning through design, color, sound, text, and graphics.

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HyperStudio also stimulates and highlights multiple intelligences and learning styles. While text is part of the presentation, students go far beyond linguistic analysis of their word in using HyperStudio. They are called to convey meaning without words, too. Students use spatial and logical intelligence to lay out their pages and visually depict their abstract noun. They create and manipulate effects to add to their reader's understanding of the meaning of their word. Additionally, HyperStudio's flexibility encourages experimentation and risk-taking, as students can try out and evaluate effects before making them permanent. After putting important text in place, students may also work at their own pace and according to their own sense of design logic. Finally, HyperStudio stimulates both interpersonal and intrapersonal intelligences; it allows both collaboration and independent decision-making, as students work together but ultimately maintain control over their individual projects.

Collaboration plays out on many levels of the project. As teachers, we demonstrated the professional reality and benefits of collaboration as we visibly worked with each other, the school librarian, and the technology coordinator on the project. Similarly, we modeled collaborative learning with our students; we have found that students often have an intuitive or adventurous sense of what HyperStudio can do, since many have grown up around computers and Internet technology. In both the library and computer parts of the project, the students' constant interaction gave those with strengths and interests not always evident in the classroom time to show their expertise. Since library activities could be completed in any order, students who had completed one activity became expert on using that source and often worked with others. In the computer lab, students moved back and forth, asking questions, working with each other's stacks in progress. They also collaborated with their potential audience as they were called to think about what the audience might need to interact with their hyperstacks. This awareness of how audience should shape writing and presentations helps in other subject areas, as well as in other English assignments.

Assessing the Project

Before we presented the HyperStudio project to our students, we knew it was important for us to conceptualize how we would assess it. If we wanted to give recommendations about how they should spend their time, it was important that they (and we) understand the relative value of each part of this multifaceted project. Since we wanted the HyperStudio stack to be a real part of the project, not just a frill, we knew we needed to grade it as rigorously as the bibliographic information. As was our usual practice, we worked together to develop a rubric for our students, which would serve both to guide them and to clarify our expectations to ourselves.

We wanted to give weight to the bibliographic content on the hypercards and to the quality of the written response logs, but we also wanted to assess the use students had made of the HyperStudio platform. We turned to our technology coordinator, who helped us develop our criteria for assessing a HyperStudio stack. We developed a detailed rubric (see Appendix) that we explained to
students before they began the project. We focus on explaining the “Consistency and Design” and “Cover Card” sections in the most depth, since we assume they might be the most unfamiliar to the reader.

We decided that valuing consistency would encourage our students to make principled decisions about their stacks rather than just playing around with all the possibilities—the literal bells and whistles—that the program affords. A number of criteria in the Consistency and Design section focus our students on making the stacks user friendly. The location of navigation buttons and the style and color of fonts are both factors that control the ease with which the user may interact with, maneuver in, appreciate, and understand the hyperstack.

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For our project, we also require that “Bibliographic text boxes show all information without requiring scrolling.” In HyperStudio, text is added to cards by creating a text box on the card and then typing the words into it. If the text box is too small, the reader must use scrolling arrows and the mouse to read all of the text. Since our students had to include only limited written text, they made accessing the information easier for the user by making the text boxes large enough to hold all text without scrolling. To return to the note card metaphor, this instruction is similar to telling students to limit their reference information to only one side of the note card to ensure that the cards are easy to use.

As explained above, in HyperStudio, information is organized like a stack of cards. With the click of a mouse on a button, users move from one card to another. Creators of the hyperstack have several options for how that transition from card to card will be made. One card can fade out as another fades in, or it can fade in a circle, or in an asymmetrical, rain-like manner. Sound effects, from noises to music to recorded voices, can also accompany these transitions. Again, we wanted students to use these effects in a consistent manner to promote user friendliness and to encourage critical decision-making about which effects worked best for their words, so we required that “Transitions are consistent except where used for special effects” to remind students to think carefully about what type of transition would contribute to the meaning of their words.

The New Project

One of our goals for the project is to create an environment where students can work independently and make some choices about how to organize their time. To avoid a free-for-all, we provide some structure and orientation that ensures that they will complete their projects on schedule. At the beginning, we provide and explain several reference handouts. A “Library Activities” handout details the requirements of each of the eight research activities to be completed. The “Response Log” handout describes the format, purpose, and nature of the logs and lists general and specific questions for students to consider. We also give and explain the “Evaluation Criteria Checklist” and a room and deadline schedule showing students when to be in the library, when to be in the computer lab, and when each response log is due.

We have learned through past experience that just showing students the reference materials and explaining how to use them is ineffective, frustrating, and boring. Instead, we set up a series of orientation stations for guided hands-on experience with sources that are unfamiliar, such as the concordance to Shakespeare. Using the practice word “patience” at each station and working with a partner as we and the librarian circulate to answer questions, students find the reference sources less intimidating. The time and effort spent on these orientation exercises increases student confidence and independence.

After two days of orientation, we schedule five class periods in the library to complete research and five class periods in the computer lab to work on hyperstacks. We have found that there is excitement and spontaneous sharing during the course of the research, as students stop to show
their classmates and us some fascinating, outrageous, or comical discovery they’ve made. We often hear “Oh my gosh, look at this!” Students have even reported that they have copied poems and quotations to share with their friends. We have found all kinds of discussions come up—discussions of poems, plays, Bible characters, and ideas. Naturally, to us, these are moments to be savored, as the students’ individual interests are sparked and the I-Search philosophy and format allows them to pursue what is personally interesting to them and share it immediately in an informal, collegial setting.

We give students two class periods to begin researching their own word before we take them to the computer lab to begin their hyperstacks. Luckily, students do not have to complete their library activities in order to begin their hyperstack. We provide explicit directions about how to begin the stack, and we also provide a printed template, which the students use to set up their HyperStudio cards. The template is a picture of a basic card showing how many text boxes need to go on each card, a brief description of what should go in each box, and the location and direction of navigation buttons. Once students have set up their stack of nine cards—a cover card and one card for each research activity—they are ready to transfer information from their notes into the text boxes. To ensure that reasonable attention be given to bibliographic citations, we insist that all navigation buttons, text boxes, and pertinent text be in place before students begin the creative process of adding color, sound effects, etc.

The template is only a very basic starting point, though, and the students quickly personalize and embellish their cards with images, sounds, colors, and effects, which add to the meaning of the words in the text boxes. Here we learned a great deal from our students and they from each other. For instance, one student discovered how to record her voice reading a poem, and others, including us, were quick to say, “How’d you do that?” Soon, students had also figured out how to manipulate the recorded voice to make it slow, mysterious, high-pitched, or silly. In creating their stacks, our students taught us all about HyperStudio, about using a scanner, and about importing images from other programs and Web sites.

When the projects are complete, we set aside a day for students to interact with others’ stacks. This day is much more successful than our old three days of oral presentations. Students sit in pairs or small groups at computers to interact with the stacks, and the atmosphere is one of collegiality, enthusiasm, and spontaneity, as students recommend stacks for each other to view, exclaim over interesting information or computer effects, and give copious oral feedback on the work. In the future, we hope to include a way—perhaps an extra card for each stack—for users to record their impressions and feedback more permanently.

**Student and Teacher Conclusions**

The HyperStudio word search project has become a highlight of our eighth grade English curriculum. In transforming our project, we exceeded our hopes of finding a better way for students to present their research. We met personal goals of becoming more adept at using technology and making our own learning more transparent for our students. More importantly, though, the students have responded with enthusiasm. While they stress that the project challenged them to organize their time and their research materials, they also say they “love” the independence, creativity, and sharing that the project allows. They refer to the stacks and their projects months later and ask to show the stacks to visitors. The use of HyperStudio has enabled us to keep and expand on what we liked about our research project: student decision-making, collaboration, work with new research materials, personal reflection on process and learning, increased understanding of the complexity of language, and transition to more rigorous research that the project promotes. HyperStudio also provides classroom experience with technology and design, allows for individual attention to students, stimulates and values multiple intelligences and ways of learning, and stresses to students that research does not necessarily result in a written paper for one teacher-reader.

While “Word Search” might not be for everyone, we have tried to provide a model for how to revamp an existing research project using HyperStudio or other multimedia authoring tools. We transformed our research project, and in doing so, we transformed ourselves into teachers who are more confident in using technology. As we have shared our project with others in the school, we sense that our colleagues, knowing us well, seem to think, “If they can do it, I can do it.” As we made our own learning transparent for our students, we shared...
our authority and allowed students to become confident collaborators instead of passive learners. Our experience with this project has convinced us that technology, as intimidating as it can feel at first, can enable teachers to experience and model lifelong, collaborative learning from and with students.

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Appendix:

Word Search Project Evaluation Criteria Checklist

Content (40 points)
- The bibliographic information is typed in the correct form, using correct punctuation, and provides all relevant information.
- Each card contains the necessary text boxes, buttons, and titles.
- Stack contains all nine cards.

Consistency and Design (16 points)
- Navigation buttons are easy to understand and use because of their location and consistency.
- Style and color of fonts used are consistent and easy to read.
- Placement of text items is consistent from card to card, except where altered for purposeful special effects.
- Bibliographic text boxes show all information without requiring scrolling.
- Transitions are consistent, except where used for special effects.
- Information is organized in a clear, simple, and consistent way, making it easy for the user to navigate and read.
- Careful use of color(s) is consistent with and complementary to the information in the stack.
- Color, fonts, borders, and other effects complement the word researched.

Cover Card (6 points)
- Cover contains student's name and the word.
- Choice, style, and placement of font present a visual impression of the word.
- Colors used complement the word.
- Any effects and/or illustrations used complement and illustrate the word.
- The presence of any effects requiring user interaction is indicated by instructions.

Response Logs (48 points)
- Logs demonstrate effort to understand and reflect seriously upon topic.
- Logs are appropriate length (one FULL page) and follow format given in Response Log handout.
- Logs show evidence of proofreading and editing.

Grand Total (110 points)