Making Thinking Visible: Enhancing Media Literacy Instruction

Design Study Report

Eric Bailey & Peter Worth
Learning, Design & Technology
Stanford University School of Education
Prof. Daniel Schwartz
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Abstract

Making Thinking Visible is a technological pursuit at enhancing instructional practice in media literacy for middle school learners. The technology and activities were designed as facilitating agents in the deconstruction of video media towards a critical analysis of its methods and meanings. We chose key functions of this solution, ones enabling scanning, segmenting, and magnification of a media text, as the subjects of an evaluative experiment to prove the solution’s effectiveness over traditional methods. The study, undertaken with a group of 7th grade learners, was aimed at evaluating the effects of this technology on their development of an analysis and understanding of a video text. To this end, we designed two conditions, a traditional one in which learners performed an analysis on a music video using VCR, paper, and pencil, and the other using video analysis software. We assessed and compared the results of the analysis activity in each condition, as well as results from comprehension tests administered before and after the treatment. Our experiment rendered mixed results such that scores amongst items within the pre and post-tests varied, as they did amongst items in the analytical exercise. Of note, our technological treatment rendered higher scores in accuracy and citation (examples), but lower ones in the areas of opinion and depth. Although these findings did not confirm our original hypothesis, they did illuminate potential insights on the uses of such technologies, in particular, as preparatory exercises, preceding and supporting traditional media literacy instruction. A more comprehensive study should focus on identifying and designing more effective measures of critical analysis, as it should pursue greater control between the conditions.
Introduction

Contemporary media literacy instruction falls primarily into two categories: production and analysis. Production affords learners an understanding of the constructed nature of media through the experience of authoring original media messages. The process generally entails creative exercises in which learners brainstorm, generate, manipulate, compile and compose complete communicative pieces. Analysis aims at providing an understanding of media through critical examinations of the theoretical, communicative, persuasive, social and technical underpinnings of existing media. Analyses generally entail exercises in which learners view, review and generate discourse around the general and particular qualities of a media mode or message. In the field, it is widely understood that both production and analysis instruction are necessary for learners to gain a comprehensive understanding of media (Hobbs & Frost, 2003).

Unfortunately, as reflected during our initial research on current practice in middle schools, clear learning outcomes from analysis exercises prove to be elusive for many teachers. Young learners are not demonstrating critical thinking skills during their analyses, and have difficulty seeing and understanding the more abstract ideas communicated by media. For example, when asked to identify the target audience of a particular commercial, young learners will cite the children depicted in the commercial as examples of the audience. They will not, however, be able to make the inference that children are persuasive instruments within that message, and that the advertisement is actually directed at parents. This is the main problem we wanted to explore.

It is our belief that more manipulative, production-like analytical exercises would support young learners in performing higher-level critical thinking tasks. In particular, through exercises in which learners can visually scrutinize a media text, we believe they will be able to see
principles in action. Additionally, we believe the ability to physically deconstruct and then reflect on portions of a media text will provide young learners insight into the various meanings of that text. We believe that technologies that allow for such scrutiny and deconstruction will produce higher learning outcomes and more comprehensive analyses than technologies that allow for reflection alone.

To test this hypothesis we designed an experiment around the effectiveness of two sets of technology used in the critical analysis of a music video. The first set entails viewing the video with a VCR on television. Notations and the development of ideas were enabled through use of paper and pencil. These technologies are traditionally used in the class for media analysis, and served as a control for our comparison (Condition C). The second set of technologies entails a laptop computer and DIVER- video analysis software allowing learners to watch a complete video text, capture segments or stills of that text, and attach typed notations to each capture. DIVER also enables learners to zoom focus into portions of the text’s image area. These technologies comprised our treatment condition (Condition T), as we proposed this scenario would enhance current instruction. The primary focus of our experiment was to evaluate the differences between the two in their effectiveness in supporting learners’ critical analyses. To this end, we compared the results of participants’ analyses from each condition. It was also our aim to compare their effectiveness in promoting a sophisticated understanding of the text- to evaluate their learning. To accomplish this, we attempted to measure learners’ understanding of the text before and after the conditions, and compared the change in each group.

**General Description**

The experiment was conducted with a 7th grade class of language arts students at a local middle school. The students were introduced to media literacy concepts earlier in the year and
had subsequently participated in critical analysis exercises—viewing media and discussing/writing reflections on their meaning. The teacher generally facilitated these analytical exercises, prompting students for reflection and probing them for their understandings. Our study was designed to reflect this model of instruction and followed an established pattern of viewing, reflective exercise and written analysis around a popular music video by the Notorious B.I.G. entitled “Sky’s the Limit”. After an initial general discussion, the participants watched the three-minute segment of the music video as a group.

Measuring Learning

As mentioned, one of our experimental objectives was to measure the effect of each technological condition on the participants’ learning. We subsequently implemented a set of tests, one before and one after the two conditions. The purpose of the pre-test was to measure participants’ initial ability to recognize overt messages within the video, as well as messages implicitly communicated by its depictions; the identical post-test was meant to evaluate improvement in recognition, or an evolved understanding of those messages. Test questions consisted of a 7-point response scale from strong agreement to strong disagreement with statements about potential messages communicated by the video, and focused on two message types: overt, or explicit, and implicit, or subtext.

Measuring Production (Analysis)

The primary focus of our study was on evaluating the effect of each technological condition on learners’ ability to produce deep critical analyses. All participants watched and were exposed to the explicit and implicit messages communicated by “Sky’s the Limit”, but it was our expectation that, supported by digital technologies (Condition T), learners would develop more effective analyses. In order to test our hypothesis, we designed an analytical
activity that could be performed in both Condition C and Condition T and whose outcomes could be fairly compared. Both condition groups worked in pairs, except for one group in Condition C that included three participants. The activity entailed a series of questions at increasing levels of difficulty. Questions asked participants of each group to remember and give examples of depictions within the video that substantiated an identified overt message. Secondly, participants were asked to cite examples that did not fit the overt message. Finally, they were asked to infer the rationale for the existence of both types of depictions, and the use of children in those depictions. Through that inference, it was hoped that students would come to understand an unidentified, contradictory implicit message.

In Condition C, the exercise entailed repeated viewing of the music video on television. Participants were presented with paper worksheets to complete their analysis. Although participants worked in pairs to develop their analyses, they wrote their responses on paper separately. Participants in Condition T watched a digitized version of the music video in DIVER. Unlike Condition C, the treatment condition did allow for participants to scan through the video at any speed, watch it frame by frame, zoom focus into portions of the image area, and capture segments of the clip. Participants had to type answers into text fields provided within the DIVER interface, and used captured segments as citations when answering questions.

In order to evaluate the written analyses from both groups, we, in tandem with the teacher, developed a 5-point rubric with four categories of achievement: opinion, depth of argument, accuracy of information, examples, and completeness. Because of concerns about correlation of variables and time, we eliminated completeness from our analysis.
Following their completion of the activity, the two groups joined to watch “Sky’s the Limit” a final time on the television. To conclude the experiment, they were administered and completed the post-test. We returned the following week to review the activity with the teacher.

Methods

Our experiment entailed two sessions taking place over the course of two days. Session 1 was conducted on Wed, May 5 at 11:00 am, and lasted 90 minutes. Session 2 was conducted the following day during the same period for 90 minutes. The class’s instructor participated as a facilitator throughout both sessions, as did two researchers from our team.

Participants

The participants in our experiment consisted of 21 seventh-grade students. Eleven students participated in our treatment condition; all worked in groups of two, excluding an individual who completed the assignment alone. Ten students participated in the control condition. All but one group worked in pairs, with the exception consisting of three members. Unfortunately, we believe that one of the students in the control group on day one joined the treatment group for day two, unbeknownst to the teacher or researchers. As such, we have eliminated her data from this report.

Materials

The first three-minutes of the music video “Sky’s the Limit”, by Notorious B.I.G., was recorded on VHS tape and presented to students on a 24” television set at the front of the classroom. This same video segment was digitized for use during the treatment activity carried out in DIVER. DIVER’s video viewing area is approximately 394 x 296 pixels, but can be maximized to fill the 15” laptop screen. An assessment was administered to the participants before and after the condition activities. The two tests were comprised of multiple-choice
questions and were identical with the exception of the inclusion of a motivation/engagement survey question on the second (see appendix 1 & 2). During the activity, participants in Condition C worked at their desks and were provided pencils or pens for writing. All questions were provided on paper worksheets (appendix 3), as was space for written responses. Comparably, groups in Condition T worked on laptops, and one DIVER document was administered to each group (appendix 4). Text fields in the DIVER interface were preloaded with questions, and DIVER offers unlimited number of text fields for typed responses.

**Design**

Our experiment was designed to isolate and compare the effect of two technological conditions (participants’ access to, control over and experiences with the video text on young participants’ learning and critical analysis. We attempted to control for other variables, such as teacher input and prior knowledge through our study design. In doing so we created identical, or similar scenarios by which both conditions were prepared for their activity: grouping them together during the introduction discussion, the initial video viewing and the pre-test. We did the same while administering the final viewing and post-activity assessment (Figure 1).

(Fig. 1. Design study model)
The control and treatment conditions differed such that the materials available to the learners to review the video and to complete their analyses were either television and paper and pencil/pen, or the functionality of DIVER. In Condition C, participants were able to watch “Sky’s the Limit” in its entirety three times sequentially. They were not able to stop or pause the video, and their answers and examples were recorded on paper. In contrast, Condition T afforded participants the opportunity to watch the video any number of times and to any extent. Participants were able to pause the clip, to scan through it in forward or in reverse, to watch frame by frame, and to separate stills or portions of it for reference. Condition T was encouraged to use captured segments and stills as example material in answering their questions, and their responses were typed.

Procedure

Our experiment began with an introduction of the basic concepts of video production by the instructor. She explained the generalities of the exercise and engaged the students in a discussion on video production. She prompted them to think of experiences they had creating video, and the processes it entailed. After this introductory discussion, the entire group watched the 3-minute clip of “Sky’s the Limit”, and completed the pre-test to record their initial understanding of the messages communicated in the music video.

Condition T participants then left the classroom while Condition C remained. There, the teacher served as a facilitator for the condition- her responsibilities were limited to explaining the assignment, clarifying details of the assignment and reminding the group of the time remaining to complete the assignment. She divided Condition C participants into groups of two and provided them individual paper worksheets for the activity. Participants worked together,
discussing and then answering the worksheet questions. All students completed the activity during class time on the first day (Session 1).

Condition T was conducted in a separate classroom in which two laptop computers were stationed for completion of the exercise. As only two pairs could perform the activity at one time, the remaining Condition T participants worked on another unrelated assignment during the session. On the first day, there was only sufficient time for two groups to complete the assignment. During session two, the following day, the remaining students completed the assignment in two rounds. In this last session, one student completed the assignment without a partner. As in the day before, participants not involved in the activity worked separately on an unrelated assignment. During the activity, Condition T participants worked together, viewing, discussing and answering questions. Because they worked in pairs at a single laptop station, one member in each group conducted the majority of typing and perusing the video. Participants did generally take turns scanning and zooming in, more than they did typing.

During the second day, after both conditions had completed their assignment, the class regrouped to watch the music video one more time. The post-activity assessment was administered to the group immediately following, and upon its completion, Session 2, the final session, was concluded.

Coding

We had three coding schemes for each of the three measures: the overt message questions; the implicit message questions; and the activity. On the pre- and post-tests, item #5 featured a question, “How much do you agree or disagree that this video communicates the message that…,” followed by a series of statements (see appendix 1 & 2). This item was intended to measure the degree to which students understood both levels of message. We divided the statements into two categories, overt or explicit (b,c,d,g,j,l,m,n) and subtext or implicit
(a,e,h,k). There were two types of overt answers, those statements for which the audio and video seemed to be in agreement, such as “People are happiest when they own a lot of things,” and those where neither the audio nor video seemed to communicate that message, such as “You don’t have to own anything to be happy.” Students answered on a scale of agreement from one to seven. In order to accommodate for people’s interpretation of scales, we divided that scale into three sections: high, middle, and low. If a student’s response fell into the section in which the correct answer lay, she or he would be scored as correct (1). If the answer fell into one of the other sections, she or he would be coded as incorrect (0). We then found their mean score change between the pre- and post-tests.

The questions that illuminated the contradiction in messages such as “Everyone can grow up to be what they want,” were classified as subtext, because students would be required to make a judgment of which element, audio or video, should be considered dominant in that particular message. These required a more complex coding scheme. For each answer, we established a scale ranking which would indicate that the learner had understood the message in the subtext. We then coded for their movement toward or away from the correct answer between the pre- and post-tests. For example, on the answer, “Everyone can grow up to be what they want,” we expected a deeper understanding of the subtext of the video to cause students to disagree that that was the message of the video. Thus, their answer should be lower on the scale. If their answer moved lower on the post-test, they scored a 1. If it stayed the same, they scored a 0. If it moved higher, toward “agree,” they received a -1.

Results for the 30-minute analysis activity, where the treatment group participated in a guided analysis activity using video analysis software and the control group answered similar questions on paper, were less variable, and reveal some interesting findings. The activities were
scored on a 5-point rubric (see appendix 5), which was co-designed with the classroom teacher. She scored all of the computer artifacts and worksheets according to the rubric. In her grading memo she explained to us that a 3 in any category represented to her average work. A 5 would usually be attainable only with revision and teacher help, which were unavailable due to the design of this study. No students received a 1, and one student received a 5 in one category.

**Results**

**Overview**

Overall we found mixed results, both on the pre- and post-test scores and on the teacher-scored thirty-minute analysis activity. Pre- and post-test items which tested understanding of the overt messages in the video showed small gains in both treatments. Those items which tested understanding of the less-obvious subtext showed no consistency across the items. The thirty-minute analysis activity showed higher scores for the treatment group in the areas of examples and accuracy, and higher scores for the control in the areas of opinion and depth. Additionally, we had concerns with the reliability of our critical thinking measures for the pre- and post-tests.

**Pre- and Post-Test**

The music video analyzed by the students featured song lyrics stating that people can achieve whatever they want in life provided that they keep trying. The visuals, however, portrayed only two very wealthy and powerful people (played by children) living a life of opulent luxury, and being served and celebrated by staff and fans (also played by children), and doing no work of any kind. We determined that the song lyrics presented the overt message, but that the inclusion of children playing both the wealthy and servant roles presented a subtext that success is not available to everyone. Our hypothesis was that through careful guided analysis of the audio and video, students would begin to develop an awareness of the subtext.
On the overt message questions, student answers were scored as correct if they fell in the correct third of the 7-point scale. On these questions, both the treatment and control groups made gains between the pre- and post-tests (fig. 2 & 3). For the control group, the mean change in score out of a total of eight possible points was 0.45 points or 5.56% (1.44 on pretest, 1.89 on posttest). For the treatment group, the mean change in score was 0.33 points, or 4.17% (2.11 on pretest, 2.44 on posttest). Scores ranged between 0 and 7 correct for the control group and 0 and 6 correct for the treatment, with a standard deviation of 2.45 for the control and 1.79 for the treatment. Although the teacher divided the class via stratified randomization into two equal groups, the treatment group started the activity about 8% higher on the pretest.

(Fig. 2, Mean score on pretest and posttest, overt/explicit message.)
The “subtext” items, intended to measure students’ understanding of the mixed messages of the video showed that overall, the control group made a slight mean score gain of 0.03 out of 4. The treatment group had a decrease in mean of 0.22 out of 4 (fig. 4).

Analysis of the individual test items in this category (fig. 5) reveals that most items show either a small decrease or no change between the pre- and post-tests, but that there is little consistency among the items. Two items showed changes greater than 0.25 points. On answer a,
“Everyone can achieve the American Dream,” the desired answer would have shown that the video did not present that message. The treatment group decreased in their answer 0.56 points, while the control only decreased 0.22. On answer e, “Some people become successful. Some people don’t,” the desired answer would have been that the video did present that message. The treatment group showed no change on this item, but the control increased by 0.44.

(Fig. 5, Mean scores- understanding of Subtext/Implicit messages.)

Although we began with 11 students in the treatment group and 10 in the control, we eliminated the data from one member in each group because they misinterpreted the item as a multiple choice question, and rather than rate their agreement level with each factor, simply circled one of the statements. As mentioned earlier, there seems to have been a problem with another subject, who may have actually participated in both conditions. This left us with pre- and post-test scores for 9 students in each condition. For this reason, it may be useful to look more closely at the individual learners. In the control group of 9 students, scores for 3 went up (one by 87.5%), 3 went down, and 4 remained the same. For the treatment group of 9, 4 went up, 2 went down, and 3 remained the same.
Analysis Activity

Overall, the rubrics showed means ranging from just below 3 to approaching 3.5 (fig. 5.) The rubrics showed split results between the areas of specificity of examples and accuracy on the one hand, and statement of opinion and depth on the other. In the two categories of examples and accuracy, the treatment group scored higher than the control. The control group’s mean score for examples was 2.75, while the treatment scored 3.10. The example score included the students’ ability to cite specific examples from the video in support of an opinion. The accuracy score refers to the correctness of the student responses. For example, one student in the control group wrote about a character called the “chain man,” who made jewelry. This character does not actually appear in the video, and such a response therefore receives a lower accuracy score. Students in the control group scored a mean of 3.00 for accuracy, compared with 3.30 for the treatment group. The teacher reported a greater ability to understand the examples chosen by the treatment group students.

Roughly the opposite results occurred for the scoring factors of stating an opinion and depth of response. Students in the control group received for opinion 3.38, while the treatment group scored 3.00. For depth, the control scored 3.25, while the treatment scored 2.80. The factor of opinion was scored based on the students’ stating an opinion about the video, as opposed to pure description. Depth scores referred to the degree to which the teacher felt that her students had seen past the explicit message of the video to look at more implicit messages and some of the cultural issues relevant to the video.

In her written notes accompanying the scores, the teacher commented on the difficulty of assessing visual information, as opposed to writing, with which she is more familiar as an English teacher. She also mentioned that, although she used the same rubric for both groups, she
“tended to put more weight on questions 2-3” for the treatment group, because she felt that the students in that group had had difficulty working independently on questions 4-6. She explained that she “got more articulate answers on questions 4-6 from the TV (control) group,” which she felt might be due in part to the fact that “they are not used to using the software or being asked to give answers in that format (images and words).”

(Fig. 6, Mean rubric scores for activity, as scored by teacher.)

Discussion

Our initial results suggest that the intervention had, at best, mixed success in our goal of using manipulative, production-like analysis activities to build critical thinking skills. The most reliable results come from the analysis activity, rather than the pre- and post-tests. However, there are several factors which may lead us to believe that our study design and measures may not have been adequate to either facilitate such analysis or to record the results.
Pretest and Posttest

Our expectation was that the process of guided viewing of a music video, coupled with the ability to manipulate the video text in a production-like fashion, would lead students to more developed critical analysis skills. In fact, our pre- and post-test measures showed wide variance among students in both conditions. While some students made dramatic gains, others decreased. Although the overall trend for interpreting the overt or explicit message was up, the implicit subtext results showed better understanding on the pretest than the posttest for the treatment group. One explanation for this is simply that our solution and theory were incorrect—being able to manipulate a video through a guided, structured activity does not enhance one’s analysis of it. While this is a possibility, there were several other problems with the study which we believe may have been critical corrupting factors. These factors include problems inherent to the study design, which will be discussed below, but it is important to note here some problems with our measures.

Critical thinking is a complex task, and as we state in our learning problem, it can be difficult to assess. The opinion scale question (#5) was an ineffective measure for a few reasons. First, the wording of the question may have been confusing. The question asks the degree to which students agree that “this video communicates this message.” There may have been confusion over the issue of whether we were asking whether they personally agreed with the statement, rather than determining the point of view of the video. Another issue related to wording was the open-endedness of “this video communicates the message that.” We ask the students to rate their level of agreement, but not the degree to which one of the messages might be the primary or secondary message. Thus, the measure becomes open to interpretation by the students, and given the scale, there is no space for explanation of that interpretation. The scale
gave us further issues in coding, where, because there was no room for defense, it is possible that students who actually had done a strong analysis got the question wrong, and vice versa. Another critical issue with the pretest and posttest is that we operationalized analysis as interpreting messages, but we never explicitly taught the students about messages, or how they might be communicated through a text. While we featured a brief mention of it in the teacher-led discussion at the beginning, it was in the context of student choices in making videos. Our activity focused on identifying characters and understanding the rationale for their inclusion, but it might be too far a leap to expect students to translate that into the overall message of the piece. Essentially, our instrument was designed to measure learning, but activity, designed for use without teacher participation, was not designed to teach.

Activity

A more telling but still somewhat problematic measure was the actual analysis activity that the students completed. Here, using written (and visual for the treatment group) examples and explanations, students were able to more clearly express their answers to questions about the characters. As an assessable artifact, the analysis activity gave the teacher more to work with. Through the images chosen and their accompanying explanations, the teacher was able to determine rubric scores for their work in the areas of example, accuracy, opinion, and depth. That she found more specific and accurate examples in the treatment group can be credited to their close manipulation, re-viewing, and ability to capture images and clips directly from the text. They had more access to the resource, and seemed to use it. The control group had to rely on memory from three viewings, and as such had less specific examples.

Related to our hypothesis was the idea that such detailed examples would lead to better analysis, but the teacher did not find this to be true. In fact, the students in the control group
answered questions about the message of the video in more depth than did the treatment group. Again, there are a few possible explanations for why this occurred. As above, one is that our hypothesis is simply mistaken. It is possible that there is something about the process of writing or the distance between subject of analysis and the writing that helps students form more complex analyses. Perhaps segmenting and close examination hinder a sense of the overall meaning. These are possible explanations, but given the number of flaws we have found in the assessment and measures, the hypothesis should not be discounted until another study is run. We will discuss the necessary improvements below.

General Discussion

Our learning problem reflects the difficulty that middle school students have with meeting the state content standards in media analysis and critical thinking. Initial assessment of our solution yielded mixed results, but given the small sample size and wide variance of results, it is possible that the measures we designed for assessing critical thinking skills were insufficient to such a complex task. Further studies are necessary to determine the effectiveness of the Making Thinking Visible instructional plan, and guide redesign efforts.

Improvements

There are several improvements which should be made to the assessment in order to obtain more reliable results. As mentioned earlier, better measures of critical thinking skills are needed, but a two-period study is also probably an unrealistic testing ground for such a complex process, especially given that we were only able to give each pair of students 30 minutes to complete the analysis activity. Thus, the first improvement would be to expand the time available. This includes both the amount of time allotted for a given task, and the number of days in the classroom. Most students were engaged in the early parts of the activity. The video was
about three minutes long. After watching it and spending about five minutes getting accustomed to the software, they were comfortably searching through the video, looking for and capturing appropriate clips and stills, but they had already used about a third of their time. For all six groups we had to encourage them to rush at the end. They spent the majority of their time on the sections related to selecting examples, and those were the areas in which they excelled. Given more time to complete the analysis questions, they might have had time to apply those examples toward forming an opinion showing more depth of understanding.

The issue of time is also relevant in that the treatment group was using a new technology. Although they seemed to work out the basic functionality fairly quickly, most groups continued to ask for some type of help at least once during the activity. The teacher mentioned in her notes that the new technology may have required students to think in an unfamiliar way, that is visually, rather than verbally. She believed that, with practice, the students would become more adept at thinking in this way. “With more practice and opportunities to manipulate images,” she wrote, “the Diver group (treatment) would have broken through on 4-6 (the analysis questions) more than they did.” A longer study would allow for that to happen.

There were also two key environmental factors which may have had an impact on the study: the presence or absence of the teacher and the location of the activity. The control group experienced the activity in their own classroom, with their teacher present. The treatment group went with the two researchers into a separate classroom to work. Being in a familiar environment with their own teacher may have helped the students in the control group to be more comfortable and focused, while the treatment group may have felt unsettled by being in a new environment with strangers. However, the opposite could have been true. The treatment group might have been more engaged and excited to try the new technology, or at least to be outside of class for a
few minutes. The control group might have been disappointed to have been left behind while the other students were doing something novel. Ultimately, we can not know what the effect was, but making the two conditions more similar should be a priority for the next study.

The most challenging improvement may be in the area of designing quantifiable measures of critical thinking skills. Our open-ended attempt left too much room for interpretation in coding, and little understanding of the students’ actual rationales for their points of view. It also did not account for students becoming successful at multiple levels. For example, if a student went from having no understanding of the meaning of the video to understanding the overt, explicit message, they might receive no points, even though that is significant progress toward understanding. The only way to be coded for having a correct answer was to be able to identify the subtext. This may not be realistic or meaningful in a class of mixed abilities, where a teacher is working to advance every student. One method for assessing this type of thinking in a quantifiable way would be to use multiple choice questions that specifically ask about explicit and implicit messages, as well as author’s purpose. This would be similar to reading comprehension questions on standardized tests. Another option would be to forgo the pretest and posttest and focus on the activity. A redesigned rubric might be able to more specifically target certain types of learning.

Finally, a new assessment will require a more authentic situation with increased teacher involvement. We designed the first assessment in an effort to test the technology solution only, without “interference” from the teacher. Our concern was that involving the teacher in the lesson would disrupt the experimental nature of the conditions, given that some students might receive additional assistance. Reappraisal of this decision raises the question of how we can authentically assess our solution unless it is used in the context for which it was designed. Guidance and
direction from teachers is part of the design. In our discussion of the computer artifacts from the assessment, the teacher pointed to a student comment and said, “That’s where I would want to ask them to explain…to push further.” We need an assessment situation that allows for that to happen.

Implications

Making Thinking Visible is designed to address a very real need for enhancement of learning of critical thinking skills in media literacy. Renee Hobbs’ (2003) work in this area points to the challenge of assessing media literacy work, and suggests an approach that integrates media literacy principles throughout the curriculum. From our study, we can assert that reliable measures for assessing process and thinking skills must be developed. More assessment is needed, but our initial study of Making Thinking Visible indicates that new technological solutions, rooted in solid educational theory and integrated into instructional practice, might provide some assistance to learners in enabling a closer analysis through more detailed examples. In short, by “seeing more,” they are on firmer ground to begin analysis.
Reference

Appendix 1: Pretest

Number___________________________
Date ______________________

1. What do you like about this video?

2. What do you dislike about this video?

3. What is the song about?

4. How many decisions do you think the director made to create this video? Explain.

5. How much do agree or disagree that this video communicates the message that…

   (Circle the number that matches your answer.)

   Strongly disagree   1  2  3  4  5  6  7
   Strongly agree

   a. Everyone can achieve the American Dream. 1  2  3  4  5  6  7
   b. It takes talent to become good at making music. 1  2  3  4  5  6  7
   c. People should not be judged by appearances. 1  2  3  4  5  6  7
   d. People are happiest when they own a lot of things. 1  2  3  4  5  6  7
   e. Some people become successful. Some people don’t. 1  2  3  4  5  6  7
   f. If you work hard you will achieve great wealth. 1  2  3  4  5  6  7
   g. You can judge a person’s value by how much they own. 1  2  3  4  5  6  7
   h. It takes a lot of hard work to become successful. 1  2  3  4  5  6  7
   i. Nothing can stop you from being wealthy. 1  2  3  4  5  6  7
   j. You don’t have to own anything to be happy. 1  2  3  4  5  6  7
   k. Everyone can grow up to be what they want. 1  2  3  4  5  6  7
   l. When you are wealthy, you should share it with friends. 1  2  3  4  5  6  7
   m. Everyone can be equal. 1  2  3  4  5  6  7
   n. You can judge a person by how they treat other people. 1  2  3  4  5  6  7

6. Why are kids used in this video?

7. Why is the song entitled, “Sky’s the Limit”? Explain your answer.
1. What do you like about this video?

2. What do you dislike about this video?

3. What is the song about?

4. How many decisions do you think the director made to create this video? Explain.

5. How much do agree or disagree that this video communicates the message that…
   (Circle the number that matches your answer.)
<table>
<thead>
<tr>
<th>Number</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>
   o. Everyone can achieve the American Dream.   | 1     2   3 | 4   5 | 6   7 |
   p. It takes talent to become good at making music. | 1     2   3 | 4   5 | 6   7 |
   q. People should not be judged by appearances. | 1     2   3 | 4   5 | 6   7 |
   r. People are happiest when they own a lot of things. | 1     2   3 | 4   5 | 6   7 |
   s. Some people become successful. Some people don’t. | 1     2   3 | 4   5 | 6   7 |
   t. If you work hard you will achieve great wealth. | 1     2   3 | 4   5 | 6   7 |
   u. You can judge a person’s value by how much they own. | 1     2   3 | 4   5 | 6   7 |
   v. It takes a lot of hard work to become successful. | 1     2   3 | 4   5 | 6   7 |
   w. Nothing can stop you from being wealthy. | 1     2   3 | 4   5 | 6   7 |
   x. You don’t have to own anything to be happy. | 1     2   3 | 4   5 | 6   7 |
   y. Everyone can grow up to be what they want. | 1     2   3 | 4   5 | 6   7 |
   z. When you are wealthy, you should share it with friends. | 1     2   3 | 4   5 | 6   7 |
   aa. Everyone can be equal. | 1     2   3 | 4   5 | 6   7 |
   bb. You can judge a person by how they treat other people. | 1     2   3 | 4   5 | 6   7 |

6. Why are kids used in this video?

7. Why is the song entitled, “Sky’s the Limit”? Explain your answer.

8. On a sale of 1-10 (1= not at all, 10= extremely), how much did you enjoy this activity?
Media Literacy and Music Videos

Work in pairs to answer the following questions. (More questions on back.)

1. Think of the chorus and title of the song. What is it saying?

2. Choose 5 people in the video that seem to fit the words of the chorus. Choose at least two examples for each person and explain how they show that the “Sky’s the limit” for these 5 people.

3. Choose 5 people in the video that seem not to fit those words. Choose at least two examples for each and explain why you think they don’t fit the chorus.

4. Why do you think the director chose to show these 5 people for each group? Explain using words and, if you choose, pictures.

5. Why do you think the director chose kids for those roles?

6. What observations did you make that you think are important, but that you were not asked about?
### Appendix 4: Activity Rubric

<table>
<thead>
<tr>
<th>Assessment factor for overall analysis</th>
<th>Overall score</th>
</tr>
</thead>
<tbody>
<tr>
<td>States opinion</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Specific examples</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Complete</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Depth of thinking</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Accuracy</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>
mTv: making Thinking visible

Design Study Assessment DRAFT

STRUCTURE

Treatment group
  Teacher intro > View > Pretest > DIVER-based Activity > View > Posttest

Control group
  Teacher intro > View > Pretest > Worksheet Activity > View > Posttest

STUDENTS
  25 Seventh graders
    12 in treatment group (working in pairs)
    13 in control group (working in pairs + one trio)

TEACHER

EQUIPMENT
  2 laptops with DIVER
  1 TV with VCR

TIME
  Wednesday, May 5, 11:00 A.M.-12:30 P.M.
  Thursday, May 6, 11:00 A.M.-12:50 P.M.
  Friday, May 7, 11:00 A.M.-12:50 P.M.

LESSON OBJECTIVE
Students will deconstruct a music video and infer the values behind the inclusion of the element of *children* in the text.
- Students will learn that media is constructed.
- Students will learn that media messages and images contain value statements.

MEASURES
  Multiple-choice test of content
  Short-answer analysis questions (to be scored by teacher)
  Motivation/Engagement survey

INTRO
Ask class who has made a video, or seen how one was made. Record responses.
- How did they do it? What went into it? How long did it take?
- Why did they make a video?
- How did they decide what they wanted it to mean?
- When they were done, did it mean what they wanted?

(Raise concept of media as construction/communicator of values?)
Explain that today we are going to look at a short video and pay close attention to the choices that were made, what they mean, and why they’re there.

**PRE-TEST**
Watch Video (x1? x2?)
Take pretest (to be written)

<table>
<thead>
<tr>
<th>ACTIVITY (for treatment group)</th>
<th>ACTIVITY (for control group)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background: Explain use of DIVER</td>
<td>Teacher gives students a list of focus questions as they begin to watch the video again.</td>
</tr>
<tr>
<td>The following activities occur within the DIVER interface.</td>
<td>Working in pairs, they answer the following questions on paper.</td>
</tr>
<tr>
<td>1. View clip in DIVER</td>
<td>1. What different types of characters are in the video? Write or draw, and label the types you choose.</td>
</tr>
<tr>
<td>2. Identify different types of characters in the video. Mark or label the types you chose.</td>
<td>2. Classify the characters according to their significance in the video. Whose point of view, or voice, is heard? Whose is not? Who is considered important?</td>
</tr>
<tr>
<td>3. Classify the characters according to their significance in the video. Consider point of view, and who has a voice, who does not, and how important those voices seem to be. Hint- What are the characters’ jobs?</td>
<td>Hint- What are the characters’ jobs?</td>
</tr>
<tr>
<td>4. (Marker set at the chorus: “Sky’s the limit and you know that you keep on; just keep on pressin’ on…you can have what you want, be what you want.”) Listen closely to the audio. What is it saying? a. ) Choose 5 people in the video that seem to fit those words. Choose and explain examples that show why the “Sky’s the limit” for them. b. ) Choose 5 people in the video that seem not to fit those words. Choose and explain examples that show why you think they don’t fit the chorus.</td>
<td>3. Think of the chorus and title of the song. What is it saying? a. ) Choose 5 people in the video that seem to fit those words. Choose and explain examples that show why the “Sky’s the limit” for them. b. ) Choose 5 people in the video that seem not to fit those words. Choose and explain examples that show why you think they don’t fit the chorus.</td>
</tr>
<tr>
<td>5. What does it mean to have kids playing these roles? Explain using words and, if you choose, pictures. (This question is meant to get at the values inherent in the message.)</td>
<td>4. What does it mean to have kids playing these roles? Explain using words and, if you choose, pictures. (This question is meant to get at the values inherent in the message.)</td>
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</tbody>
</table>

**POST TEST**
View video 1x
Complete post test (to be written- Post test will ask more directly about the value messages in the video.)