The emotional impact of song lyrics depends on the reader and the type of text

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What makes a text enjoyable and memorable? This question leads you to believe that it is properties of the text itself that generate the impact that text has on the reader. This is certainly true; however, there are other factors to consider. What about properties of the reader, including his or her experiences and cognitive abilities? What about aspects of the reading situation, including the goals and the context under which the text is being read? In what way do we evaluate memory and impact? The purpose of this ongoing research project is to investigate interactions among the type of text, the reader, and the reading context on how enjoyable and memorable the text is.

In this study, we investigated the impact of song lyrics using the framework of the tetrahedral model (Jenkins, 1979; Snow, 2002). The tetrahedral model is a framework for researching comprehension and memory that investigates four factors simultaneously: the stimulus (or text), the reader, the context or instructions given to the reader, and the type of task that taps comprehension and memory.

For the current study, we manipulated each of the four factors in the following ways:

Text

The text manipulation was ambiguous or clear song lyrics. Song lyrics were chosen because they are personally relevant and interesting to the population of interest. Also, song lyrics should evoke comparatively equivalent background knowledge and expertise compared to poetry or other forms of literature. The songs were defined as ambiguous or clear based on ratings obtained from a prior norming study.

Reader

Cognitive flexibility was chosen as the measure of individual differences. Cognitive flexibility was defined as the ability to solve novel problems or look at the same stimulus in multiple ways. Cognitive flexibility was a composite measure of three tests: The ATTA (Adult Torrance Test Abbreviated, Goff & Torrance, 2002), two sub-scales (the similarities and matrix sub-scales) from the WASI (Weschler Abbreviated Test of Intelligence, The Psychological Corporation, 1999), and the Openness scale from the NEO five factor personality inventory (Costa & McRae, 1991).

Instructions

Readers were given instructions to produce a different number of interpretations after they read each song. Specifically, there were three conditions 1) just move on to the next song, b) produce 1 correct interpretation, or c) produce as many interpretations as possible. In this condition, participants were required to produce at least two interpretations of each song.

Task

The dependent measures in this study were reading times per syllable, memory as measured by a free recall and a cloze procedure (fill in the blanks) task, and enjoyment ratings of each song on a 6 point scale.

The most general prediction was that there would be complex interactions; that performance on the dependent measures could not simply be explained by main effects. This prediction follows Schmidt's (1982) polyvalence assumption, as well as empirical work by Cupchik (1998) and McNamara & Kintsch (1996).

Methods

Participants

Twelve students enrolled in undergraduate psychology courses at the University of Memphis participated to fulfill a course requirement.

Materials

Texts. Six songs were selected for the experiment. The songs were selected on the basis of ambiguity and familiarity ratings collected in a prior norming study.

Memory. The materials for the memory portion of the experiment consisted of 2 packets with 6 pages in each, one packet for the free recall task, the other for the cloze task. For the free recall task, there were 6 blank pages with the song title on top followed by the instructions**:** "Now, try to recall as much of the song lyrics as you can. Write down all that you remember in the space provided. Be sure to write down everything that you remember. Take your time." For the cloze procedure, participants were presented with a copy of the exact song lyrics , with blanks substituted for 10 of the words. All missing words were content words (36 nouns, 19 verbs, 5 adjectives).

Enjoyment Scales. For the enjoyment scales, participants were given a packet of 6 pages. Each page contained the title followed by 2 questions: "Did you enjoy the lyrics to this song" and "How familiar are you with the song lyrics?" Participants rated each song on a 6-point scale.

Cognitive flexibility. Two sub-tests of the Weschler Abbreviated Scale of Intelligence, WASI (The Psychological Corporation, 1999): the similarities and the matrix portions. The similarities task asked participants to state how two objects or ideas were similar to each other. For example, the experimenter would ask the subject "How are grapes and strawberries alike" or "How are capitalism and socialism alike" The entire section of the similarities sub-test is oral. The matrix sub-scale required the subject to look at a series of pictures with a piece missing from each. The participant had to identify the missing piece from 5 choices based on the pattern formed by the picture.

The Adult Torrance Test Abbreviated (ATTA, Goff & Torrance, 2002) is a test of creative thinking ability. The test includes 3 sections: the first requires verbal responses and the other 2 require figural responses. The instructions for the verbal test were to "Just suppose that you could walk on air or fly without being in an airplane or similar vehicle. What problems might that create? List as many as you can in the space provided." The 2 figural sections required the

participants to complete some incomplete drawings. Each section of the test is timed at 3 minutes. The instructions for each section are given both orally and in writing.

Finally, the openness portion NEO Five Factor Personality Inventory (Costa & McRae, 1991) consists of 12 statements from the personality inventory that deal with openness. Participants were asked to rate each statement on a 5 point scale indicating their agreement or disagreement with the statement.

Procedure

Participants were randomly assigned to produce no, one, or many interpretations of each song. They were given their instructions both orally by the experimenter and in writing on the computer screen. Participants were told they were going to read a number of song lyrics and after each song, their task was to 1) go on to the next song, 2) give 1 correct interpretation of the song, or 3) give as many interpretations of the song as possible. Participants were told that at least 2 interpretations were required.

Songs were presented on a computer screen one phrase at a time. Participants pressed the space bar to continue to next phrase. Song presentation was random. Participants were instructed to take as much time as they needed to read the songs. After each song was finished, the words “Next Song” appeared in red letters. At this point, the subject wrote his or her interpretations (or just moved on to the next song in the no interpretation condition).

After all songs were completed, then the free recall task was administered. Participants were presented with packet of six pages, one page per song. Each page contained the song title and instructions on the top, followed by space to write what they remembered from the song. The songs in the recall packet were presented in random order.

After the participant finished recalling all 6 songs, then the cloze procedure was administered. A packet of 6 pages, one page per song, was administered to the participant. Each page contained a copy of the song lyrics, with 10 blanks per page. The songs in the cloze procedure packet were presented in random order.

Immediately after the cloze procedure was completed, the enjoyment scales were administered. A packet of 6 pages, one page per song, was administered to the participant. Each page contained 2 questions**:** “Did you enjoy the lyrics to this song?” and “How familiar are you with the lyrics?.” The questions were followed by the 6-point scale.

Finally, the tests of individual differences were administered. The tests were presented to the participants in random order.

Results and Discussion

A 3 (number of interpretations) x 2 (high vs. low cognitive flexibility) x 2 (ambiguous vs. clear lyrics) mixed ANOVA was performed on these data. Number of interpretations and cognitive flexibility were between subjects factors, whereas lyric style (ambiguous vs. clear) was manipulated within subjects. For

brevity, only significant results are reported. Means for each of the dependent variables across the number of interpretations are broken down by high vs. low cognitive flexibility in Tables 1 and 2.

Reading times

There was a significant interaction between cognitive flexibility and number of interpretations. The means for high cognitive flexibility were 323 msecs. per syllable in the no interpretation condition, 533 msecs. per syllable in the one interpretation condition, and 393 msecs. per syllable in the many interpretations condition. The means for low cognitive flexibility participants were 401 msecs. per syllable in the no interpretation condition, 354 msecs. per syllable in the one interpretation condition, and 563 msecs. per syllable in the many interpretations condition.

These data indicate that those with high cognitive flexibility struggled to produce one correct interpretation whereas those with low cognitive flexibility struggled to produce multiple interpretations.

Free Recall

There were no significant effects with free recall as the dependent measure. However, marginally significant main effects were found for type of text and cognitive flexibility. Clear texts were recalled slightly better than ambiguous texts. The means were 9.14% recall for clear texts and 5.76% recall for ambiguous texts. Because clear lyrics tended to tell a predictable story, it may be that the script constrained the word choice and yielded higher recall (see Rubin, 1995). Also, high flexibility participants recalled slightly more than low flexibility participants. High flexibility participants recalled 9.44% of the material vs. 5.46% for low flexibility participants.

Cloze

There was a marginally significant interaction between type of text and number of interpretations. The means for the ambiguous texts were 11.7% recall for the no interpretation condition, 25% for the one interpretation condition, and 28.3% for the many interpretations condition. The means for the clear texts were 18.3% recall for the no interpretation condition, 25% for the one interpretation condition, and 17.5% for the many interpretations condition. Producing more interpretations seemed to help with memory for ambiguous texts, but did not seem to affect clear texts.

Enjoyment

There was an interaction between cognitive flexibility and instruction on the ratings of enjoyment. The means for high cognitive flexibility were 3.6 for the no interpretation condition, 3.0 for the one interpretation condition, and 3.3 for the many interpretation condition. The means for low cognitive flexibility were 5.0 for the no interpretation condition, 2.4 for the one interpretation condition, and 3.0 for the many interpretation condition. Instruction didn’t seem to affect enjoyment for high cognitive flexibility students, but did have a significant effect for low cognitive flexibility students.

In general, complex interactions were found throughout the data, demonstrating the need to look at multiple factors simultaneously and not just rely on main effects based on simple text manipulations.

High flexibility and low flexibility readers demonstrated different patterns. High flexibility readers worked harder to produce 1 interpretation, as evidenced by the increased reading times in the single interpretation condition. This struggle does pay off for the high flexibility readers; memory increases as time per syllable increases. Enjoyment of the lyrics does not seem to be influenced by the task demands for those with high cognitive flexibility. In contrast, low flexibility readers performed the worst in the condition that they spent the most cognitive effort. For low flexibility readers, the most time was spent reading texts in the many interpretation condition, but memory for these texts was significantly worse that the no interpretation condition. Low flexibility readers enjoyed texts significantly better when no structured reading task was introduced.

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Table 1

Comparing the dependent variables: Means across the high flexibility participants only

	Reading Time per syllable	Free Recall	Cloze Procedure	Enjoyment Rating
No Interpretation	323	6.8%	21.7%	3.6
One Interpretation	533	11.4%	35.8%	3.0
Many Interpretations	393	10.1%	26.7%	3.3

Table 2

Comparing the dependent variables: Means across the low flexibility participants only

	Reading Time per syllable	Free Recall	Cloze Procedure	Enjoyment Rating
No Interpretation	401	5.8%	18.3%	5.0
One Interpretation	354	6.6%	14.2%	2.4
Many Interpretations	563	3.9%	9.2%	3.1