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Is nostalgia a mixed emotion? Evidence from emotional experience and facial expressions of emotion

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Abstract

The existence of mixed emotions has become a controversial topic in the field of social psychology, and there have been numerous studies over the past few decades in an effort to uncover the truth about mixed emotions (Larsen & McGraw, 2014; Hepper, Ritchie, Sedikides & Wildschut, 2011). One emotion that has been thought to be a mixed emotion is nostalgia (Sedikides, Wildschut, Arndt & Routledge, 2008). Nostalgia has not been very thoroughly studied, and this study seeks to discern what nostalgia is and how it is elicited. In the study, psychology students from the University of Tennessee watched cartoons that were popular in the 1990s and early 2000s and recent cartoons. 68 psychology students watched a total of 7 cartoons: 4 recent, or control, cartoons and 3 nostalgic cartoons. The participants rated the intensity of their happy, sad, neutral, and nostalgic feelings towards the cartoons. In addition, their facial reactions towards the cartoons were covertly recorded and rated as happy, sad, neutral, or nostalgic by independent coders. Participants consistently reported experiencing more happiness, sadness, nostalgia, and mixed emotions after viewing the nostalgic cartoons rather than the non-nostalgic cartoons. Furthermore, coders rated participants as expressing more happiness during nostalgic cartoons than non-nostalgic; however, coders rated participants as expressing more sadness during non-nostalgic cartoons.

Keywords: mixed emotions, nostalgia, coders, self-reports

Is nostalgia a mixed emotion? Evidence from emotional experience and facial expressions of emotion

Historical Context

First described by Homer in *The Odyssey*, nostalgia and its controversial definitions have been disputed for years in the psychological field (Hepper, Ritchie, Sedikides & Wildschut, 2011). Nostalgia, derived from the Greek words *nostos* and *algos*, literally means pain provoked from a desire to return home (Hepper, Ritchie, Sedikides & Wildschut, 2011; Wildschut et al., 2006). Although the feeling was first described by Homer in the 8th century BCE, the term "nostalgia" originated in the late 1600s when Johannes Hofer ascertained that Swiss soldiers could not fight and were "psychologically incapacitated" by their desire to return to their homeland (Baldwin, Biernat & Landau, 2015). Many doctors and physicians during that time declared nostalgia "a species of melancholy, or a mild type of insanity, caused by disappointment and a continuous longing for home" (Wilson, 2005, p. 21). Therefore, most considered nostalgia a neurological disease or a psychological disorder for the majority of the 17th, 18th, 19th, and 20th centuries (Hepper, Ritchie, Sedikides & Wildschut, 2011). However, in more recent years, nostalgia has become more than a bizarre, misunderstood phenomenon of the mind. Currently, researchers consider nostalgia a bittersweet, intricate mixed emotion rather than a just feeling of homesickness caused by a disease or disorder (Hepper, Ritchie, Sedikides & Wildschut, 2011; Sedikides, Wildschut, Arndt & Routledge, 2008). Nostalgia is now described in the New Oxford Dictionary of English (1998) as "a sentimental longing or wistful affection for the past" (p. 1266).

Nostalgia and Mixed Emotions

Since it is a fairly new and unstudied, nostalgia has the potential for many different applications in psychological research. One such application is in relation to another new concept: mixed emotions. For many years, people were not thought to have the ability to experience more than one emotion at a time (Larsen & McGraw, 2014; Wundt, 1896; Barrett, 2006). It was not until very recently that research has suggested that people can feel positive and negative emotions simultaneously (Larsen & McGraw, 2014; Larsen, McGraw, & Cacioppo, 2001). Given that the generalized definition of nostalgia includes a positive and negative aspect, research on nostalgia can be used to determine the existence of mixed emotions. This study, using the aforementioned dictionary definition of nostalgia, seeks to fill the holes in research on nostalgia by using children's cartoons popular in the late 1990s and early 2000s in order to experimentally elicit and record nostalgic sentiments, and answer the question: Is nostalgia a mixed emotion?

Though it has gained more attention in recent years, mostly from those who seek to enhance product marketing techniques and predict consumer behaviors (Holak & Havlena, 1992), nostalgia still remains a topic that is barely researched. Nostalgia, conceptualized as a mostly positive experience tinged with sadness and longing, is oftentimes elicited by memories of major life events and loved ones (Sedikides, Wildschut, Arndt & Routledge, 2008). Nostalgia is also most often associated with events or memories that happened in childhood (Davis, 1979). Many researchers have sought to evoke nostalgic sentiments in a laboratory setting using different mediums, such as consumer products, music and movies; however, because nostalgia is generally derived from a subjective experience, researchers have found it difficult to design a laboratory setting with stimuli that will elicit nostalgic feelings in the majority of participants.

According to Schindler and Holbrook's research on the effects of nostalgia on consumer preferences (2003), products that were popular during a consumer's childhood tend to influence the consumer's purchases later in life as well. Schindler and Holbrook presented participants with approximately 80 randomized pictures of cars varying in year and style. They also included three measures of nostalgic tendencies. Their research suggested that men who are higher in "nostalgic proneness" have permanent buying preferences that are influenced by the products- specifically cars in this study- that were popular during their youth.

Researchers Janata, Tomic, and Rakowski (2007) studied the effects of nostalgic music on the recollection of autobiographical memories. They used college students of generally the same age in order to use the Billboard Top 100 Pop and R&B listed on Apple iTunes Music Store for the year the students were all approximately 7 to 19 years old. Janata, Tomic, and Rakowski used 30 random songs from the Top 100 list as well as demographic and personal preferences questionnaires to determine if music can elicit autobiographical memories. Their results, while mostly in support of their hypothesis, showed that though a participant may be familiar with the music, the song does not always necessarily evoke an autobiographical memory. Only 29% of the songs evoked an autobiographical memory.

Using similar methods to Janata, Tomic, and Rowkowski (2007), Barrett et al. (2010) conducted research on music-evoked nostalgia in order to explore the emotional profile of nostalgia. These researchers conceptualized nostalgia as a bittersweet emotion, involving a mixture of happiness and sadness. Because previous research has revealed evidence that supports their conceptualization (Batcho, 2007; Sedikides, Wildschut, & Baden, 2004; Wildschut et al., 2006), Barrett et al. (2010) conducted this research to explore the possibility that nostalgia is a mixed emotion (i.e., experiencing levels of happiness and sadness at the same time). The

experiment design included using 30 clips of popular songs and having participants rate their feelings of nostalgia, happiness, and sadness. The songs were rated as eliciting mixed emotions when the participant rated experiencing levels of both happiness and sadness during the song. Their results found that while positive emotions are an essential component of nostalgia, nostalgia is not without evidence of negative emotions. Their results found that songs from the participants' youth that elicit nostalgia also elicit mixed emotions.

Overview of Current Research

To extend on the research conducted by Barrett et al. (2010), this study was designed to see if results from their research would generalize from music from our youth to other sources of media from our youth. It was also designed to investigate whether nostalgia would elicit facial expressions of mixed emotions. This experiment uses cartoons instead of music because it was assumed that cartoons would elicit more facial expressions of emotions than music. For this experiment, participants were presented with seven cartoons and asked afterwards to rate their experiences of nostalgia, happiness, and sadness during the unedited period of the clip and the fade period of the clip. While viewing the clips, participants' facial expressions were covertly recorded using the computer monitor's webcam and rated by independent coders using a modified evaluative space grid. The self-report ratings and facial expressions were examined to identify consistencies and differences between the two ratings and to determine the correlation between nostalgia and incidences of mixed emotions.

Participants

Seventy-eight participants participated in the main study. All of the participants were University of Tennessee Psychology students who signed up for the study through SONA Systems, which is a university research software. There were 51 female participants (75%) and

17 male participants (25%), and all were between the ages of 18 and 22. For this experiment, all participants were compensated with 1 SONA research credit, which counts towards their class grades, and SONA Systems ensured that each participant completed the study only once.

Procedure

Participants were presented with a total of seven cartoon opening scenes, which included the cartoons' theme songs. In the initial stages of the research development, during the first pilot study, the researchers compiled a list of popular 90s cartoons and recent cartoons and attached the list onto a separate experiment in the form of a questionnaire (See Appendix, Form 1). In order to determine which cartoons elicited the most and least amount of nostalgia, the participants in that study (N= 221) were asked to rate how nostalgic they would feel about watching each of the cartoons from "not at all" to "extremely", based on a given dictionary definition of nostalgia. The researchers then reviewed the ratings given by the participants and used the top eight cartoons consistently rated as eliciting the most nostalgia (Hey Arnold, Dexter's Laboratory, Magic School Bus, Rugrats, Scooby-Doo, Fairly Odd Parents, Ed Edd and Eddy, and Powerpuff Girls) for the second pilot study. The four cartoons rated as least nostalgic (Noonbory and the Super Seven, Dinosaur Train, Daniel Tiger's Neighborhood, and Super Why) were used as the control cartoons in the main study.

In the second pilot study, participants (N= 94) were presented with clips of the seven shows' theme songs, which averaged about a minute long each, and asked to rate how nostalgic the cartoon made them feel on a scale of 1 to 5 (5 being the most nostalgic and 1 being the least) after viewing each clip. The second pilot study was used to find the three cartoons that were consistently rated to elicit the most nostalgia for the main study, which were Scooby-Doo,

Rugrats, and Fairly Odd Parents. The recent cartoons were not included in the second pilot study because they were already rated as not eliciting nostalgia.

In main study, the participants were presented with the clip of Dinosaur Train's theme song first and asked a series of questions after the clip as a practice run for the participants. They were then shown the remaining six clips in randomized order and asked a series of questions after viewing each clip. The clips averaged a minute long each and had a 20-second period at the end of the clip in which the clip faded and the screen went black. This fade was added in order to give the participants the sense that the desirable stimulus was being taken away from them, and would increase feelings of nostalgia because feelings of longing and sentimentality would be present. In the questions following the viewing of each clip, the participants were asked to, on a 6-point scale from 0 to 5, rate their happiness, sadness, and feelings of nostalgia during the clip and during the fade period.

After the cartoon task, the participants completed a number of measures that are unrelated to the current study. While the participants viewed the cartoon clips, the participants' facial expressions were covertly recorded by the computer's web camera. At their consent, the clips were then sent to independent coders (N= 7) who then watched the clips in randomized order and rated their facial expressions as happy, sad, neutral, or mixed in a modified evaluative space grid (Larsen, Norris, McGraw, Hawkley, & Cacioppo 2009; Larsen & McGraw 2011). Similar to a plane in math, the modified evaluative space grid has two axes. The Y-axis is labeled as negative affect, the X-axis is labeled as positive affect, and the origin of the plane is labeled as neutral. The coders used this plane to track their ratings of the participants' face on a moment-to-moment basis, indicating whether they were expressing positive affect, negative affect, no emotion, or mixed emotion. The coders indicated a mixed emotion by indicating levels of both positive and

negative affect in the grid. In addition, the coders were provided two other separate cells that indicated expressions of confusion or uncertainty and vacillation between positive and negative affect. The researchers recorded the location of the coders' mouse in the space grid every 100 milliseconds and then averaged the ratings for each category across all seven coders.

Results

Self-Reported Emotions

Nostalgia

It was hypothesized that participants would report more nostalgia after viewing cartoons from their childhood (nostalgic cartoons) rather than non-nostalgic cartoons. It was also hypothesized that participants would report more nostalgia during the fade period of the clip rather than the unedited period of the clip. To test these hypotheses, nostalgia ratings were submitted to a 2(cartoon: nostalgic, non-nostalgic) x 2(period: unedited, fading) within-subjects ANOVA. As expected, nostalgic cartoons elicited more nostalgia than did non-nostalgic cartoons, $F(1,67) = 631.60$, $p < 0.001$ (see Figure 1). There was also a cartoon by period interaction, $F(1, 67) = 15.14$, $p < 0.001$. Contrary to expectations, participants reported that they had experienced less nostalgia during the fade period ($M = 3.19$, $SD = 1.16$) of the clip than during the unedited period ($M = 3.65$, $SD = 1.01$), $t(67) = 4.72$, $p < 0.001$ (see Figure 1). To a lesser degree, participants viewing non-nostalgic cartoons reported experiencing less nostalgia during the fade period ($M = 0.38$, $SD = 0.51$) than during the unedited period ($M = 0.46$, $SD = 0.52$), $t(67) = 2.52$, $p < 0.01$.

Happiness and Sadness

Because nostalgia is conceptualized as a primarily happy feeling (Sedikides, Wildschut, Arndt & Routledge, 2008), it was hypothesized that participants would report more happiness

after viewing nostalgic cartoons rather than non-nostalgic cartoons. In addition, participants were expected to report more happiness during the unedited period of the clip rather than the fade period. Another cartoon x period ANOVA was performed on happiness ratings and, as predicted, nostalgic cartoons elicited more feelings of happiness than did non-nostalgic cartoons, $F(1, 67) = 317.81$, $p < 0.001$ (see Figure 2). There was also a cartoon by period interaction, $F(1, 67) = 24.14$, $p < 0.001$. Also as expected, participants reported that they had experienced more happiness during the unedited period of the clip ($M = 3.94$, $SD = 0.75$) rather than the fade period ($M = 3.02$, $SD = 0.99$), $t(67) = 9.97$, $p < 0.001$ (see Figure 2). To a lesser degree, participants viewing non-nostalgic cartoons reported experiencing marginally more happiness during the unedited period of the clip ($M = 1.51$, $SD= 1.08$) rather than the fade period ($M = 1.32$, $SD= 0.98$), $t(67) = 1.96$, $p = 0.054$.

Nostalgia is conceptualized as being tinged with sadness, so it was hypothesized that participants would report more sadness after viewing nostalgic cartoons rather than non-nostalgic cartoons. In addition, participants were expected to report more sadness during the fade period of the clip rather than the unedited period. As predicted, nostalgic cartoons elicited more feelings of sadness than did non-nostalgic cartoons, $F(1, 67) = 47.75$, $p < 0.001$ (see Figure 2). There was also a cartoon by period interaction, $F(1, 67) = 17.97$, $p < 0.001$. Also as expected, participants reported that they had experienced more sadness during the fade period of the clip ($M = 0.65$, $SD = 0.73$) rather than the unedited period ($M = 0.31$, $SD = 0.48$), $t(67) = -4.33$, $p < 0.001$ (see Figure 2). In contrast, participants viewing non-nostalgic cartoons reported experiencing no more sadness during the fade period of the clip rather than the unedited period.

Mixed Emotions

It was hypothesized that participants would report more mixed emotions, which is operationalized as experiencing levels of happiness and sadness at the same time, after viewing nostalgic cartoons rather than non-nostalgic cartoons. In addition, participants were expected to report more mixed emotions during the fade period of the clip rather than the unedited period. Another cartoon x period ANOVA was performed on the mixed emotions ratings and, as predicted, nostalgic cartoons elicited more feelings of mixed emotions than did non-nostalgic cartoons, $F(1, 67) = 54.95$, $p < 0.001$ (see Figure 3). There was also a cartoon by period interaction, $F(1, 67) = 15.77$, $p < 0.001$. Also as expected, participants reported that they had experienced more mixed emotions during the fade period of the clip ($M = 0.56$, $SD = 0.62$) rather than the unedited period ($M = 0.29$, $SD = 0.45$), $t(67) = -3.89$, $p < 0.001$ (see Figure 3). Contrary to expectations, participants viewing non-nostalgic cartoons reported experiencing no more mixed emotions during the fade period of the clip than the unedited period.

Facial Expressions of Emotion

Happiness and Sadness

Because participants reported significant feelings of happiness, it was hypothesized that coders would rate participants as expressing more positive affect while viewing nostalgic cartoons rather than non-nostalgic cartoons. In addition, coders were expected to rate participants as expressing more positive affect during the unedited period of the clip rather than the fade period. A cartoon x period ANOVA was performed on positive affect ratings and, as predicted, nostalgic cartoons elicited more expressions of positive affect than did non-nostalgic cartoons, $F(1, 67) = 37.26$, $p < 0.001$ (see Figure 4). There was also a cartoon by period interaction, $F(1, 67) = 7.85$, $p < 0.01$. Also as expected, participants expressed more positive affect during the unedited period of the clip ($M = 0.46$, $SD = 0.50$) rather than the fade period ($M = 0.38$, $SD =$

0.46), $t(67) = 4.42$, $p < 0.001$ (see Figure 4). In contrast, participants viewing non-nostalgic cartoons expressed no more positive affect during the unedited period of the clip rather than the fade period.

Participants also reported significant feelings of sadness, so it was hypothesized that coders would rate participants as expressing more negative affect while viewing nostalgic cartoons rather than non-nostalgic cartoons. In addition, coders were expected to rate participants as expressing more negative affect during the fade period of the clip rather than the unedited period. Contrary to the expectations, nostalgic cartoons elicited less expressions of negative affect than did non-nostalgic cartoons, $F(1, 67) = 30.91$, $p < 0.001$ (see Figure 4); however, coders' ratings show participants watching nostalgic cartoons did express more negative affect during the fade period of the clip ($M = 0.20$, $SD = 0.09$) rather than the unedited period ($M = 0.12$, $SD = 0.08$), $t(67) = -12.27$, $p < 0.001$ (see Figure 4). Coders also rated participants viewing non-nostalgic cartoons as expressing more negative affect during the fade period of the clip ($M = 0.29$, $SD = 0.13$) rather than the unedited period ($M = 0.19$, $SD = 0.15$), $t(67) = -8.27$, $p < 0.001$.

Mixed Emotions

In that participants reported experiencing more mixed emotions during the nostalgic cartoons, it was hypothesized that coders would rate participants as expressing more mixed emotions while viewing nostalgic cartoons rather than non-nostalgic cartoons. In addition, coders were expected to rate participants as expressing more mixed emotions during the fade period of the clip rather than the unedited period. Another cartoon x period ANOVA was performed on mixed emotions ratings and, contrary to expectations, nostalgic cartoons elicited no more expressions of mixed emotions than did non-nostalgic cartoons (see Figure 5). Participants also expressed no more mixed emotions during the fade period of the clip rather than the unedited

period. Moreover, participants viewing non-nostalgic cartoons expressed no more mixed emotions during the fade period of the clip rather than the unedited period.

Vacillation

One possibility of participants' lack of negative affect could be their expressions vacillating too quickly for coders to report the expressions as strictly negative affect. A cartoon x period ANOVA was performed on the vacillation ratings and the data indicate nostalgic cartoons elicited vacillation in expression no more of the time than did non-nostalgic cartoons (see Figure 6). Participants also expressed no more vacillation a higher percentage of the time during the fade period of the clip rather than the unedited period, regardless of cartoon type.

Confusion

A cartoon x period ANOVA was performed on the confusion ratings and non-nostalgic cartoons elicited expressions of confusion a higher percentage of the time than did nostalgic cartoons, $F(1,67) = 4.34$, $p < 0.04$ (see Figure 7). Participants viewing non-nostalgic cartoons expressed confusion no more of the time during the unedited period of the clip rather than the fade period. Moreover, participants viewing non-nostalgic cartoons expressed no more confusion during the unedited period of the clip rather than the fade period.

Discussion

This study sought to fill the holes in research on nostalgia by using children's cartoons popular in the late 1990s and early 2000s in order to experimentally elicit and record nostalgic sentiments, and scientifically examine the correlation between nostalgia and mixed emotions. As predicted, participants reported experiencing more feelings of nostalgia when presented with the nostalgic cartoons rather than the non-nostalgic cartoons. Participants also reported experiencing more nostalgia during the unedited period of the clip rather than the fade period. This was also

consistent for self-reported happiness. Participants also reported experiencing more sadness when presented with the nostalgic cartoons rather than the non-nostalgic cartoons; however, there were more reported incidences of sadness during the fade period rather than the unedited period of the clip. Reported experiences of mixed emotions followed a similar pattern to self-reported sadness.

Coder ratings of expressions of positive affect were consistent with participants' reported experiences of happiness. The ratings of expressions of negative affect were inconsistent with participants' reported experiences of sadness, indicating more expressions of negative affect during non-nostalgic cartoons rather than during nostalgic cartoons. Coders also rated participants' expressions of mixed emotions as not significantly different between nostalgic and non-nostalgic cartoons (see Figure 5).

Nostalgia

Because of the conceptualization of nostalgia as a longing for the past, it was hypothesized that participants would report experiencing more nostalgia during the fade period of the nostalgic cartoons because the cartoon linked to their childhood is being taken from them during that time. The fade period was introduced into the experiment design in order to create the effect of their childhood being taken from them and to elicit longing (i.e., nostalgia). Participants' ratings were not consistent with this line of thinking, though. This could be in part due to a separate conceptualization of nostalgia as a primarily happy emotion tinged with sadness and longing (Sedikides, Wildschut, Arndt & Routledge, 2008; Batcho, 2007; Sedikides, Wildschut, & Baden, 2004; Wildschut et al., 2006; Barrett et al., 2010). In addition, nostalgia is not a very widely researched emotion and, due to the limited research, there is not a well-known facial expression for nostalgia. This lack of a guideline for the expression of nostalgia made it

difficult to code; therefore, there was not an effective way for the coders to rate facial expressions as nostalgic and it was consequently not included in the data from the coders.

Happiness and Positive Affect

Because participants were generally familiar with the nostalgic cartoons (as evidenced by their consistently high nostalgia ratings in the pilot studies), participants were expected to report and express more happiness when viewing nostalgic cartoons. Participants' reported experiences of happiness were consistent with the original hypothesis that participants would report experiencing more happiness after watching nostalgic cartoons rather than non-nostalgic. In addition, self-reports were consistent with the hypothesis that participants would report experiencing more happiness during the unedited period of the clip rather than the fade period. Coder ratings of participants' facial expressions of positive affect were also consistent with the pattern presented in self-reports. Due to the previously mentioned conceptualization of nostalgia as a primarily happy emotion, this could potentially explain why self-reported nostalgia exhibited a pattern inconsistent with the hypothesis. Experiences of nostalgia were reported higher during the unedited period of the clip, which is when experiences of happiness were also reported highest.

Sadness and Negative Affect

Results from coded expressions of negative affect were not as predicted; in fact, they were almost the complete opposite of what was predicted. It was hypothesized that there would be more expressions of negative affect during nostalgic cartoons than during non-nostalgic cartoons. It was thought that nostalgic cartoons would evoke more emotions- and consequently more expressions- than non-nostalgic cartoons because they would be more familiar to participants. Data show independent coders saw more negative affect expressed by participants

during the unedited period and fade period of non-nostalgic cartoons rather than unedited period and fade period of nostalgic cartoons. These results brought forth three separate explanations from researchers that could potentially be expanded upon in future research.

1. The first prominent explanation was that the coders' perceptions of expressions of disappointment and boredom were included in the coding of negative affect. Though researchers wanted negative affect to include mainly just expressions of sadness, this was not expressed to the independent coders and, in effect, expressions of boredom and disappointment may have not been filtered out of the coding of negative affect. Coders could have also mistaken a lack of facial expression- or participants' resting facial expressions- as an expression of negative affect. Currently, data already collected could be reanalyzed by a new set of coders using more coding options, including options for boredom and disappointment, in addition to the current options. This will hopefully allow for a more accurate reading of the participants' facial expressions and may provide more insight into the relationship between their reported internal feelings and their facial expressions.
2. Results from coders also did not concur with the results of the participants' self-reports. Self-reports show that participants reported more sadness after viewing nostalgic cartoons rather than during non-nostalgic cartoons, but the data from coders indicates an opposite pattern. This begs the question: why are the participants reporting feeling more sadness during the nostalgic cartoons, but not showing it? Researchers think that this may be due to residual expressions of positive affect being present in the expressions of the participants. Coders saw more positive affect expressed with nostalgic cartoons than with non-nostalgic cartoons, and this is often seen as smiling. The transition from the unedited

period of the nostalgic cartoon to the fade period shows a decline in positive affect, but expressions of positive affect may not have completely disappeared; therefore, this could still be seen as a lack of negative affect despite reported internal feelings of sadness. Moreover, positive affect expressions could have simply overpowered the expressions of negative affect despite reported internal feelings of sadness.

3. Another potential explanation for the inconsistencies in the results could be that participants were only asked to rate their feelings of sadness after the clip was finished. In their reflections, they may have indicated more feelings of sadness than they truly felt in the moment. This effect could have been minimalized by utilizing a moment-by-moment measure of emotions provided to participants. Participants could be provided a continuous evaluative space grid to rate their feelings of happiness (X-axis), sadness (Y-axis), and differing levels of both (mixed emotions) by moving the mouse within the planar dimensions of the grid. This type of measure has been developed and previously used in studies by Larsen, Norris, McGraw, Hawkley, and Cacioppo (2009), and would provide a more accurate measure of what the participants are feeling at any given second during their viewing of the cartoons.

Mixed Emotions

It was hypothesized that more feelings of sadness would permeate participants' feelings of happiness in the fade period of the clip rather than the unedited period of the clip; therefore, participants' feelings towards the clip fading away and being over (equating this to feelings about their childhood and primarily happy feelings of nostalgia) would be higher in sadness and more mixed. Results from participants' self-reports indicate evidence in support for this hypothesis in that there were higher reported feelings of mixed emotions during the fade period

than during the unedited period of the clip. Despite concurrently reported feelings of nostalgia and mixed emotions during the unedited period of the cartoon clips (regardless of cartoon type), the patterns exhibited by these emotions are opposition and therefore do not indicate a positive relationship. Coders also saw very minimal participant expressions of mixed emotions for both nostalgic cartoons and non-nostalgic cartoons. This also conflicts with the data collected from the participants' self-reports, which indicated more feelings of mixed emotions in general and specifically more for nostalgic cartoons than non-nostalgic cartoons. One possibility of why these results occurred could have been due to mixed emotion not having a widely agreed upon facial expression and, as a result, coders did not know to code an expression as such. Another possibility could have been that participants just were not expressing any mixed emotions.

Though many of the results did not concur with the hypotheses and predictions, they have shed new light on a barely researched emotion. Although results indicate that nostalgia is mixed experience, evidence does not indicate that nostalgia is a mixed emotion. The apparent disconnect between these data and the hypotheses indicates that while no evidence indicates that nostalgia is a mixed emotion, it does indicate that nostalgia is a rich, complex, and subtle emotion.

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Appendix

Nostalgic Cartoons Survey

The Oxford Dictionary defines 'nostalgia' as 'a sentimental longing for the past.' We would like to ask you how nostalgic you would feel about watching a variety of cartoons.

Please make each rating on a scale from 1 (not at all nostalgic) to 5 (extremely nostalgic).

How nostalgic would you feel about watching….

	not at all	slightly	somewhat	quite a bit	extremely
All That	O	O	O	O	O
Arthur	O	O	O	O	O
Boy Meets World	O	O	O	O	O
Catdog	O	O	O	O	O
Clifford the Big Red Dog	O	O	O	O	O
Courage the Cowardly Dog	O	O	O	O	O
Daniel Tiger's Neighborhood	O	O	O	O	O
Dexter's Laboratory	O	O	O	O	O
Digimon	O	O	O	O	O
Dinosaur Train	O	O	O	O	O
Doug	O	O	O	O	O
Dragon Ball Z	O	O	O	O	O
Dragon Tales	O	O	O	O	O
Ed, Edd, 'n' Eddy	O	O	O	O	O
Fairly Odd Parents	O	O	O	O	O
Hey Arnold	O	O	O	O	O
Johnny Bravo	O	O	O	O	O
Looney Tunes	O	O	O	O	O
Noonbory and the Super Seven	O	O	O	O	O
Pinky Dinky Doo	O	O	O	O	O
Pokemon	O	O	O	O	O
Power Rangers	O	O	O	O	O
Powerpuff Girls	O	O	O	O	O
Recess	O	O	O	O	O

Rocket Power	O	O	O	O	O
Rugrats	O	O	O	O	O
Scooby Doo	O	O	O	O	O
Sesame Street	O	O	O	O	O
Sid the Science Kid	O	O	O	O	O
SpongeBob SquarePants	O	O	O	O	O
Super Why!	O	O	O	O	O
The Magic School Bus	O	O	O	O	O
The Wild Kratts	O	O	O	O	O
Tom and Jerry	O	O	O	O	O
Wild Thornberries	O	O	O	O	O
WordGirl	O	O	O	O	O
Yu-Gi-Oh!	O	O	O	O	O
Zoey 101	O	O	O	O	O
Zoom	O	O	O	O	O

Form 1.

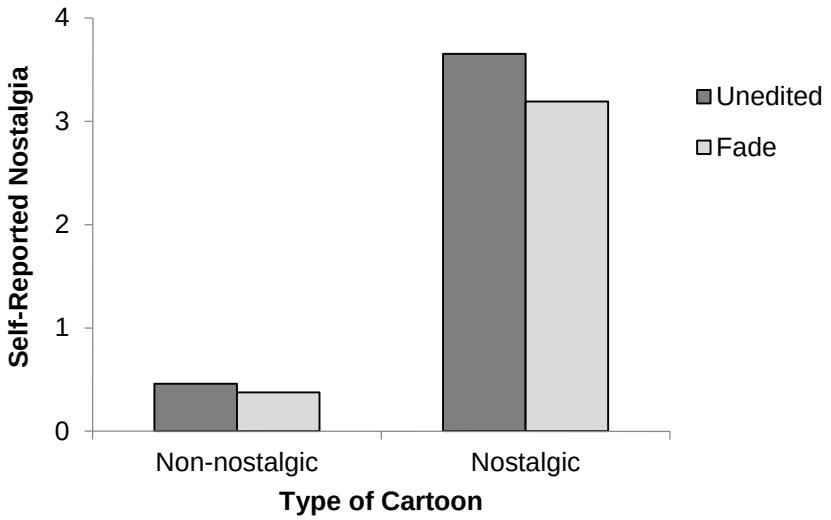
4
3
2
1
0
Self-Reported Nostalgia
Unedited
Fade
Non-nostalgic
Nostalgic
Type of Cartoon

Figure 1

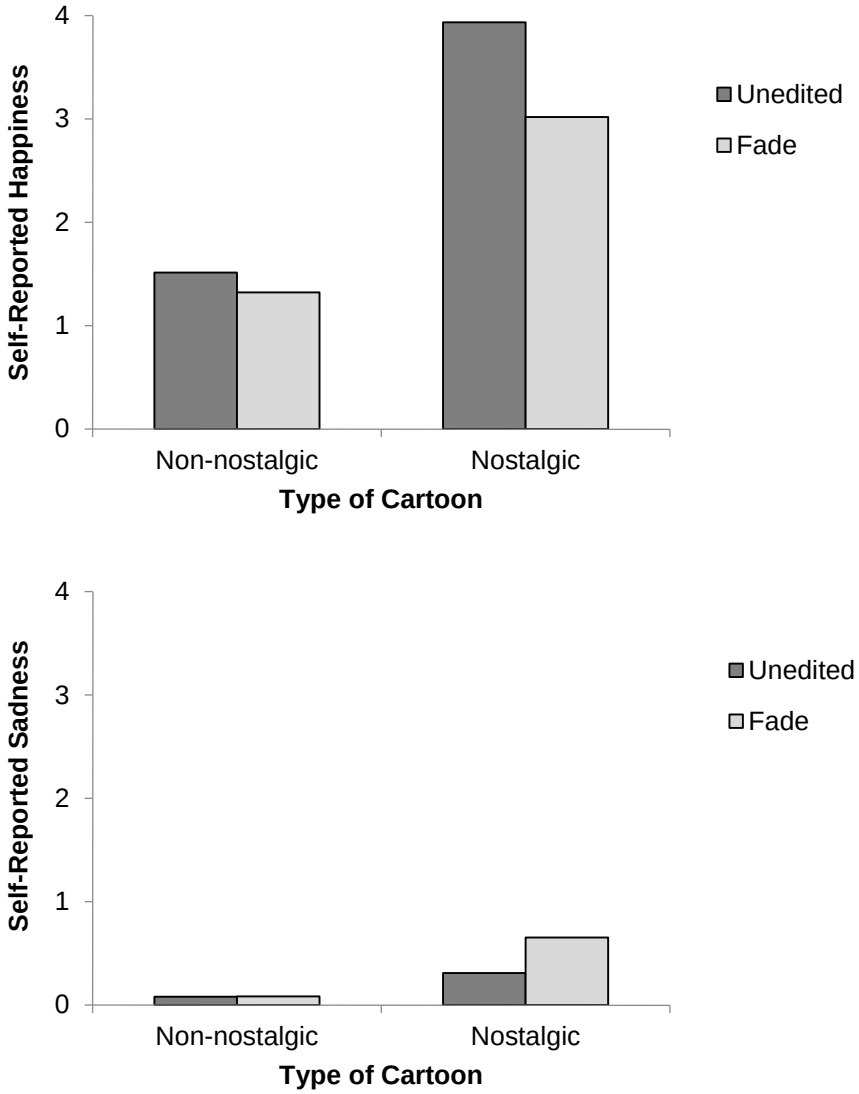
Self-Reported Happiness
4
3
2
1
0
Non-nostalgic
Nostalgic
Type of Cartoon
Unedited
Fade
Self-Reported Sadness
4
3
2
1
0
Non-nostalgic
Nostalgic
Type of Cartoon
Unedited
Fade

Figure 2

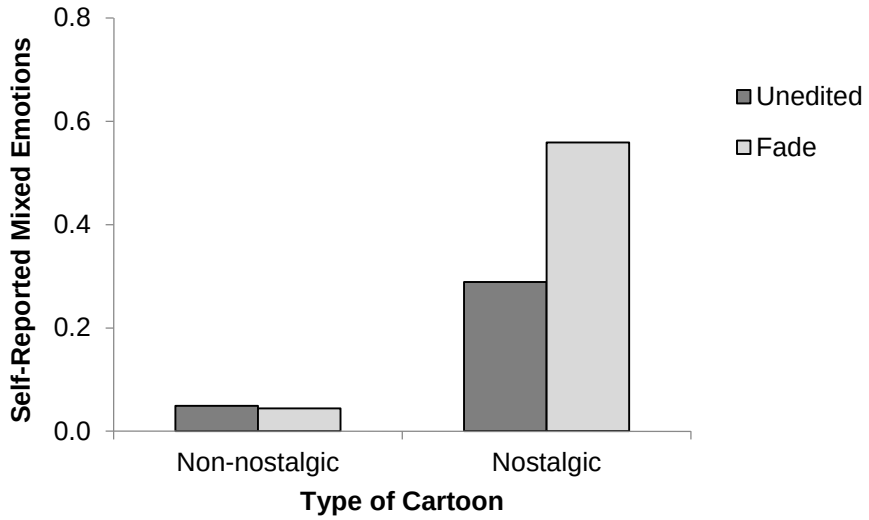
0.8
0.6
0.4
0.2
0.0
Self-Reported Mixed Emotions
Unedited
Fade
Non-nostalgic
Nostalgic
Type of Cartoon

Figure 3

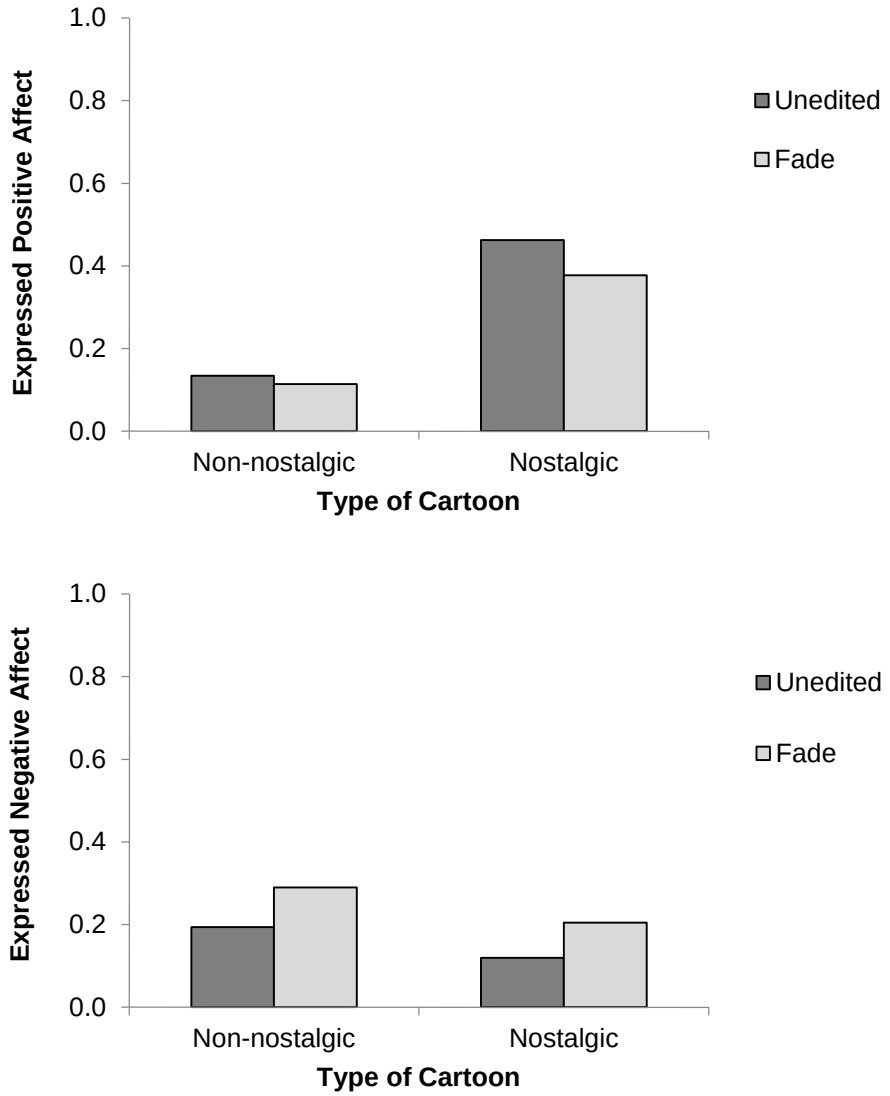
1.0
0.8
0.6
0.4
0.2
0.0
Expressed Positive Affect
Unedited
Fade
Non-nostalgic
Nostalgic
Type of Cartoon
1.0
0.8
0.6
0.4
0.2
0.0
Expressed Negative Affect
Unedited
Fade
Non-nostalgic
Nostalgic
Type of Cartoon

Figure 4

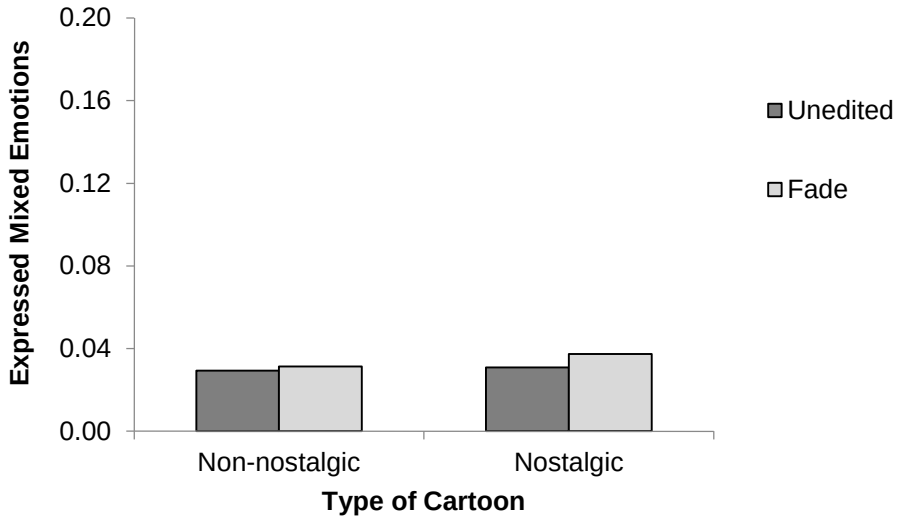
0.20
0.16
0.12
0.08
0.04
0.00
Expressed Mixed Emotions
Unedited
Fade
Non-nostalgic
Nostalgic
Type of Cartoon

Figure 5

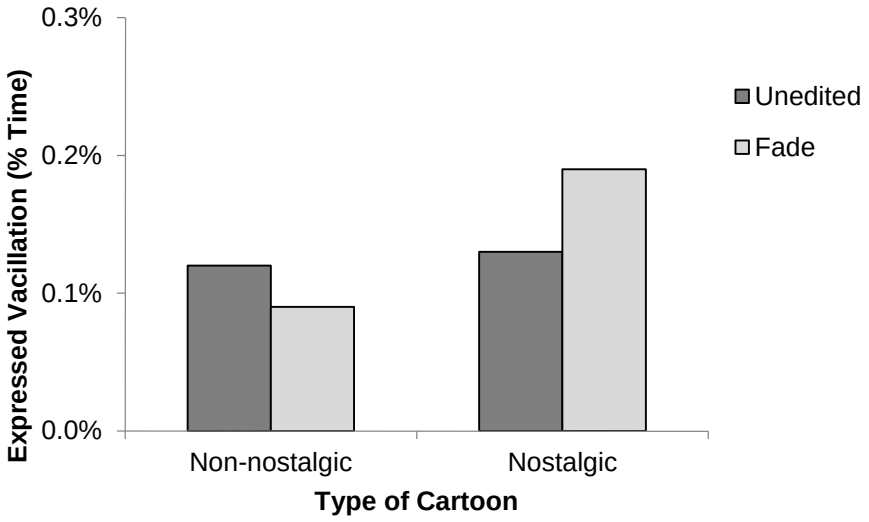
0.3%
0.2%
0.1%
0.0%
Expressed Vacillation (% Time)
Unedited
Fade
Non-nostalgic
Nostalgic
Type of Cartoon

Figure 6

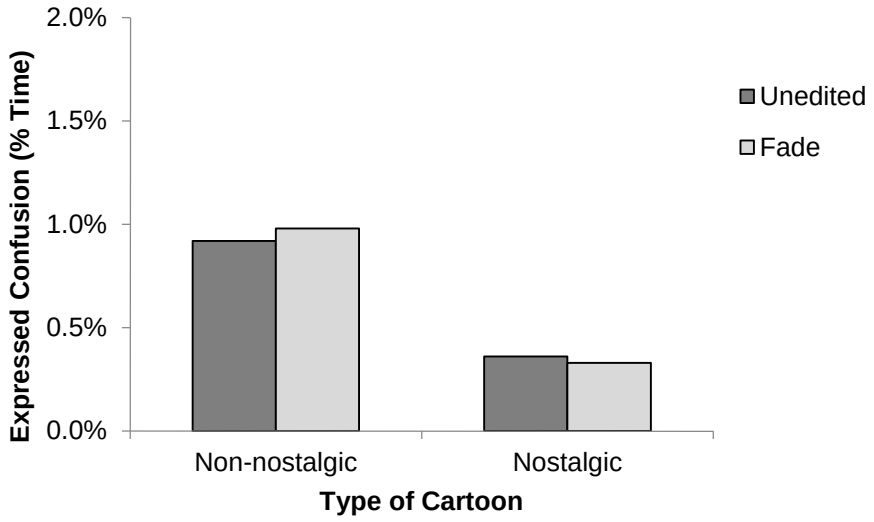
2.0%
1.5%
1.0%
0.5%
0.0%
Expressed Confusion (% Time)
Unedited
Fade
Non-nostalgic
Nostalgic
Type of Cartoon

Figure 7

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