

An Investigation of Individuals' Responses to Death-Related Information

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Abstract:

Death rituals serve essential cultural functions. They not only commemorate those who have passed away but also reflect the attitudes of the living towards death. Different countries have developed diverse cultural norms regarding death. In ancient China, death was seriously regarded, leading to complex funeral ceremonies and traditions within traditional Chinese culture. This study aims to investigate the attitudes of contemporary Chinese individuals towards death-related messages. Stimuli for the study consisted of images featuring tombstones of well-known figures, encompassing both Chinese and foreign celebrities. Participants were randomly assigned to one of two experimental groups: Group 1 and Group 2. Both groups were exposed to the same series of images. However, Group A received explicit instruction highlighting the death or funeral of the celebrity associated with each tombstone, with the images labeled as "The Tomb of XYZ."

Conversely, Group 2 was not given specific emphasis on death-related information but was introduced to the carving art of the monuments, with the images labeled as "The Chinese/ Western Monument." An eye-tracking device was employed throughout the experiment to track participants' gaze patterns and collect quantitative data. The results revealed that participants in Group 1 exhibited longer fixation durations on labeling information than Group 2, indicating that individuals are responsive to death-related information. Furthermore, participants in Group 1 demonstrated shorter average fixation durations when observing Chinese tombstones compared to Western tombstones, suggesting that participants experienced a higher cognitive load when interpreting Chinese tombstones. This finding implies that participants may harbor greater unease regarding death-related information rooted in Chinese cultural backgrounds. These research findings contribute to a deeper understanding of how people perceive death and offer insights that can be applied in death education.

Keywords: Death, Thanatopsis, Tombstone, Chinese culture, Cross-cultural difference, Eye-tracking, Carving

1. Introduction

Death is universally acknowledged as a fundamental aspect of the human experience (Wei, 2015). In the rich tapestry of cultural diversity, the attitudes and customs surrounding death have consistently served as poignant indicators of profound variations across different societies. Influenced by their unique cultural backgrounds, different countries exhibit diverse approaches to death. Some European nations, like Norway and Germany, do not stigmatize death; instead, they incorporate cemeteries into urban landscapes, often within park-like settings or sculpture exhibition halls, providing welcoming spaces for gatherings and visits (Zhu, 2007). In contrast, the Japanese perspective on death is characterized by a belief in the sincerity of death, considering all other worldly fame and fortune as illusory. They extol the "beauty of death," with Japanese samurai seeking "samurai truth and insight into death" through practices like seppuku (Zheng, 2009).

Meanwhile, Mexicans, while sharing a fundamental fear of death with other cultures, do not shy away from it. They confront death with patience, disdain, and humor, viewing it as a game. The Day of the Dead is celebrated with a grand carnival dance, a joyous occasion to honor departed loved ones (Jia, 2007; Fan, 2014; Shuai, 2023). Traditional Chinese culture, on the other hand, takes a sad view of death, with discussions of death-related topics generally avoided. In the face of mortality, the prevailing sentiments are fear and sadness (Bai, 2014).

Different cultures and countries exhibit varied attitudes and perspectives on death. Regardless of these attitudes, one common caution is to avoid extreme views on death. Research has revealed that extreme attitudes can impede communication with healthcare professionals and palliative care and, in some cases, lead to tragic outcomes such as suicide and homicide, underscoring the danger of extreme views on death (Ye, 2019; Qiu, 2016). Inaccurate perceptions of death can also significantly impact an individual's mental well-being. Previous surveys have

indicated that young Chinese individuals often harbor excessive fear and anxiety about death, hindering their ability to maintain mental composure and resilience when confronted with death-related topics (Gong, 2022; Tang, 2002).

Consequently, understanding people's attitudes toward death is of paramount importance. This study is designed to investigate the contemporary viewpoints of Chinese individuals regarding death-related information. Previous research on attitudes towards death predominantly relied on questionnaires and interviews to conclude (Chen, 2006; Zhang, 2011). In contrast, this study adopts an innovative approach by utilizing an eye-tracking device to quantify the responses of Chinese participants when exposed to death-related information. Additionally, the study explores the influence of different cultural contexts. The tombstone serves as a symbolic representation of death (Qiu, 2016), and, as such, this study employs images of tombstones as stimuli to convey "information related to death." Tombstones from various countries were selected to investigate the cultural impact. Throughout the viewing process, an eye-tracking device records participants' visual attention. This study employs a novel methodology to investigate topics related to death and offers valuable insights into people's attitudes toward death. The findings can be applied in the field of death education.

2. Methods

2.1 Participants

For this study, 25 individuals were randomly recruited in Shanghai, China, with an average age of 26.92 (SD = 11.28). Among these participants, 11 were female, and 14 were male. All participants were randomly divided into groups designated as Group A and Group B. Before commencing the experiment, participants were provided with a clear explanation that their task would involve reviewing a series of images and texts. Additionally, the entire viewing process of each participant was meticulously recorded using an eye-tracking device. Comprehensive information regarding the potential risks and harms associated with the study was also communicated to the participants.

2.2 Stimuli

The stimuli used in this study consisted of images of tombstones belonging to well-known celebrities. Two individuals were selected for this purpose: one Chinese celebrity, Wang Zhaojun (W), and one foreign celebrity, Stendhal (S). To eliminate any cognitive variances that could result from the text inscriptions on the tombstones, all text was deliberately made non-readable for the

participants. Wang Zhaojun's tombstone featured non-simplified Chinese characters, while Stendhal's tombstone bore French inscriptions. The overall layout and word count on both tombstones were kept similar. Furthermore, the background settings remained consistent across all stimuli.

In addition, to avoid participants discerning the exact purpose of the experiment, two unrelated monuments (A and B) were introduced. Group 1 and Group 2 of the participants viewed the same set of four photos in the same sequence: A, W, B, S. An instructional slide preceded each image. For Group 1, the introductory content provided details about the biographies of the celebrities, with a specific focus on information related to their deaths, such as funeral details and the circumstances of their passing. This was done to underscore the prominence of death-related information. Subsequently, the corresponding tombstone image was presented, bearing the label "The Tomb of (Name)" in Chinese.

Conversely, Group 2's instructions did not emphasize death-related information. Instead, the introduction centered around the Chinese and Western carving art found on monuments. The labels on the stimuli read "A Chinese Monument" or "A Western Monument" in Chinese.

2.3 Design and Procedure

This study employed a combination of both between-subject and within-subject designs. Participants were randomly assigned to either Group 1 or Group 2. After completing informed consent forms, the researchers directed the participants to sit before a screen. The screen was connected to a laptop with an eye-tracking device (Tobii 4C). After a successful nine-point calibration procedure, the experiment officially commenced to ensure precise eye tracking. Group 1 and Group 2 participants were presented with the instructional slides and stimuli as previously described. The eye-tracking device continuously recorded the entire viewing process. The task typically required approximately 5 to 10 minutes to completion. Upon concluding the experiment, participants were provided with tokens of appreciation.

For both Group 1 and Group 2, the Areas of Interest (AOIs) were categorized into two groups: "Label" and "Tombstone". To analyze participants' visual attention when viewing the stimuli, a range of eye-tracking parameters was employed, including total fixation duration (TFD), fixation count (FC), first fixation duration (FFD), and average fixation duration (AFD). Subsequently, these eye-tracking data were categorized, and corresponding analyses and discussions were conducted.

2.4 Data Analysis

To assess and compare participants’ visual attention patterns in each Area of Interest (AOI), a series of statistical analyses between Group 1 and Group 2 were conducted. Specifically, between-group t-tests were employed to evaluate Total Fixation Duration (TFD), Fixation Count (FC), and First Fixation Duration (FFD). This was done to discern differences in how individuals respond to death-related information.

Furthermore, to investigate participants’ visual focus disparities when presented with Chinese and Western cultural contexts, T-tests were performed to compare Average Fixation Duration (AFD) between Western tombstones and Chinese tombstones within Group 1. This analysis aimed to provide insights into how participants’ gaze duration varied when examining tombstones from different cultural backgrounds.

3. Results

3.1 Between-Group T-Test Analysis for TFD

As depicted in Table 1, the results of the t-test revealed a statistically significant difference ($t = 1.69, p < 0.05$) between Group 1 ($M = 0.87, SD = 0.43$) and Group 2 ($M = 0.25, SD = 0.97$) about Total Fixation Duration (TFD) on the “Label.”

3.2 Between-Group T-Test Analysis for FC

As Table 1 illustrates, a notable difference ($t = 3.03, p < 0.05$) emerged between Group 1 ($M = 3.25, SD = 3.73$) and Group 2 ($M = 0.81, SD = 1.33$) in terms of Fixation Count (FC) on the “Label.”

3.3 Between-Group T-Test Analysis for FFD

As indicated in Table 1, there was a significant difference ($t = 1.68, p < 0.05$) observed for First Fixation Duration (FFD) between Group 1 ($M = 0.18, SD = 0.17$) and Group 2 ($M = 0.09, SD = 0.14$) when considering the title area as a whole.

3.4 Between-Group T-Test Analysis for AFD

When examining Western tombstones, there was no significant difference ($t = 1.74, p > 0.05$) in Average Fixation Duration (AFD) for the “Tombstone” category between Group 1 ($M = 0.28, SD = 0.07$) and Group 2 ($M = 0.29, SD = 0.15$). However, for the Tombstone category about Chinese tombstones, AFD in Group 1 ($M = 0.30, SD = 0.11$) was significantly smaller ($t = 1.72, p < 0.05$) than that in Group 2 ($M = 0.41, SD = 0.02$).

Table1: The Results of TFD, FC, and FFD

Groups	Parameters	Label	Tombstone
Group 1	TFD (s)	0.87	5.03
	FC	3.25	17.96
	FFD (s)	0.18	0.16
Group 2	TFD (s)	0.25	5.89
	FC	0.81	18.04
	FFD (s)	0.09	0.19

Table2: The Result of AFD for Tombstone

	Chinese tombstone (s)	Western tombstone (s)
Group 1	0.30	0.28
Group 2	0.41	0.29

4. Discussion

The primary objective of this experiment was to investigate Chinese people’s responses to death-related information while also exploring how individuals respond to varying cultural contexts—Chinese and Western. Participants in this study were exposed to a series of tombstones, with Group 1 receiving a prior emphasis on death-related information in the instructions, while Group 2 was not given this emphasis. Throughout the experiment, an eye-tracking device recorded the viewing process, generating quantitative gaze results that reflect participants’ visual attention.

The data analysis revealed significant differences in the Total Fixation Duration (TFD), Fixation Count (FC), and First Fixation Duration (FFD) between Group 1 (emphasizing death-related information) and Group 2 for the “Label” on each stimulus (e.g., “The Tomb of XYZ” and “The Chinese/ Western Monument”). Participants in Group 1 exhibited notably greater attention, not only at the initial stage (FFD) but also throughout the viewing duration (TFD and FC). Smaller Average Fixation Duration (AFD) was observed in Group 1 when reading Chinese tombstones compared to Group 2, suggesting higher cognitive load and heightened anxiety in response to Chinese tombstones, even though participants couldn’t discern the text on either tombstone. This underscores the role of cultural background in influencing participants’ reactions, particularly a heightened level of anxiety when confronted with Chinese cultural references.

Participants in this experiment demonstrated a significantly higher level of attention to death-related information. This heightened sensitivity may be attributed to their own death-related anxiety. Notably, all participants in this study were of Chinese origin, and as previously

discussed, traditional Chinese culture takes a serious view of death, marked by avoidance, fear, and aversion. This perspective has persisted to some extent, as evident in this experiment, where participants exhibited significant vigilance toward death-related information, even when presented with tombstones of historical celebrities. Gong (2022) has suggested that patients in China often exhibit high levels of fear of death and death anxiety, further reinforcing the impact of cultural attitudes toward death. Apart from the influence of traditional culture, the scarcity of death education in contemporary China may also contribute to this negative perception of death. In contrast to countries like the United Kingdom and the United States, where death education has long been integrated into curricula, China lacks a robust framework for discussing death with the public. Chinese culture, influenced by Confucian and Taoist-Buddhist beliefs, tends to prioritize the focus on “living” while considering death as an unfortunate topic to be avoided. Additionally, parental concerns regarding the potential negative impact of introducing death education to young, physically, and mentally immature individuals, as well as societal taboos surrounding discussions of death, have further contributed to this gap in knowledge. The consequence of this lack of death education is a widespread experience of death anxiety, preventing individuals from forming a balanced and accurate understanding of death. Grace (2019) has suggested that individuals exposed to religious-based life and death education exhibit lower levels of death anxiety. The participants exhibited lower AFD when viewing Chinese tombstones in Group 1, a response not mirrored when viewing Western tombstones. This underscores the influence of cultural backgrounds, with participants showing a deeper understanding and anxiety regarding death-related information in the Chinese cultural context. Cultural-historical development theory posits that cultural background permeates people’s lives, shaping their thought processes, cognition, behavior, and emotional responses. Cultural context significantly influences emotional performance and regulation, particularly in areas such as empathy and understanding (Xie, 2017; Tatiana Kornilova, 2021). Participants in the context of Chinese culture exhibit a deeper comprehension and emotional resonance when interpreting the meaning and connotations expressed by Chinese tombstones. While this study provides valuable insights, there are opportunities for future enhancements. Firstly, participants were exclusively recruited in Shanghai, China, which limits the generalizability of the findings. Future studies could expand the participant pool to encompass a more diverse geographic range. Secondly, conducting a detailed investigation from various demographic perspectives,

including gender, age, education level, and income level, may reveal nuanced differences in responses. Furthermore, exploring how individuals may respond differently to various types of death-related information represents another avenue for further research.

5. Conclusion

This study employed eye-tracking devices to investigate how Chinese individuals respond when exposed to death-related information, using images of a Chinese tombstone and a Western tombstone as stimuli. The results underscored participants’ heightened sensitivity to death-related information, as evidenced by their significantly greater initial and overall attention directed toward such contents. Additionally, a comparative analysis between the Chinese tombstone and the Western tombstone revealed that participants experienced higher cognitive load when viewing the Chinese tombstone, reflecting their cultural background.

The pronounced anxious behaviors observed in this research can be attributed, in part, to the deeply serious cultural attitude Chinese people hold toward death. As discussed earlier, Chinese culture traditionally regards death with great solemnity and often shies away from open discussions about it. This study underscores the potential benefits of death education as a means to alleviate individuals’ anxiety toward death and encourage the cultivation of a more open and constructive mindset.

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