

How to design for Death

Hung, Wei-Ken^{*a}; Chen, Yu-Shan Athena^b; Chen, Lin-Lin^{bc}

^a Department of Industrial Design, National United University, Taiwan

^b Department of Industrial Design, Eindhoven University of Technology, The Netherlands

^c Department of Design, National Taiwan University of Science and Technology, Taiwan

* hungweiken@nuu.edu.tw

Designers are increasingly investigating a taboo topic, design for death. Specifically, we examined whether embedding the opposites to death could create aesthetic appreciation and acceptance. Russell and Barrett's (1999) emotional model and seven design techniques derived from the protection frame were our theoretical base. Utilizing sixty-six representative works from the "Design for Death" competition in 2013, sixty-one participants judged whether they would adopt the present designs for themselves, for the loved, and for the public. The results demonstrated that two design schemes, "born (newborn-dead)" and "endless (eternal-fading away)," successfully created aesthetic appreciation and acceptance. By these efforts, we indicate the way to turn death generated emotions (i.e., poignancy, anxiety, disgust, and indignation) into aesthetic appreciation and acceptance. Furthermore, a significant gap between adopting the designs for themselves and their loves and adopting the designs for the public was found, which starts a discussion about functionality and social welfare with design for death.

Keywords: *semantic contrast; semantic design; death attitude*

1 Introduction

How to design for death? In this study, we outline an approach that is different in purpose and even opposite consideration in designing products that stimulate positive aesthetic emotions. It is different in purpose because we aim to discuss a taboo topic, design for death. Despite its difficulty, a good design for death, or any design roots in negative emotions, creates a richer than usual experience (Fokkinga & Desmet, 2013). To show how to design for death, it is necessary to know negative emotions and rich experiences at first.

According to Hung, Chen, Lin, and Yang (2017), designs involving negative semantics as fear, anger, disgust, and sadness (Russell & Barrett, 1999) significantly surprised users and attracted ones' curiosity. However, the most impressive finding was the contrast of sadness (negative emotion), and epiphany (positive emotion) in a design created a sense of poignancy that directed to a superior aesthetic appreciation to the other three negative emotions. Poignancy is the feeling overwhelmed with sadness over something (Fokkinga & Desmet, 2013). For example, Zhuangzi's (an ancient Chinese philosopher) singing for his wife's death seems strange at first consideration: why should there be any sadness involved in such a delight experience? We argue that people feel overwhelmed by witnessing a certain irrecoverable negative, a relative's death for an instance, which momentarily

activates their cynical beliefs. Such overwhelming feeling is accompanied by a sense of helplessness, as sorrow noted by Ekman (2007), which triggers passive action tendency. However, when something beyond that overwhelming feeling, agony occurs (Ekman, 2007). Instead of passively sorrowing at the negative, people spirit up to fight with that negative, which brings us the epiphany sometimes. That epiphany enriches one's experience and then moves us. Back to Zhuangzi's signing, according to Zhuangzi's words, he had suffered the pain of wife's death; however, when he realized the life as an endless cycle of birth, living, death, and reincarnate, he got the epiphany over the death.

Epiphany depends on an extreme understanding and wisdom after all. That is why people seldom get joyous experience from a relative's death. As a designer, we investigate how to create such epiphany to turn the poignancy into a joyous experience. In this study, seven techniques were developed that offer prefabricated design map, which is intended to lower the threshold to design for death.

2 Adapting the protective frames for death designs

For any design involving a negative emotion, designers should create a protective frame to reverse the negative emotion so that it can be enjoyable for the user. We start our discussion at Fokkinga and Desmet's (2013) four types of protective frame: the detachment frame, the safety-zone frame, the control frame, and the perspective frame. The detachment frame is constructed by altering the negative stimulus in such a way that users are merely confronted with a presentation of it (such as abstraction or simplification). The safety-zone frame physically distances users from the negative stimulus so that they are in the psychological safe zone. The control frame increases the amount of control for a user to overcome the interaction with the negative stimulus. Finally, the perspective frame provides a perspective on the wider implications of the negative stimulus or the reaction toward it.

This study utilized 159 designs and generalized seven techniques by five design graduate students based on abovementioned four protective frames (see Table 1). We further argue that the contrasts of styles or meanings create highly aesthetic preference (Hung & Chen, 2013, 2015). Therefore, the hypotheses are bound to the opposite of death, birth, to create epiphany under the protection of detachment, safety-zone, control, and perspective frames.

Table 1 Seven techniques for death design.

Design techniques	Reference frame	Cases
1. Simplified abstraction	Refer to the "detachment frame" for simplifying the product appearance.	A 3D printed pyramid-like urn for ashes
2. Proximity	Refer to the "safety-zone frame" for encouraging the user to approach.	An urn is covered by a cute fluffy toy
3. Functionality	Refer to the "control frame" for adding practical functions.	Environmental considerations; engraving a QR code on the tombstone to recall the past
4. Emotional resonance	Refer to the "control frame" for stimulating emotional linkages and meditations.	A design of combinable family urn for commemorating
5. Eternity perspective	Refer to the "hope frame" for representing an eternal feeling.	Making ashes (after cremation) into diamonds or glass balls
6. Relief perspective	Refer to the "hope frame" for representing a relief feeling.	Fixing the urn on a balloon and sprinkling the ashes into the sea
7. Rebirth perspective	Refer to the "hope frame" for representing a rebirth feeling.	To grow plants from the urn containing the ashes

2.1 Measuring for the preference

We measured the attitude of adoption preference as dependent variable from three perspectives: “I will adopt this design for myself,” “I will adopt this design for my loves,” and “the society should adopt this design.” These perspectives referred to the scale of Collett-Lester Fear of Death (CLFDS) which not only measures people’s attitude to their death and dying, but also measures the attitude to other people’s (intimate or stranger) death and dying. Former comparison study also showed that the CLFDS appeared to have good validity and reliability (Dadfar & Lester, 2016). Furthermore, we measured the “sense of fear” to confirm the influences of design techniques on transforming the “dead” feeling in design works.

3 Research procedure

3.1 Stimuli

One hundred and fifty-nine works from the campaign “Design for Death” (<https://www.designboom.com/competition/design-for-death/>) held by Designboom in 2013 were collected to be our stimuli. We believe that these 159 diversified works with different product types are the excellent stimuli because they stood out from the perspective of 2,050 designers over 96 countries which could enhance the generalization of our findings in different domains.

These design works were printed in 10-by-10-centimeter cards and noted its product types and main function of it. One hundred and ten works selected via the aid of three postgraduates by removing works that were not easy to understand only by a picture (especially for the space design, webpage or media design). Then, five design experts sorted the works depended on the similarity. After a hierarchical analysis and considering the representativeness in each cluster, sixty-six design works were settled as our stimuli.

3.2 Participants

Sixty-one undergraduates (37 females; age from 18 to 27) recruited in an industrial design school to participate in this study in change of \$3. The investigator also confirmed with participants that they have never known these “design for death” campaign before.

3.3 Procedure

The experiment was conducted via a web-survey system. Participants reviewed and evaluated the design works in random order through the computers in the identical model in the university to prevent possible confounding effects from the devices, for example, screen size and display. In each review, participants evaluated the work by eleven items (including seven items for design techniques, three items for preference of adoption, and one item for indicating fear) on a 5-point scale (1 = extreme disagree to 5 = extreme agree). In average, participants completed the task in 45 minutes.

4 Results

4.1 Main techniques for death design

A factor analysis with Oblimin’s non-orthogonal rotation was conducted and found two critical factors: “born” (eigenvalue =3.29) and “endless” (eigenvalue =1.749), which accounted for 71.83% of the variances. Three criteria were observed in differentiating the design concepts, which are “proximity,” “functionality” and “rebirth perspective.” Furthermore, two concepts, “simplified abstraction” and “emotional resonance” grabbed the works together (see Table 2).

We also confirmed that the “born” factor have significantly linear correlations with “rebirth” ($r = 0.79, p < .05$) and “sense of fear” ($r = -0.66, p < .05$), while the “endless” factor had significantly linear correlations with “eternity” ($r = 0.93, p < .05$) and “relief” ($r = -0.81, p < .05$). To visualize our findings, we mapped the 66 design works into two paired sub-factors: “newborn-dead” and “eternal-fading away” in Figure 1.

Table 2 Factor analysis for seven death design techniques.

Content of items	Factor1 Born (newborn–dead)	Factor2 Endless (eternal–fading away)
Proximity	0.932	0.003
Simplified abstraction	0.711	0.279
Rebirth perspective	0.815	-0.115
Functionality	0.737	-0.283
Emotional resonance	0.548	0.463
Eternity perspective	0.177	0.884
Relief perspective	0.388	-0.904
Sum of squared loading (Eigenvalue)	3.286	1.743
Percentage of variance explained (%)	46.94	24.90
Cumulative percentage of variance (%)	46.94	71.83

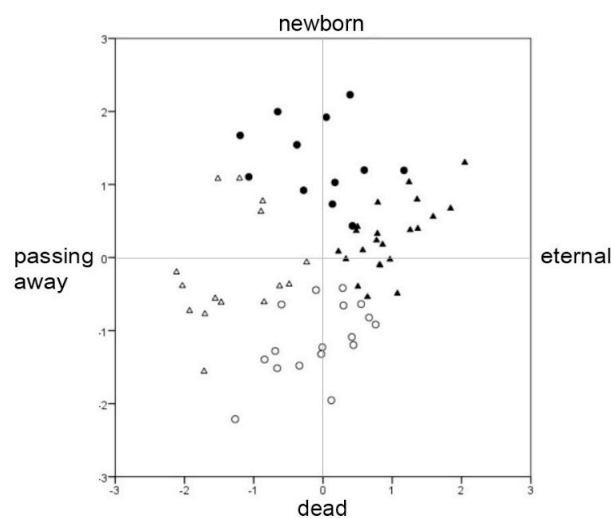


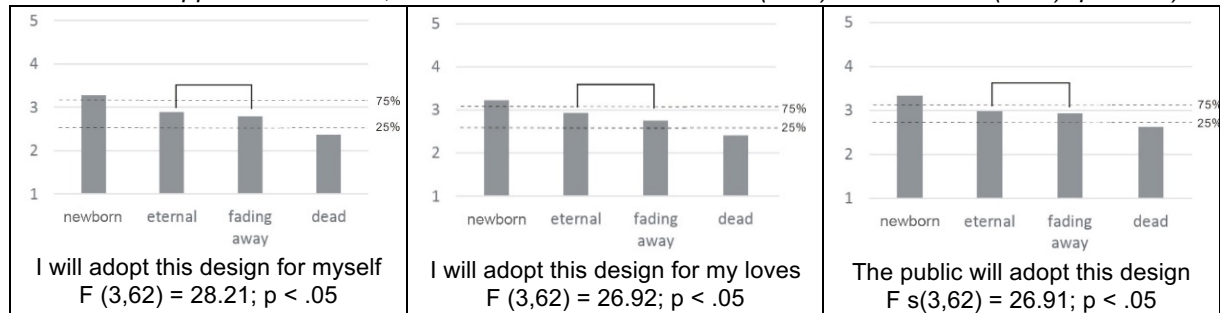
Figure 1. Main factors for death design (●: newborn ($n=12$); ○: dead ($n=17$); ▲: eternity ($n=22$); △: fading away ($n=15$))

ANOVAs were conducted to examine whether comparing with merely expressing “death,” embedding “newborn,” “fading away,” and “eternity,” in the designs enhanced participants’ design adoptions for themselves, for their loves, and for the public as shown in Table 3. The results showed that adding “newborn,” “passing away,” and “eternity” to designs enhanced the participants’ adoptions from all the three perspectives. Among the three factors, embedding “newborn” in designs had most superior in adoptions for themselves, for their loves, and for the public. Following the “newborn,” “eternity” was superior to fading away in adopting for their loves. Furthermore, via the analysis on feeling of fear, comparing with mere “death” expression, we got that embedding “newborn” in the design was excellent at eliminating participants’ fear and following were the “eternity” and “relief.”

These findings confirmed our arguments that adding the opposites (namely, “newborn,” “eternity,” and “fading away” in this study) to “death” in design could achieve high aesthetic

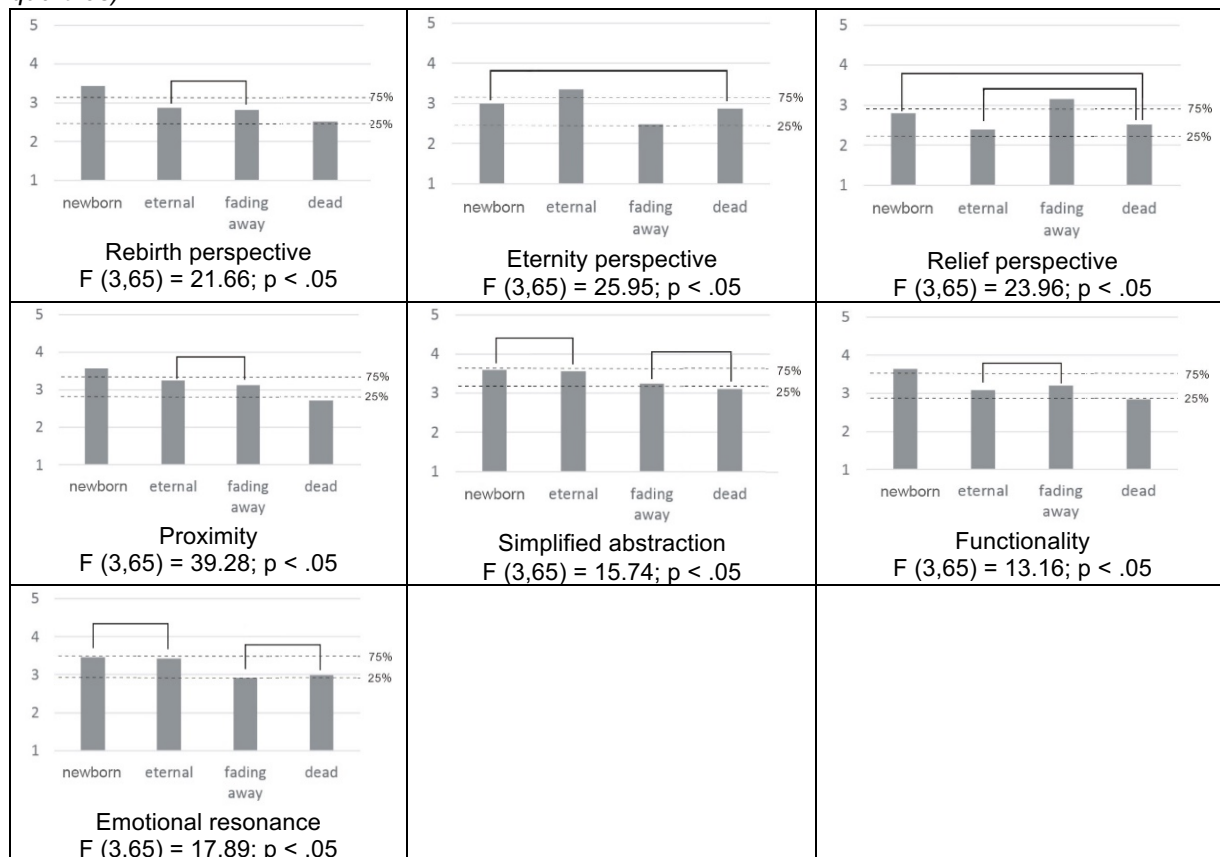
appreciation and acceptance. Among the three opposites which we proposed in the present study, “newborn-dead” was the most effective scheme in design for death.

Table 3 Comparing with merely expressing the sense of death, adding three opposites to the design for death on the three types of adoption (The lid-like connection denotes the non-significant difference between two opposites of death; the dotted line denote the first (25%) and the third (75%) quartiles).



Further examinations were conducted to reveal what design techniques involved underlying the abovementioned enhancement of aesthetic appreciation and adoption. Table 4 showed the results. “Newborn” not only conveyed the highest “rebirth,” “functionality,” and “emotional resonance.” In addition, “newborn” also referred to “eternity” and “relief” although its impact was not competing with “proximity.” Drawing from these results, “newborn” (an opposite of death) gained the advantages from all the seven protective frames.

Table 4: Four sub-factors on the seven design techniques (The lid-like connections denote non-significant between two sub-factors; the dotted line denotes the first (25%) and the third (75%) quartiles).



4.2 Representative examples of four sub-factors

The work of “emergence,” as shown in Figure 1, is a biodegradable coffin which could enrich the soil and facilitated the plant growth. Most of the participants confirmed the plant growth representing the “newborn” (rebirth = 4.03, ranking =1) and somewhat “eternity” and “relieved” (eternity = 3.25, ranking =16; relief = 2.67, ranking = 26). These opposites of death eliminated the feeling of fear (proximity = 3.85, ranking = 1; fear = 1.95, ranking = 61). The consideration of biodegradability and enrichment of organic substances was beneficial and practical for environment (functionality = 3.89, ranking = 3). Participants also appreciated the simple design for the cemetery, tombstone, and coffin (simplified abstraction = 3.61, ranking = 18). A coincidental support came from its first prize in the Design for Death competition. Based on these evidences, we believe that “newborn” shine the most effective way to create aesthetic appreciation and adoptions in design for death.



Figure 1. The representative for embedding “newborn” in design for death (“Emergence” by Enzo Pascual, Pierre Rivière from France).

The work of “one wrapping of mortality,” as shown in Figure 2, presents the work while adding “eternity” to design for death. Participants rated this work with the highest “eternity” (eternity = 4.1; ranking = 1) but lower “relief” (relief = 2.30, ranking = 56). The design concept is to concentrate the remains of the deceased into a diamond, which also provides a way to deal with the dust from cremation and limit spaces of burial. Participants interpreted this work being eternal, love, small, clear, decorative, sparkling, and expensive. These associations may get participants being close to this ornament design (proximity = 3.75, ranking = 3; simplified abstraction = 3.79, ranking = 4; emotional resonance = 3.64, ranking = 6; fear = 1.82, ranking =65).



Figure 2. The representative for embedding “eternity” in design for death (“One wrapping of mortality” by Alessandro Falca, Magnus Winther from Sweden).

The work “urn for a memorial ceremony on water,” as shown in Figure 3, had the highest relief rating but relatively low eternality from our participants’ view (relief = 3.85, ranking=1; eternality = 2.49; ranking=54). The designer combined several types of clay and natural or recycled materials to make a bowl-like urn, which can slowly sink in minutes and totally dissolve within a few days. Participants rated this work to be simple and low sense of fear (simplified abstraction = 3.72, ranking=11; proximity = 3.56, ranking =12; fear = 2.13, ranking = 47). Beyond the relief feeling, “urn for a memorial ceremony on water” also implied somehow association with rebirth (emotional resonance = 3.43, ranking=21; rebirth = 2.89, ranking = 23; functionality = 3.3, ranking = 28).



Figure 3. The representative for embedding “relief” in design for death (“Urn for a memorial ceremony on water” by Agnes Hegedus from Hungary).

Finally, we presented an example which had relative low “reborn,” and “eternity” (rebirth = 2.53, ranking = 56; eternality = 2.43, ranking = 64). Without adding newborn and eternity to the design, participants felt fear (fear = 3.3, ranking = 1) and kept far from it (proximity = 2.33, ranking = 66). The urn contains ash and blows the smoke ring slowly since it also functions as air-refresher or humidifier. In the creator’s words, he intended to remember the moment when his father blew the smoke ring to amuse him in his childhood. However, participants could not get his idea; and, the generated smoke made the dead even more tangible and scared our participants (emotional resonance = 2.77, ranking = 56; simplified abstraction = 3.28, ranking = 44; functionality = 2.89, ranking = 48), although the smoke blowing in the air somehow implied a sense of relief (relief = 2.74, ranking = 22).



Figure 4. The representative for expressing mere “death” in design for death (“Smoke ring” by Xueping Chen from China)

4.3 Adoption for oneself, for the loves, and for the publics

The next issue would be whether participants had different criteria for adopting the designs for themselves, for their loves, and for the public. The pair t-test showed that that participants

had higher threshold for adopting a design for themselves ($t = 7.93, p < .05$) and for their loves ($t = 8.24, p < .05$) than for the public. The thresholds were similar for adopting for themselves and for their loves ($t = .41, ns.$). There is a gap between adopting a design for oneself and the loves and adopting it for the public.

To concretize above relationships, correlations were conducted among the three types of adoptions by the seven design techniques. Table 3 demonstrated the correlation coefficients. The functionality was the most central for considering whether the design would be adopted by the public or not. Figure 5 provides an example (functionality = 4.03; ranking = 1), the work of “solar powered tomb stone,” where a concave solar powered grave integrated with mirrors that could redirect sunlight to a central heating tower to generate electricity for public use. Such design for death would be highly adopted for the public but indefinitely be adopted for oneself and for the loves.

Table 5 Pearson’s correlation coefficients between three types of adoption on seven design techniques (Note: * $p < .05$).

	Functionality	Emotional resonance	Eternity	Proximity	Simplified abstraction	Rebirth	Relief
for oneself	$r = .63^*$	$r = .60^*$	$r = .32^*$	$r = .95^*$	$r = .65^*$	$r = .65^*$	$r = .21$
for loves	$r = .58^*$	$r = .66^*$	$r = .36^*$	$r = .95^*$	$r = .65^*$	$r = .64^*$	$r = .15$
for society	$r = .76^*$	$r = .52^*$	$r = .26^*$	$r = .91^*$	$r = .59^*$	$r = .60^*$	$r = .21$

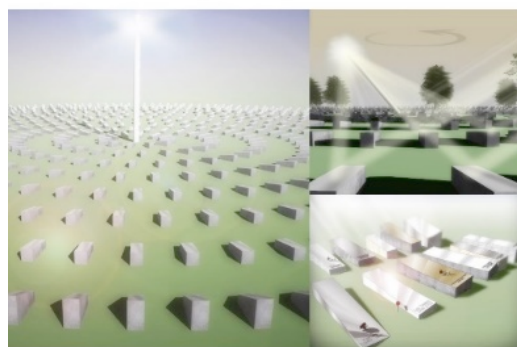


Figure 5. The design which had the highest rating of “functionality” (“Solar powered tomb stones” by Lecafelkf from China)

5 Conclusion

In this study, we have introduced seven techniques to design for death. It seems indeed possible to deliberately turn sadness (sorrow and agony) into attractive and appreciated designs. In particular, we found that contrast between born and dead play the best role in transforming fear and anxiety regarding death into user appreciation compared to the contrast of “eternal–fading away.” These findings not only explain the main techniques used in death design but also extend the hypothesis—applying the opposites of death (i.e., reborn, eternity, and fading away) to the designs would create aesthetic appreciation and adoption. Furthermore, we noted that people had different criteria for adopting a design for oneself, for the loves, and for the public. There was a gap between in-group members (oneself and the loves) and out-group ones (the public). Therefore, designers should carefully consider the target users in design for death. As an initial examination, our participants were the undergraduates in a comprehensive university located in Asia area. Future studies could further consider the cultural differences, the disparity in age, or attitudes for death to generalize our findings.

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About the Authors:

Wei-Ken Hung: Assistant Professor in the Department of Industrial Design at National United University in Taiwan. His research interests include product semantics, cross-disciplinary collaboration and investigation of design-related industries.

Yu-Shan Athena Chen: Assistant Professor at Industrial Design Department of Eindhoven University of Technology (TU/e) in the Netherlands. Her research focuses on brand management and consumers' responses to commercial and industrial designs, with specific interests in logo, packaging, and computer-human-interaction.

Lin-Lin Chen: Full Professor and Chair of Design Innovation Strategy at Eindhoven University of Technology. She is also Professor at Department of Design in National Taiwan University of Science and Technology. Her research focuses on product aesthetics, design innovation, and interaction design for smart things.

Acknowledgement: This research was supported by Taiwan's Ministry of Science and Technology under grant number MOST 107-2410-H-239-013.