

Products Using the Design Model of Synchronic Contrast Emotion

Yung-Chin Tsao, Tatung University, Taiwan
Chien Huang, Tatung University, Taiwan
Jia-De Cheng, Tatung University, Taiwan

The Asian Conference on Arts & Humanities 2018
Official Conference Proceedings

Abstract

The moment when consumers are using the product, it usually generates multiple and complicated emotions. If it is contract emotion that is generated, consumers usually feel novel and original, give a deep impression and further like to use it. The research tries to explore the possibility to apply the contract emotion generated during the process of using “synchronic” to design to products. At first, we investigate the cases involving with synchronic contract emotions. Then we sum up the conceptual structure of synchronic contract emotion through cluster analysis. In the end, we use the design for lightening as an example to unfold design transition focusing on the sub-concepts for 4 kinds of contract emotions “still not satisfied”, “accidents happen”, “being betrayed” and “beyond the expectation”. There are 12 items that are with contract emotions designed.

Keywords: Synchronic, Contrast emotion

iafor

The International Academic Forum
www.iafor.org

Introduction

Today's consumer products market has gradually paid attention to whether the product design can meet users' emotions. In particular, the design of emotions that can trigger contrast often makes people feel creative and enjoyable. The contrast emotion can be divided into "synchronicity" and "diachronicity" according to temporal priming. This study aims to address the synchronic contrast emotions that arise from the stimulation of contrasting things. Taking lighting design for example, here we discuss how products that could lead to users' contrasting emotions will be designed.

Method

First of all, with printed open questionnaires, we collect the reasons why various incidents caused contrast emotions and gathered and screened out examples of synchronic contrast emotions. Then we conducted the cluster analysis, and summed up the types of composition of the synchronic contrast emotions. We also analyze the relationship between events and time, and find out how to transform the synchronic contrast emotions design. Finally, we utilized the lighting design as a theme, to create a sample design for synchronic contrast emotions.

Collect samples of events of synchronic contrast emotions

Let the test-takers write down the cases of producing contrast emotions and the causes of events leading to contrast emotions, based on their usual knowledge of daily happenings provided by the printed questionnaires. Among more than 50 events collected, we screened out 25 examples of synchronic contrast emotions.

Screening points are as follows

(1) Situations described in a case can compel people unable to make a clear decision on the very moment. (2) After the event examples are described, the reasons for emergence of synchronic contrast emotions can be understood. (3) Event samples themselves can resonate with people, and the temporal state of the non- event samples is a synchronic event sample.

Table 1. Cases of Contrasting Emotions of Synchronicity after Filtration

編號	共時性之對立情緒事例	產生對立情緒之理由
01	參加軍人的喪禮，讓人除了傷心外，也產生了肅然起敬之感	喪禮固然悲傷，但身為軍人，榮耀共存
02	告白失敗了，但對對方的愛意仍沒消退	沉浸在單戀的幻想裡固然愉悅，但回到現實，自己的告白卻已經被對方拒絕了
03	花1000元買的刮刮樂，刮中了1000元，沒賺但也沒虧	一虧有可能1000元就沒了，幸好一毛錢都沒虧到，讓人不禁鬆了一口氣
04	被通知得獎，上台才發現原來是搞錯人了	陷入一種哭笑不得的窘境
05	自己上台發表終於告一段落了，但老師的質問卻接踵而來	報告剛結束，心頭輕鬆愉悅，但看到老師一直有疑問，情況不禁又悲觀了起來
06	生日已被通知了有人會送自己禮物，但等真正收到時仍感到很吃驚	生日當天被通知有人會送自己禮物，但卻不知道確切時間，所以收到時還是被嚇了一跳
07	看著自己展出的作品很得意，卻聽到旁人正在嘲笑	看著自己的成果十分滿意，但卻被旁人說三道四的，不由得又產生憤怒之感
08	被信任好兄弟(姊妹)出賣了，一時之間不敢相信	被信任的人出賣，但一時之間不願相信這是現實
09	花大錢終於買到新手機了，卻用不到一天就刮傷了	買了新手機固然開心，但才用不到二天就傷到了，那以後還得了，想到就煩悶
10	男友彎腰綁個鞋帶，沒想到一抬頭就亮出鑽戒求婚	原以為如平常一般的行為，沒想到是突如其來的求婚，讓人又驚又喜
11	有喜歡電視劇(電影)中的主角，但他在劇中卻死掉了	影劇中喜歡的角色，卻在劇情安排下走掉了，不由得感嘆一番
12	壞人想搶你錢，讓你生氣，而他手上有凶器，所以你也敢反抗	別人莫名其妙搶你東西讓你生氣，但遇到壞人太害怕了，也不敢跟他動手
13	聽到自己支持的知名球隊打假球	一時不敢相信那些自己支持的球隊竟然會做出這種背叛球迷的事
14	購物結帳時老闆突然加送了贈品	老闆突如其來之下出手送贈品，不管送的東西好不好，都讓客人覺得多賺了
15	感覺被人跟蹤，結果轉頭一看竟然是熟人	一個人走回家，感覺後面一直有視線盯著自己，回頭看才發現竟是熟人
16	邊喝牛奶邊看盒上製造日期，猛然發現過期了	以為牛奶沒過期就開來喝，瞄到盒子上的製造日期才驚覺過期了
17	發現知名廠商竟然在做黑心食品	一時不敢相信國內知名的廠商竟然會做出這種毒害人的事
18	電視上看到自己支持的政府官員竟然收賄	一時不敢相信支持的政府官員竟然會做出這種背叛民心的事
19	隨手買的大樂透竟然中到了大獎	自己竟然中獎一夕致富，完全不敢相信
20	有些人很害怕看恐怖電影，但又看得一臉很開心的樣子	他們天生就是對恐怖電影又愛又怕，想一直沉浸在那種感覺裡
21	黃色笑話乍聽之下讓人反感，但有時又真的蠻好笑的	聽別人講黃色笑話，想保持尊嚴不想讓其他人覺得自己粗俗，但又得忍住不笑
22	路邊撿到的發票，一兌獎之下，竟然中到大錢	別人不要的垃圾，竟然是件寶
23	知心好友開你玩笑，看在面子上不敢動怒	生氣是沒錯，但對象是自己長年的好朋友，也不會真的跟他較真
24	新聞看到執法的警察被搶匪槍殺，出現一股遺憾之感	因為對象是人民保母，看到因公殉職，難免產生遺憾之感
25	當下老師對你嚴格讓你不滿，但有時真的是因為惜才才不得已嚴厲	只看事情表面會認為別人想讓你難堪，但有時對方的用意只是為了幫你

Structure & Type of Synchronic Contrast Emotion

Then, at this stage, we will carry out a cluster analysis on the synchronic contrast emotions obtained by screening. According to the resulting structure obtained by this cluster analysis, we set the four types of "Still feeling unsatisfactory", "Accidentally", "When being betrayed" and "Beyond expectation".

Fill the 25 contrasting emotions of synchronicity after filtration in the previous stage in the similarity matrix. Testees will conduct similarity comparison. The rating criteria: 1 point means not similar, and 10 points mean most similar.

Table 2. Filling Example of Similarity Matrix

1. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2. 受到挫折時，感到悲憤與不安	10	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
3. 受到挫折時，感到悲憤與不安	10	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4. 受到挫折時，感到悲憤與不安	10	8	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
5. 受到挫折時，感到悲憤與不安	10	8	5	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
6. 受到挫折時，感到悲憤與不安	10	8	5	3	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
7. 受到挫折時，感到悲憤與不安	10	8	5	3	1	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
8. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
9. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
10. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
11. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
12. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
13. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	
14. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	
15. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	
16. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	8	10	8	5	3	1	1	1	1	1	1	1	1	1	1	
17. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	8	10	8	5	3	1	1	1	1	1	1	1	1	1	
18. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	8	10	8	5	3	1	1	1	1	1	1	1	1	
19. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	8	5	3	1	1	1	1	1	1	1	
20. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	8	5	3	1	1	1	1	1	1	
21. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	8	5	3	1	1	1	1	1	
22. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	8	5	3	1	1	1	1	
23. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	8	5	3	1	1	1	
24. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	8	5	3	1	1	
25. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	8	5	3	1	
26. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	8	5	3	
27. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	8	5	
28. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	8	
29. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	
30. 受到挫折時，感到悲憤與不安	10	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10

將兩兩造成矛盾感受之事例
依照其之間相似程度 填上1-10分 填完半部分就好(右上)

1:不相似 10:最相似

不必填

將兩兩造成矛盾感受之事例
依照其之間相似程度 填上1-
10分 填完半部分就好(右上)
1:不相似 10:最相似

不必填

After turning the filled similarity matrix into distance, conduct cluster analysis according to the discrete similarities between cases of contrasting emotions of synchronicity. The cluster analysis is conducted with the software of quantification method in Japan. The scale of analysis is chosen by Ward's method. Aiming at the result of analysis, four groups has been selected and divided.

Table 3. The Result of the Cluster

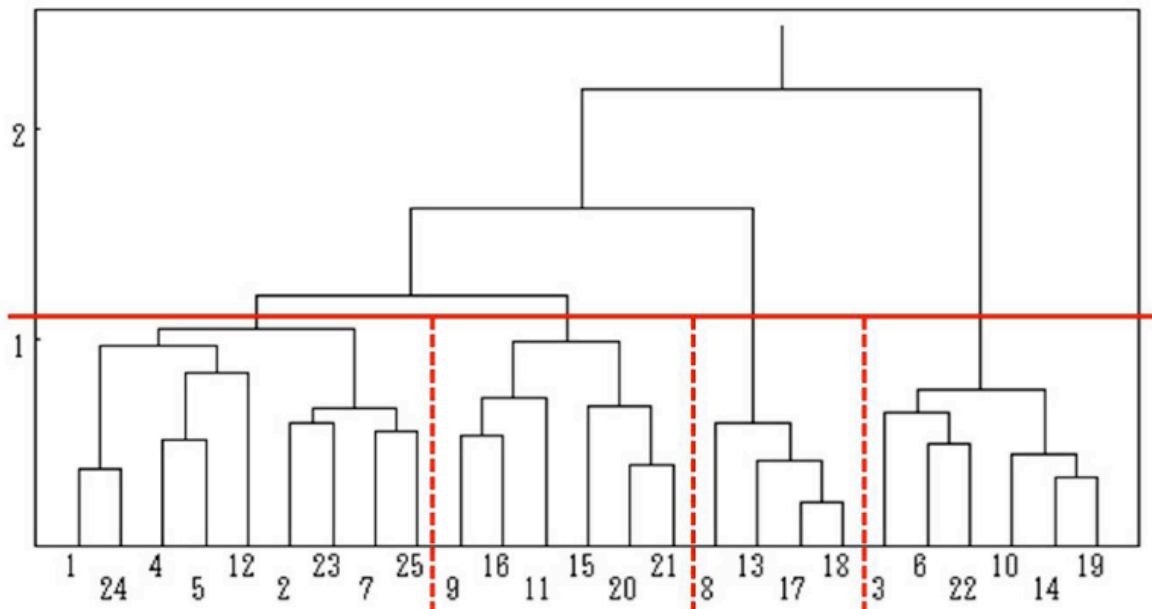


Table 4. Types of Cases of Contrasting Emotions of Synchronicity after

Types	Number	
Still unsatisfied	01	Participating in a funeral of a soldier not only makes people sad, but also be filled with deep esteem.
	02	Confession ended up failed, but the love still burns.
	04	Being informed that a prize is won, but then found out that it's merely a misunderstanding.
	05	The presentation finally ends, but questions from teachers come after another.
	07	Feel proud for self's work being exhibited, yet hear others laugh at it.
	12	Bad guy tries to rob your money and makes you angry. He has a weapon, so you dare not fight against him.
	23	Best friend makes fun on you, but you don't show anger in order to save the face.
	24	Feel sorry when seeing police got killed by robbers on the news.
Accidentally occurs	25	The teacher strictly treated you at the time, but sometimes it has no alternative to be strict in talents.
	09	Bought new phone with great amount of money, but it got scratched during the first day.
	11	In favor of the protagonist on the TV show (film), but he dies in the story.
	15	Feeling someone is stalking you. Then you turned around and found out that it was an acquaintance.
	16	Drinking milk and simultaneously looking at the manufacturing date printed on the box, and suddenly found out that it's expired.
	20	Some people feel feared when watching horror films, yet they somehow enjoy them.
	21	Porn jokes often sounds disgusting, but sometimes they are pretty funny.

Betrayed	08	Hardly believe that you're sold by trusted brothers (sisters).
	13	Have heard that your favorite team had a match fixing.
	17	Have found out that a famous company is producing tainted food.
	18	Have been seeing the supported politician is involved in bribery on TV.
Beyond expectation	03	Bought a scratch-off with 1,000 dollars, and won 1,000 dollars. No gain and no loss.
	06	Have been informed that presents will be given, but still feel surprised when receiving them.
	10	The boy friend tied a shoelace, and unexpectedly showed a diamond ring and proposed.
	14	Receive gifts from the shopkeeper when having the bill.
	19	Casually bought lottery won you a big prize.
	22	Picked up a receipt on the road, and won a big prize with it.

Design Conversion of the Synchronic Contrast Emotions

Taking the design of lighting as an example, make the four major types of the synchronic contrast emotions samples correspond with two phases of product use, in order to convert the design concept. The conversion method is shown in Figure 1.

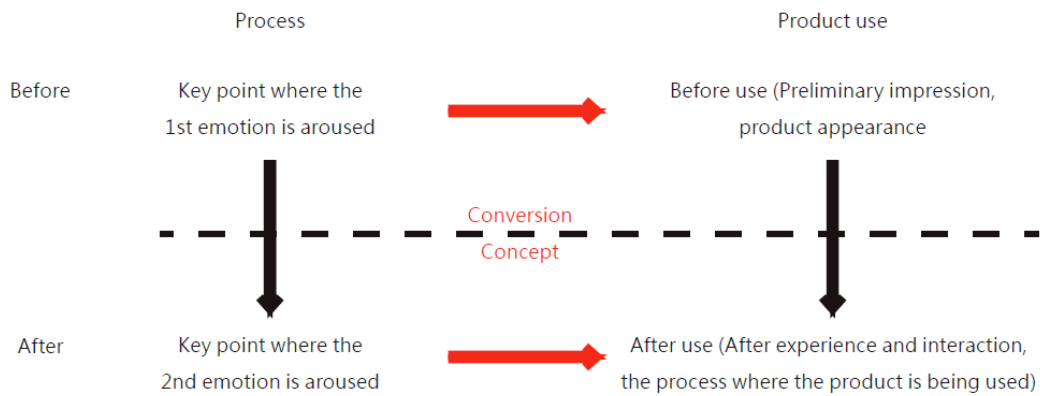


Figure 1: Design and conversion of synchronic contrast

Synchronicity of contrast emotions examples

In this study, we find three examples of each design that are applicable to each of the above four types. We also give examples of the contrast emotions in the "Plutchik contrast emotion model." In Table 1, we see the relation example, in light of time, of the 1st group of "Still feeling unsatisfactory."

Table 1: Relation example, in light of time, of the 1st group

No.	example	The possible Plutchik contrast emotion model	Relation between resulting contrast emotions and time
02	Farewell to failure, while the love has yet faded	Sad and joyful and trustful	<p>1st group: While still feel unsatisfactory</p> <p>Farewell to failure while the love has yet faded</p> <p>The direction of time flies</p> <p>Contrast emotion ■ pleasure ■ sad/angry</p>

Sample design for synchronic contrast emotions

This study designs 12 samples based on four groups of contrast emotions. Table 2 shows the designed conversion process and explanation examples. Table 3 shows the examples design for 12 contrast emotions.

Table 2 : Conversion and description of samples

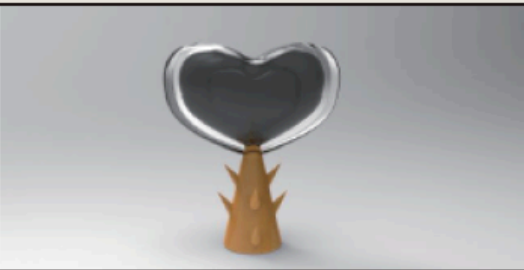
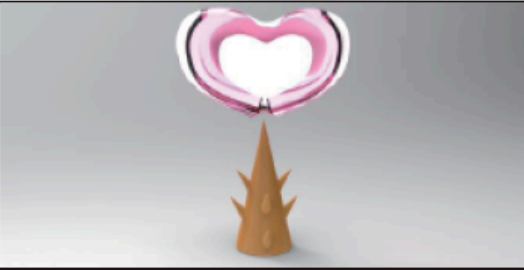
Sample			
Place where conversion takes	Example 02: Fail to confess the love, while the love has yet faded		
The key to causing contrast emotions	Key 1: Fail to confess the love (causing sadness) Key 2: Love still exists (causing pleasure)		
Design conversion process			
Before design, appearance and concept of designed product		After design, usage process of designed product	
Fail to confess the love		Love still exists	
↓		↓	
Failure to confess the love reminds one of broken heart , and the impulse of sadness arises for the time being		"Love still exists" makes one feel that the love is still growing , and feels selfless pleasure .	
↓		↓	
Sample setting: use the love attacked by brambles as the appearance.		After Sample setting: Pink light beams appear that expand gradually	
process	Photo of product		description
before use			At the sight of the beautiful love, which was inserted in the thorns, people feel more painful.
after use			At the sight of the love that seems painful, you cannot help but give a hand. After pulling it up, the love begins to shine, as if it were saved.
Purpose: portable light			

Table 3.1 . 12 types samples













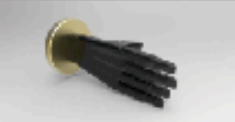











sample		
	Group 1 : Still feeling unsatisfactory	Group 2: Accidentally
process	Ex. 02 : Fail to confess the love, while the love has yet faded	Ex. 09 : Spend much money on a cellphone but have it scrapped within just one day of purchase
before use		
after use		
process	Ex. 04 : Notified of winning an award, you go onto the stage only to find you're the wrong person	Ex. 11 : Your beloved protagonist dies in the movie
before use		
after use		
process	Ex. 07 : Feel complacent while watching displayed works, while scolding voice is heard nearby.	Ex. 15 : Feel yourself being tracked before it turns out to be one of your acquaintances.
before use		
after use		

Table 3.2 . 12 types samples

sample		
	Group 3 : When being betrayed	Group 4 : Beyond expectation
process	Ex. 08: Betrayed by a reliable friend, and cannot believe it for the time being	Ex. 06: Informed of a surprise birthday gift, but still feel surprised upon opening the gift box
before use		
after use		
process	Ex. 17: You find that there's food scandal where a well known manufacturer is involved	Ex. 10: Your boyfriend stoops to tie his shoelaces, and he look up to show you a diamond ring
before use		
after use		
process	Ex. 18 : Surprisingly see one of your supporting government officials take bribes.	Ex. 22 : Pick up an invoice while walking on the roadside invoice, and find it to be a lucky jackpot later.
before use		
after use		

Conclusion and Suggestion

This study summarizes the conceptual structure of synchronic contrast emotions. And in the final stage, we took the lighting design for example. With the four sub-concepts of contrast emotions, "Still feeling unsatisfactory", "Accidentally", "When being betrayed" and "Beyond expectation," we began design conversions. We have designed 12 types of contrasting emotions. In the follow-up stage of this study, we will again utilize the above 12 types of emotions as samples, and measure the test-takers' brain

waves and emotions, to testify that each designed sample can produce these contrast emotions before and after use, and explore the comprehensive evaluation impact of each contrast emotion on "Like to use" and "innovation."

Acknowledgements

We appreciate the patronage of Technology Division for assistance in completion of this study. As members of MOST106-2221-E-036-010-MY2 Scheme , we hereby express our gratitude.

References

Harrison, L., Earl, C., & Eckert, C. (2015). Exploratory making: Shape, structure and motion. *Design Studies*, 41, 51, 51, 51 -78.

Liu, S. Y. (2013). Surrealism Expression in Product Design.

Norman, D. A. (2005). Emotional design: Why we love (or hate) everyday things. Basic books.

Talanov, M., & Toshev, A. (2015). Appraisal, Coping and High Level Emotions Aspects of Computational Emotional Thinking. *International Journal of Synthetic Emotions*, 6(1), 24-39.

Contact email: tsao@ttu.edu.tw