IASDR 2019

International Association of Societies of
Design Research Conference 2019
DESIGN REVOLUTIONS

Manchester School of Art
Manchester Metropolitan University
02-05 September 2019

Trigger Design Circles: A Behavioral Design Strategy to Practice Desired Behaviors

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Why do people often fail to practice what they have planned in eveyday life? It is because daily habits are hard to break. Unless special events take place, people tend to stay in circles of habits although they know new behaviors benft their lives. Purpose of this study is to develop a behavioral design strategy that builds a natural path to prolong one's desired behavior with a set of triggers. By setting pleasure to trigger actions upon users' free will, it is different from other behavioral design approaches. The paper suggests nine pleasure triggers based on behavioral sciences, and categorized from pleasure in game theory into *anticipation, sensation, possibility, competition, self-identity, unexpected, socializing, control,* and *triumph & pride*. The paper proposes Trigger Design Circles as a design framework to analyze action paths that people repeatedly choose to do. With the circles, designers could from develop and evaluate concepts using nine triggers as inspirational tools.

Keywords: trigger design; pleasure; nudge; behavioral design strategy; user-centered design

1   Introduction

Everyone knows regular exercising is a better choice for health than watching YouTube. Then, why is it so hard to keep up with exercising, while subscribing YouTube channel so easy? Are there secrets for desired behaviors that last? This study started from this question.

Nudge is one of the prominent behavioral economics interventions using indirect and positive reinforcement to affect one's decision-making. Most of *nudge* researches and experiments are focused on making policies and sales increase in which people choose their actions under influence of planners' intention. Hence, *nudge* approaches for the benefit of public or private shows different needs from those of individuals. Therefore, it could dissatisfy users. Accordingly, with *nudge*, people often fail to maintain their behaviours although they acknowledge it is a good choice for themselves and public. For example, we register for a yearly health club membership in January enticed by a fancy advertisement that supports our new year's resolution, but often fail to go longer than three months.

Therefore, this study brings out the necessity of design study on behaviors that last which can be propelled by the user-centered perspectives. To initiate this research, we

investigated behavior trigger design model with key terms by referring prior studies on human behaviors: BJ Fogg Behavior Model (Fogg, 2009), Habit-Goal Interface Model (Wood & Neal, 2007), Brains, Behavior & Design Toolkit (IIT, 2011), Game theory (Schell, 2010; Walsh, 2010) and 'flow' theory (Csikszentmihalyi, 1990). We hope this study helps designers to ideate concepts naturally come along with people's daily choices, and as a result, achieve its continuity.

2   Design Elements

This article introduces two main design elements for a behavioral design strategy to practice desired behaviors that last.

2.1   A Set of Triggers

According to Fogg (2009), trigger "causes someone to perform a target behavior." He changes his term to *prompt* since 2018, meaning "to do it now." However, in this paper, trigger will be used because we would like to emphasize it as an external device that can be developed as a design concept. Below are three noticeable features of trigger we suggest in our study.

1. It is a designed device as part of a product, service, or system.
2. It directs one's behavior toward desired one that is difficult to practice.
3. It is not a single fixed trigger, but a set of responding triggers to a user's current conditions including obstacles.

In the Fogg Behavior Model (2009) as seen in fig.1, there are three types of triggers: *facilitator, spark,* and *signal* based on motivation and ability trade-offs of a user. For example, if a user's ability is low and motivation is high, *facilitator* triggers the action; if ability is high and motivation is low, the *spark* does; if both are high, *signal* works. In this model, to increase users' motivation and ability is the core value, because otherwise, no actions will occur even it is stimulated with triggers.

HIGH MOTIVATION

FACILITATOR
High motivation
low ability

SIGNAL
High ability
High motivation

SPARK
High ability
Low motivation

NO ACTIONS
even with triggers

LOW MOTIVATION

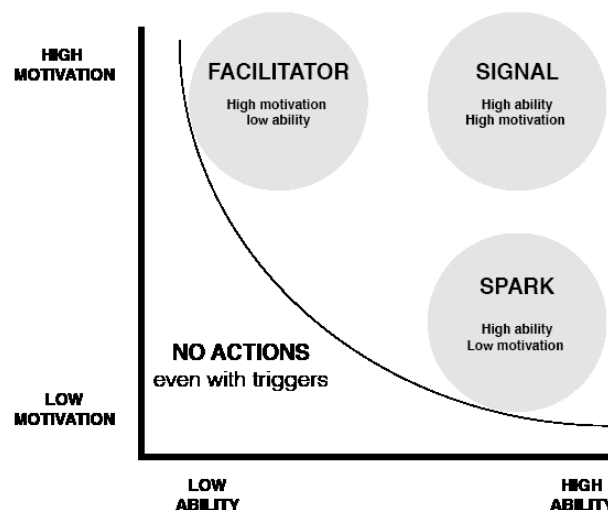LOW ABILITY   HIGH ABILITY

Figure 1. Fogg Behavior Model (2006)

Studying the Fogg's types of triggers, we discovered that the trigger should be designed according to a user's condition in order to encourage one's action. Various types of triggers are designed for a single product to be used by people. Take a look at YouTube. As shown in fig.2, it entices users with several triggers embedded in its system so they could instantly visit and always watch its videos. First, it sends you an alarm (trigger A) when there is an update on your subscribed channel (user's condition A). Second, after you watch a video, it suggests a new video (trigger B) based on your previous choices (user's condition B). Third, other viewers' preferences influence your choice of a video (trigger C), views (trigger D) on a video and other viewers' comments (trigger E). With all these different triggers timely applied to a user's choice, YouTube regularly engages users to keep coming back to its service.
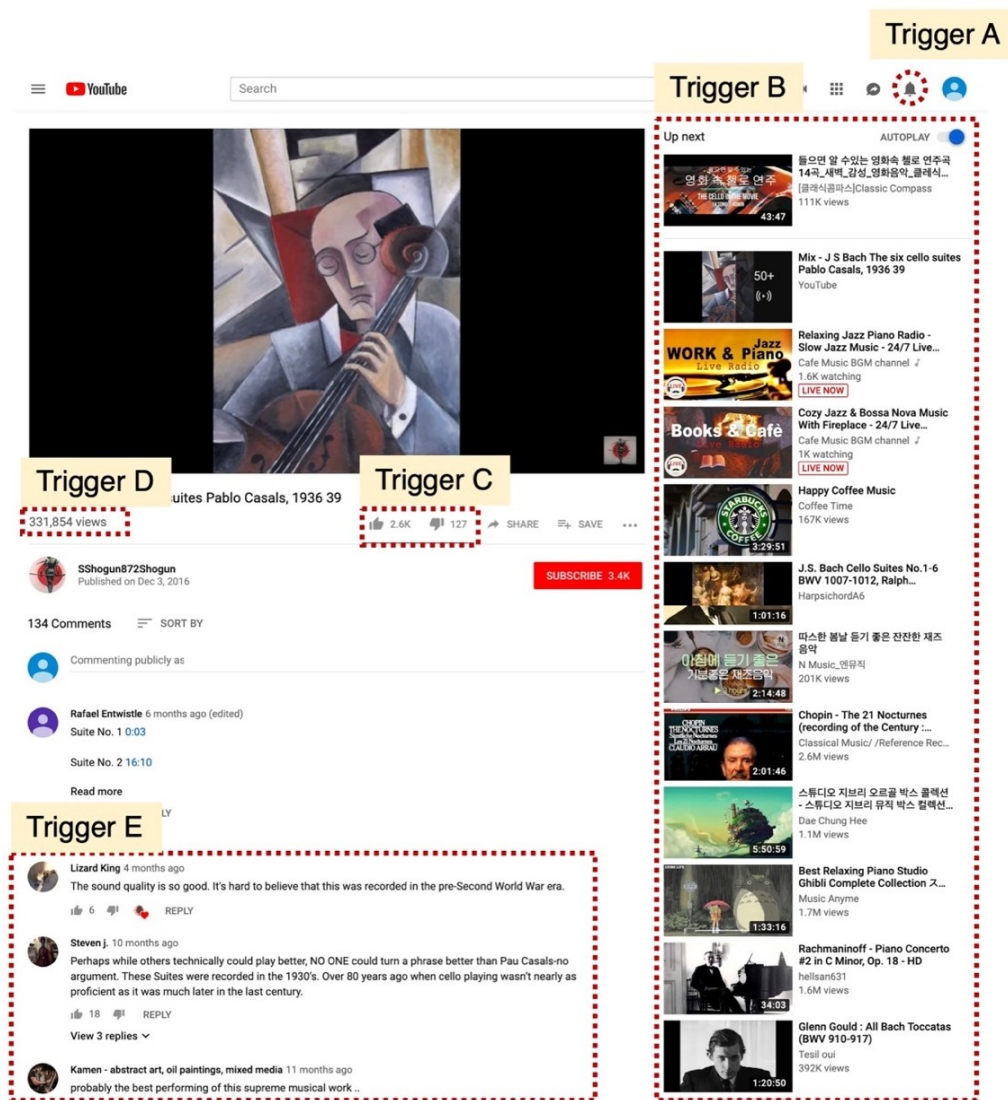

Figure 2. Youtube's various triggers played based on a user's condition

We learned from the case of YouTube that popular social network services or mobile applications successfully applied triggers as important design elements while delivering pleasurable experiences as they brought up heavy users. As Wood & Neal (2007) put it, a user's goal does not always lead one's habit because the habit is interfered by "performance location, preceding actions in sequence, and particular people." Thus, it is vital to consider

the user's performance contexts and avoid to associate it with undesired ones. As a result, design trigger with 'proper' feedback on time and contexts become a crucial element to develop a lasting behavioral design strategy.

2.2　Factors of Pleasurable Experiences

In this study, pleasure is not a hedonic emotion, but a fulfilled and powered emotion to move oneself forward. Plutchik (2003) claims that emotions are not just subjective feelings, but mechanisms that have evolved during the processes directly linked to the survival of humankind. Based on this claim, pleasure, as a condition of human survival, differentiates our approach from a single *nudge* focusing on loss and gain mechanisms. We believe pleasure is the strongest emotion of all to elicits actions upon one's free will. Through fear and anger you can initiate people to act, but shift them to positive feeling is more important to trigger behaviors to last. Therefore, pleasure is be the key strategy.

3　Design Triggers with Pleasure

We studied Brains, Behaviors & Design (Cervantes et al., 2011) and game theory (Leblanc et al., 2004; Schell, 2010; Walsh et al.,2010) in which players are engaged with pleasurable experiences. Based on these studies, we were able to have foundation for pleasure triggers.

3.1　Triggers from Brains, Behaviors & Design (BBD) Toolkit

There are five tools in the toolkit: *Reference Cards, Concept Ecosystem Poster, Irrational Situation Guides, Strategy Cards,* and *Loss/Gain Worksheet*. To analyze its structure for our purpose, we categorized them into three parts (fig. 3). *Reference Cards* is the library for this toolkit and connected with *Strategy Cards* that gives actual suggestions to designers. We used *Irrational Situation Guides* as a reference point to get ideas for triggers because it explains their applications in practices. *Loss/ Gain Worksheet* was least considered for this article as the tool is not directly related to pleasure but financial losses and gains.
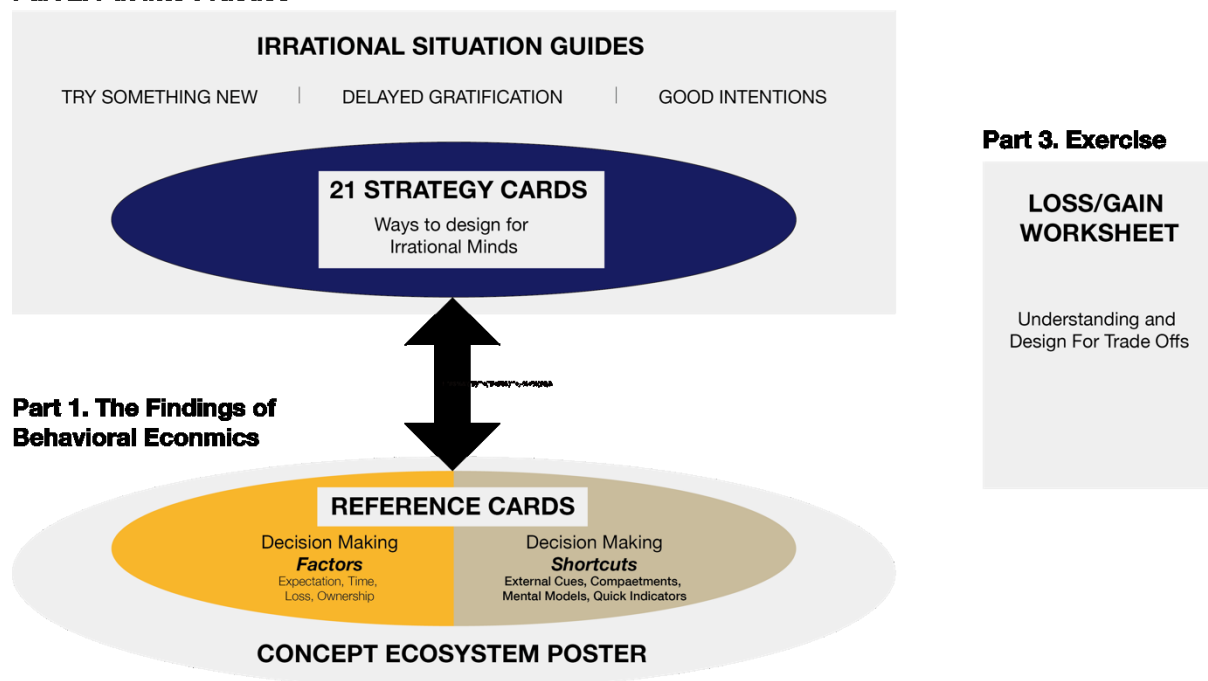

Figure 3. Structural Analysis of Brains, Behaviors & Design (IIT, 2010) Toolkit

As a result of studying this toolkit, especially *Strategy Cards* based on *Irrational Situation Guides*, we discovered that behavior requires triggers either to initiate and strengthen it.

Table 1. 13 Possible Triggers from 21 Strategy Cards

Initiating Triggers	
#9	Highlight colorful and personal stories.
#14	Set up positive expectations.
#19	Provide opportunities for people to pre-commit.
Strengthening Triggers	
#5	Break up large gains into smaller gains.
#6	Conjure up positive memories of similar experiences.
#7	Associate new behavior with an existing routine.
#8	Draw upon or introduce relevant social norms.
#12	Align the desired outcome with the user's identity.
#13	Introduce ownership.
#15	Use surprise to make gains more pleasurable.
#16	Minimize risk associated with the desired Behavior.
#17	Use facts to lend credibility and memorability.
#18	Give the user frequent feedback about the consequences of their actions.

Out of 21 *Strategy Cards* of BBD toolkit, we were able to derive three behavior initiators and ten strengthening factors. Many studies in behavioral psychology, marketing, and design have had several approaches for triggers, but they mainly focused on making a single decision with the initiators. However, to build lasting behavior, exploring the role of strengthening triggers are more crucial. Hence, besides trying to raise expectations for a new product using *Initiating Triggers*, we better design triggers that give many feedbacks placed within the users' routines, that is matching to their social norms while giving them control using *Strengthening Triggers* (table 1).

3.2 Pleasure Trigger from Game Theory
We studied game design for researches on pleasure and about its experiences. It is a framework that allows players to immerse themselves into playing games continuously.

In table 2, we have reclassified LeBlanc (8 types), Schell (11 types) and Walsh (22 types) who respectively classified the feelings of pleasure while playing the game with three categories we suggest in this article. The three categories are *internal, external* and *interaction* (fig. 4), and they are factors affecting one's emotions. With *internal*, factors of changing, emotions take places inside a self, while the *external* from outside of the self. *Interaction* is expressed emotions through relationships with others or interactions with external environments.
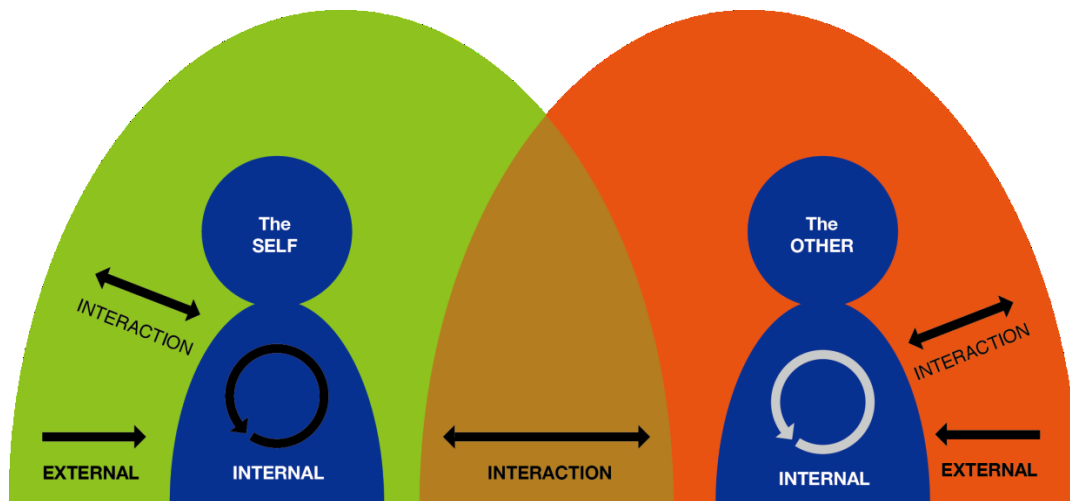
Figure 4. Internal, external, interaction Map

We drew an affinity diagram of 34 types excluding few overlaps of 41 pleasures after its reclassification in table 2. We discovered two things through this process. First, motivations for pleasure were summarized in nine keywords with three categories we suggest in fig.4. These possible types of triggers promoting pleasure are *anticipation*, *sensation, possibility, competition, self-identity, unexpected, socializing, control,* and *triumph & pride* (fig.5). Second, we discovered consequential relationship among the nine pleasure triggers that they can be placed with "before-during-after" time sequence.

Table 2 Classification of Pleasure with Three Categories(Fig.4)

CAT If a factor(s) affecting one's emotion comes from...	LeBlanc's Taxonomy of Game Pleasures	Schell's Pleasures	Walsh's the 22 PLEX Playful Experiences
Internal	*Submission,* the pleasure of entering the magic circle by leaving the real world behind	*Anticipation,* the pleasure of waiting for pleasure to come	*Control*, dominating, commanding or regulating
		Pride in an Accomplishment, pleased satisfaction	*Fantasy*, an imagined situation
	Fantasy, the pleasure of imagining yourself in another world	*Triumph over Adversity,* accomplished after a long shot	*Relaxation*, relief from bodily or mental work
			Captivation, forgetting one's surroundings
External	*Sensation*, the pleasure of using senses	*Possibility,* having many choices to pick one of them	*Completion*, finishing a major task or reaching closure
	Challenge, a pleasure to have problems to solve	*Wonder,* overwhelming feeling of awe and amazement	*Sensation,* excitement by stimulating senses
			Challenge, testing abilities in a demanding task
		Purification, making things clean (e.g., clear level or eat all dots)	*Cruelty*, causing mental or physical pain
	Discover, seek and find something new or exploration of a game		*Discovery*, finding something new or unknown

6

	world or discovery of a secret feature or strategy	*Surprise*	*Eroticism*, a sexually arousing situation
			Exploration, investigating an object or situation
		Thrill, experiencing terror but feel secure in safety (e.g., roller coaster)	*Simulation*, an imitation of everyday life
			Suffering, loss, frustration or anger
			Thrill, excitement derived from risk or danger
Interaction	*Expression,* the pleasure of expressing oneself and creating things	*Gift Giving, the* surprise of a gift	*Competition*, contest with oneself or an opponent
			Fellowship, friendship, commonality or intimacy
	Fellowship, everything enjoyable about friendship, cooperation, and community	*Humor,* two unconnected things unified by a paradigm shift	*Expression*, manifesting oneself creatively
			Nurture, taking care of oneself or others
			Submission, being part of a larger structure
			Subversion, breaking social rules and norms
	Narrative, the pleasure of telling a story of dramatic unfolding of a sequence of events	*Delight in Another's Misfortune,* unjust person's sudden comeuppance	*Sympathy*, sharing emotional feelings
			Humor, fun, joy, amusement, jokes or gags

Before — 1 Anticipation

Anticipation, pleasure of waiting for a pleasure to come

Internal

repeats

During — Possible types of *Triggers* promoting *Pleasure*

2 SENSATION	3 POSSIBILITY	4 COMPETITION	5 SELF IDENTITY	6 UNEXPECTED	7 SOCIALIZING
Sensation, pleasure of using senses — *External*	*Possibility,* having many choices to pick one of them — *External*	*Competition,* contest with oneself or an opponent — *Interaction*	*Expression,* pleasure of expressing oneself and creating things — *Interaction*	*Humour,* two unconnected things unified by a paradigm shift — *Interaction*	*Fellowship,* everything enjoyable about friendship, cooperation, and community — *Interaction*
Suffering, loss, frustration or anger — *External*	*Discovery,* finding something new or unknown — *External*	*Delight in Another's Misfortune,* unjust person's sudden comeuppance — *Interaction*	*Subversion,* breaking social rules and norms — *Interaction*	*Narrative,* pleasure of telling a story of dramatic unfolding of a sequence of events — *Interaction*	*Submission,* being part of a larger structure — *Interaction*
Cruelty, causing mental or physical pain — *External*	*Exploration,* investigating an object or situation — *External*				*Sympathy,* sharing emotional feelings — *Interaction*
Thrill, experiencing terror but feel secure in safety (e.g. roller coaster) — *External*	*Challenge,* testing abilities in a demanding task — *External*				*Nurture,* taking care of oneself or others — *Interaction*
Eroticism, a sexually arousing situation — *External*	*Purification,* making things clean (e.g. clear level or eat all dots) — *External*				*Gift Giving,* surprise of a gift — *Interaction*

supports

In the *flow* channel
8 Control

Control, dominating, commanding or regulating — *Internal* + *Captivation,* forgetting one's surroundings — *Internal* — *Fantasy,* pleasure of imagining yourself in other world — *Internal* — *Submission,* pleasure of entering the magic circle by leaving the real world behind — *Internal* → brings → *Wonder,* overwhelming feeling of awe and amazement — *External* — *Surprise* — *External* → builds → *Simulation,* an imitation of everyday life — *External*

After — State of Accomplishment
9 Triumph & Pride

Triumph over Adversity, accomplished after a long shot — *Internal* → *Pride in an Accomplishment,* pleased satisfaction — *Internal* → *Relaxation,* relief from bodily or mental work — *Internal* → brings → *Completion,* finishing a major task or reaching closure — *External*
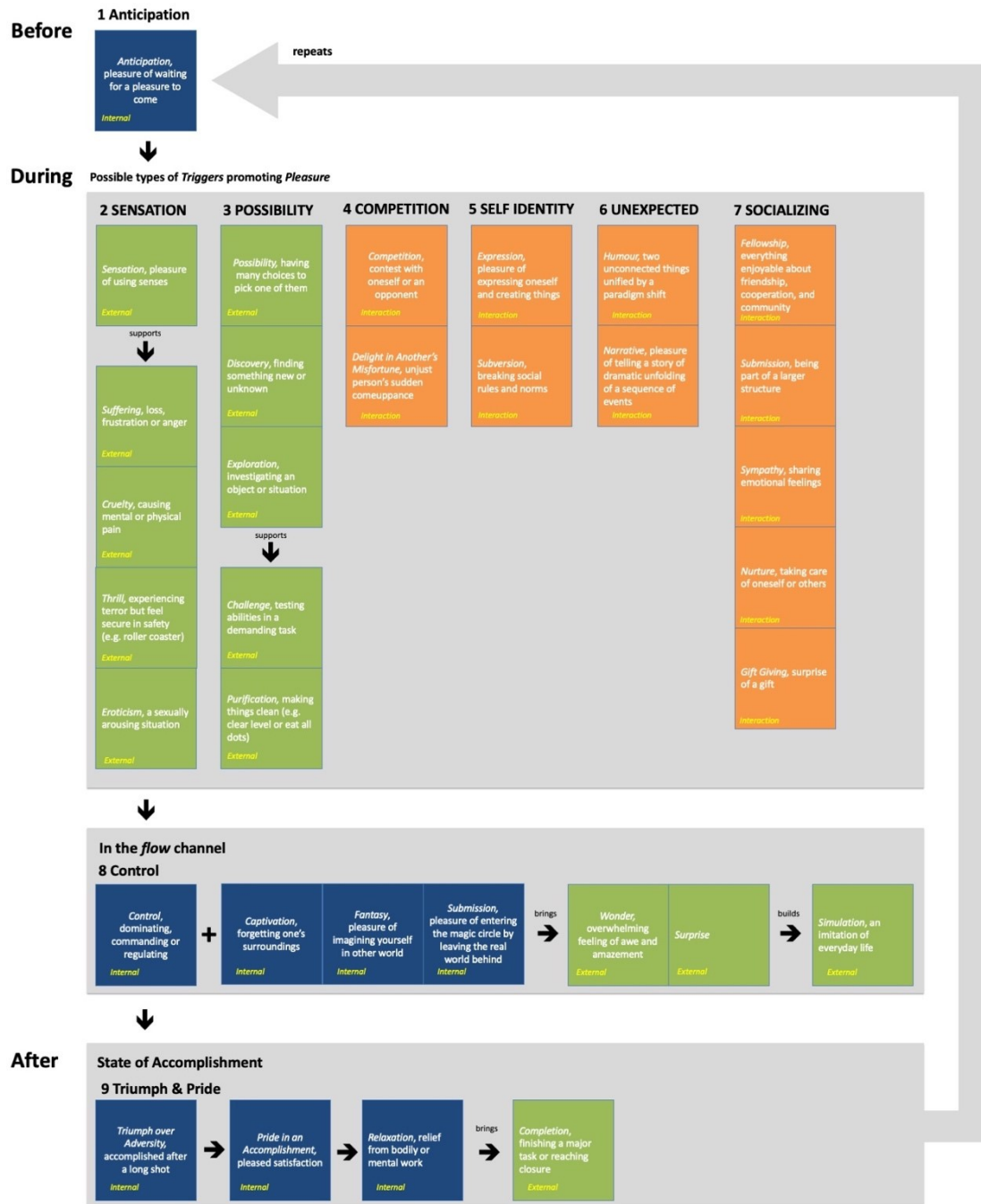
Figure 5. Relationship Map of Triggers promoting Pleasure developed from Table 2

Characters of triggers are different for action stages in time sequence. Triggers in the "during" stage help users directly to shape experiences, and those in "before" and "after" help users to be prepared for and relax after the experience. Thus, when designing a set of triggers, designers need to consider which stage the player in on for his/her action paths.

3.3   Mapping Design Triggers with Pleasure
In this section, we will explain pleasure triggers deducted from an integrative exploration of BBD toolkit and three studies on pleasure as shown in figure 5 and 6.

- *Anticipation* comes "before" the behavior happens. It is a pleasure of waiting for a pleasure to come. If a prior experience left a sense of accomplishing, the pleasure would

be optimized. Therefore, understanding the way to trigger this emotion will be a key factor for the desired behavior continuously takes place. It goes with initiating triggers of BBD toolkit, which are "positive expectations" and "pre-commitment."

- *Sensation* is a pleasure of using senses. Suffering, cruelty, thrill, and eroticism bring joy, and sensational triggers can support these kinds of experiences. Players are thrilled when they face danger but has control over the situation. It is the strengthening trigger that brings out "positive memories of similar experiences." Also, it can make someone know "consequences of their actions" intuitively.
- *The possibility* is the pleasure of having many choices to pick one of them. It is the discovery and exploration of new things. If there are a proper level of challenges and purifying actions, this will strengthen players' behaviors to play the game. As players get more options of levels or choices, they will be more "surprised," and retain "credibility" toward the action.
- *Competition* is a pleasure through contesting with others. According to the game theory, players are delighted to hear and see (unjust) character's sudden comeuppance. Through competition, users "align their identity with the desired outcome."
- *Self-identity* is a pleasure of expressing oneself creatively. It can strengthen the action of breaking social rules.
- *Unexpected* is a pleasure of talking through humor and narratives. Players enjoy the unexpected ending of a story because it is different from what they know well. By "highlighting personal stories," people will emerge themselves to the service of a new product.
- *Socializing* is a pleasure of being with others and part of a community. Fellowship, submission, sympathy, nurture, and gift giving come into this type of pleasure.
- Mihaly Csikszentmihalyi (1990) claims that as long as we receive a challenge that fits our skill level, we will be engaged to handle the challenge. Thus, *Control* triggers the player to be in the 'flow' channel because having control over one's action means challenges are good enough to handle, providing autonomy to one's action. Therefore, "associate new behavior with an existing routine" will give the player "ownership."
- The pleasure of *Triumph & Pride* comes "after" the behavior. It is a pleasure of completing what player set to accomplish. In the game, the longer the player's adversity, the stronger one's enjoyment. However, from strengthening perspective, the pain should not be too long without any gains. Thus, small gains provided to players in every step of one's action will be critical behavioral triggers.

BBD Initiating x Pleasure Triggers

BBD Strategy Card #9
Highlight colorful and personal stories.
INTR **Unexpected**

BBD Strategy Card #14
Set up positive expectations.
IN **Anticipation**

BBD Strategy Card #19
Provide opportunities for people to pre-commit.
IN **Anticipation**

BBD Strengthening x Pleasure Triggers

BBD Strategy Card #5
Break up large gains into smaller gains.
IN **Triump & Pride**

BBD Strategy Card #6
Conjure up positive memories of similar experiences.
EX **Sensation**

BBD Strategy Card #7
Associate new behavior with an existing routine.
IN **Control**

BBD Strategy Card #8
Draw upon or introduce relevant social norms.
IN **Self-Identity**
INTR **Socializing**

BBD Strategy Card #12
Align the desired outcome with the user's identity.
IN **Self-Identity**
INTR **Competition**

BBD Strategy Card #13
Introduce ownership.
IN **Control**

BBD Strategy Card #15
Use surprise to make gains more pleasurable.
EX **Possibility**
INTR **Unexpected**

BBD Strategy Card #16
Minimize risk a ssociated with the desired behavior.

BBD Strategy Card #17
Use facts to lend credibility and memorability.
EX **Possibility**
IN **Control**

BBD Strategy Card #18
Give the user frequent feedback about the consequences of their actions.
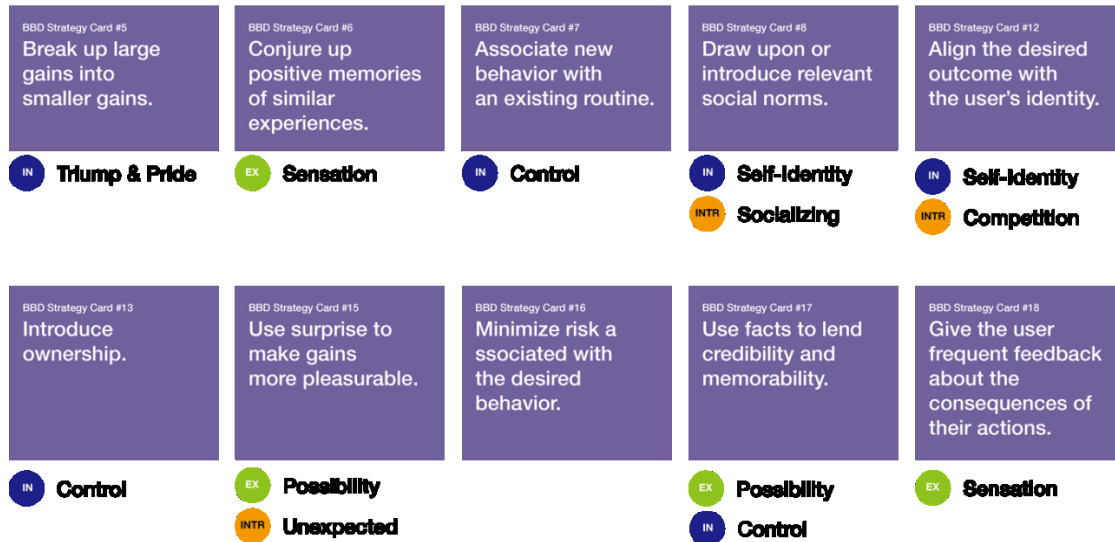EX **Sensation**

Figure 6. Relationship map of triggers from BBD toolkit and the Pleasure Triggers from fig. 5

4   Trigger Design Circles

This paper studied various theories and models on behaviors and pleasure to develop a roadmap for a lasting behaviour using pleasure triggers.

The paper proposes *Trigger Design Circles* as a design framework to analyze action paths that people repeatedly choose to do. As shown in fig.7, it has three leading circles: a striped new habit circle, a circle with a gap between the desired and actual behavior, an old habit circle. There are seven factors of behavior in the *Circles*: GL(Goal), DB (Desired Behavior), AB (Actual Behavior), TR (Trigger), OT (Obstacle), OH (Old Habit), and NH (New Habit). They are interrelated factors.

To use the *Circles* for behavioural design, it is crucial to acknowledge that there is a gap between behavior that actually takes place (AB) and behavior that user desires (DB). DB is the user's goal. The second statement is that an OH is quite powerful that TR gets interfered by OT such as "performance location, preceding actions, interacting people" of a user (Wood & Neal, 2007). However, if followed with proper types of triggers as mentioned in fig.5 and 6, it is possible to break out of the OH and build a new behavior achieving the GL. As these circulating process repeats with proper triggers on each stage, the user will eventually break out of OH, and behave under influence of NH circle.
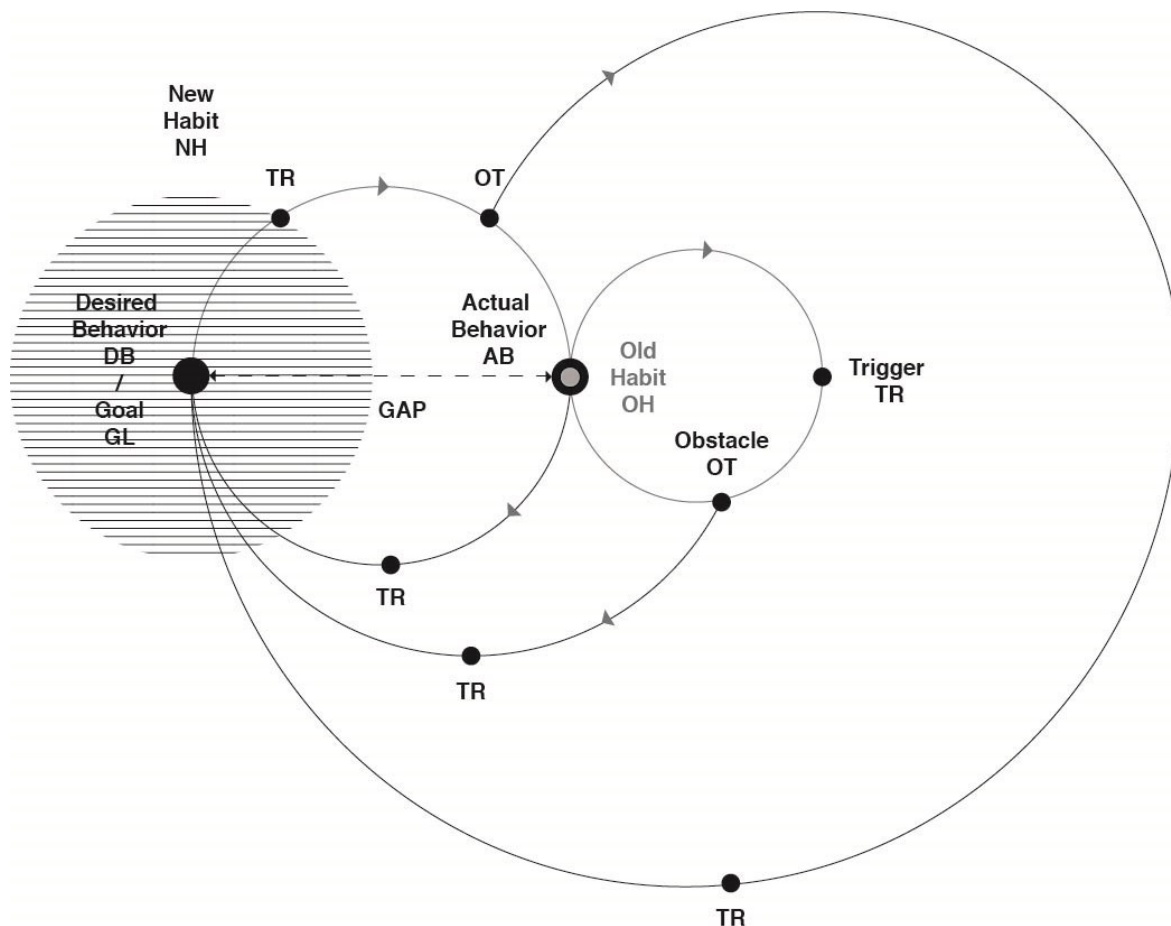
Figure 7. Trigger Design Circles

5   Discussion and Further plan

This study recognizes the need for study in pleasure triggers as a behavioural design strategy to continually practice the desired behaviors. In order to develop a strategy for lasting behaviors, the paper organized trigger design elements under 'before-during-after' time frame of when pleasure experiences take place. Nine pleasure triggers with the *Trigger Design Circles* are the result of the study*.*

Currently the study is work in progress. We plan to test and modify the models through couple of workshops. These design workshops will be conducted under themes of health, pro-environmental, digital detox issues. The reason to focus on these issues are that they are hardly maintained but beneficial to our lives if practiced well. People usually do not see consequences of their habitual actions, and this tendency actually became a major threat to the survival of mankind. With pleasure, people accept changes more softly because it brings out positive feelings from them. Therefore, we will continue to develop trigger design with pleasure as the key strategy to shift our daily behaviors into better ones for our future.

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