GDC

Throwing out the dopamine shots: Rewards without the Neurotrash

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EPIC USER EXPERIENCE

Me...

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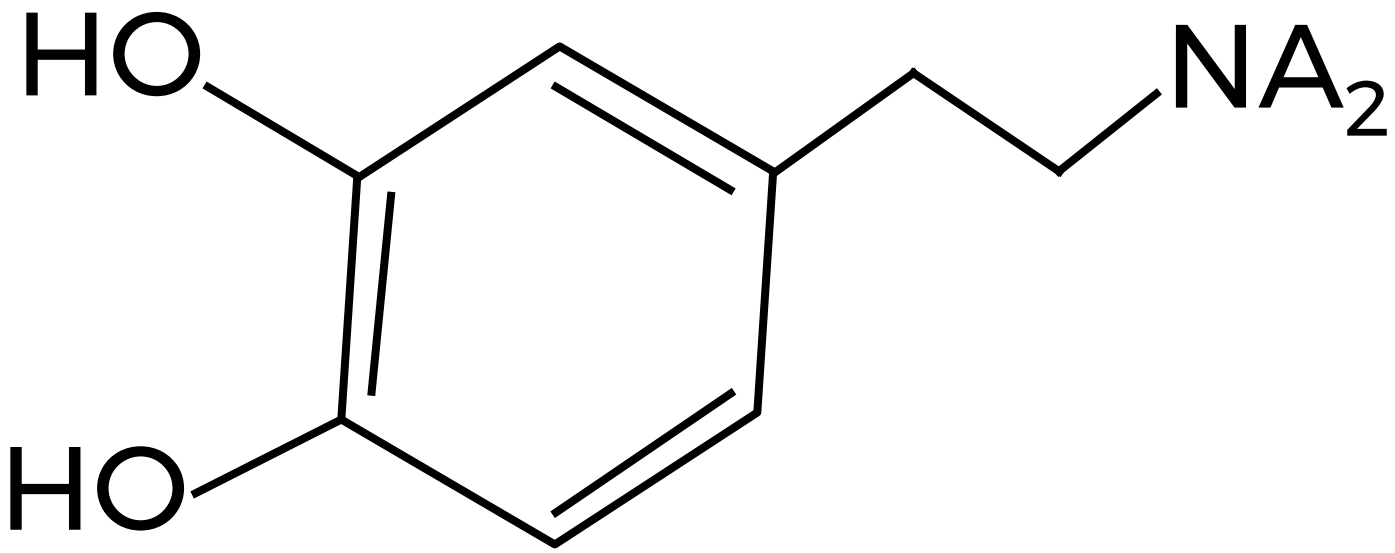
Gortag

LaglGortag

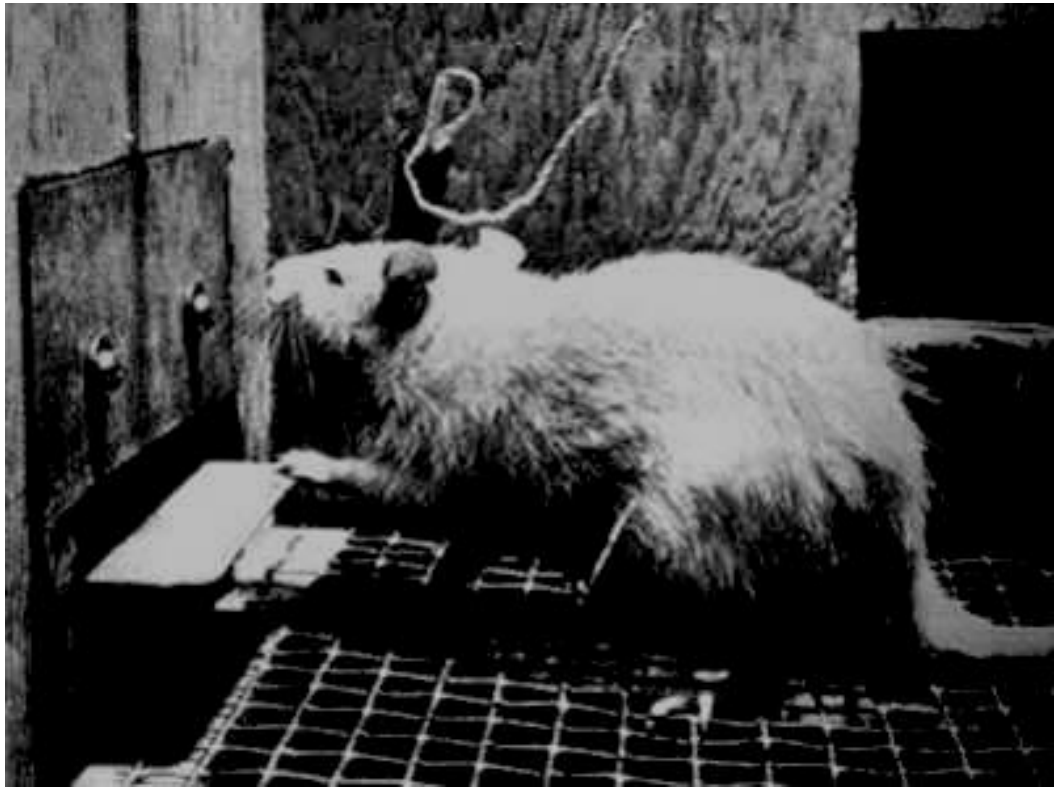
Gortag42

“...gives players a shot of dopamine”

Dopamine



Dopamine = Pleasure



Dopamine Free Mice

Liking

Liking

Learning?

Wanting?

“If our brains were simple enough for us to understand, we would be so simple that we couldn’t”

- Staward,1994

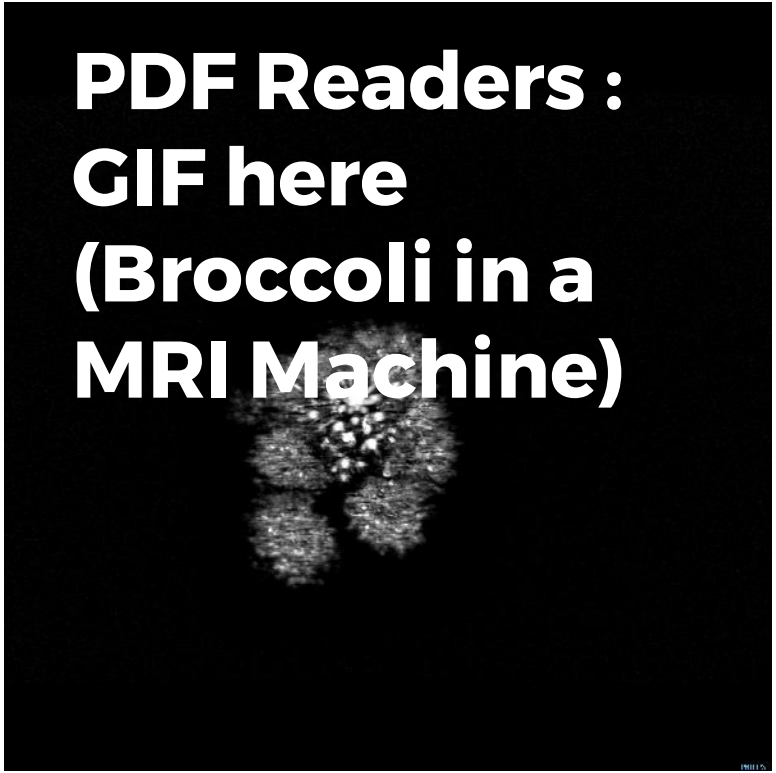
Neuro all the things!

Neurotraining, neurofood, neuroexecercise, neuromarketing, neuroeconomics, neuroeducation, neurocriticism, neuroblogging…

NEUROTRASH

Why do we care?

Science!



Rewards delivered on a variable schedule strongly motivate players due to activating a complex web of neurons resulting in various neurotransmitters being released

Rewards delivered on a variable schedule strongly motivate players ~~due to activating a complex web of neurons resulting in various neurotransmitters being released~~

Throw away the dopamine shots

Rewards
(& Motivation)

Intrinsic & Extrinsic Motivation?

Intrinsic motivation: Personal gratification

Extrinsic motivation: Get something from the environment

Reward: Where there is agreement

- **Feedback on the outcome of actions is important**
- Control & Choice is important
- Not getting a reward you expect, can make a reward a penalty
- Task-inherent rewards motivate more than task irrelevant
- Interacting with others positively is motivating
- Rewards can, in certain situations, be demotivating

Feedback, **Feedback, FEEDBACK!!!**

If players don’t know they **got** a reward, they can’t try to get it again

Feedback, **Feedback, FEEDBACK!!!**

If players don't know they **got** a reward, they can't try to get it again

If players don't know **why** they got a reward, they can't do the behavior again

Feedback, **Feedback, FEEDBACK!!!**

If players don't know they **got** a reward, they can't try to get it again

If players don't know **why** they got a reward, they can't do the behavior again

If players don't know the **value** of a reward, they won't want to get it again.

Rewards are feedback

Usability & clarity of **feedback** is a core component of User Experience work.

Therefore, so is reward.

You are a **wonderful audience** by the way.

I can tell you are paying **attention** & thinking **critically**.

Learning principles

Classical conditioning should ring a bell

- Linking old responses to new
- **Responding to a reward**

If you are looking at the pdf of this talk imagine the Mario Coin sound right now

If you are looking at the pdf of this talk imagine the Mario Coin sound right now

Treasure
Pile of Gems
500
$4.99
Sack of Gems
2500
$19.99
Chest of Gems
14000
$99.99
Fill Storages by Half
500500 Gold
336
Bag of Gems
1200
$9.99
Box of Gems
6500
$49.99
Fill Storages by 10%
100100 Gold
125
Fill Gold Storages
639042 Gold
409
129 904
361 958
345

7
503
MATT
STREAK BONUS X 2
SHOP
10,000
5
125,000
50
300,000
100
875,000
250
2,000,000
500
COINS ARE USED TO GET POWER-UPS, LEVEL UP BOARDS AND BUY GEARBOXES.
RESTORE PURCHASES

test01
19
Players online right now: 2
880
739,247
Cash
Coins
Boosts
Cues
Table
10 for
$ 1.99
Buy
50 for
$ 5.99
Buy
100 for
$ 9.99
Buy
300 for
$ 25.99
Buy
600 for
$ 49.99
Buy
1K for
$ 79.99
Buy

+2,691 Gold
+1,614 Gold
Finky, Lvl 21
Dead!

Learning principles

Operant conditioning should press your buttons

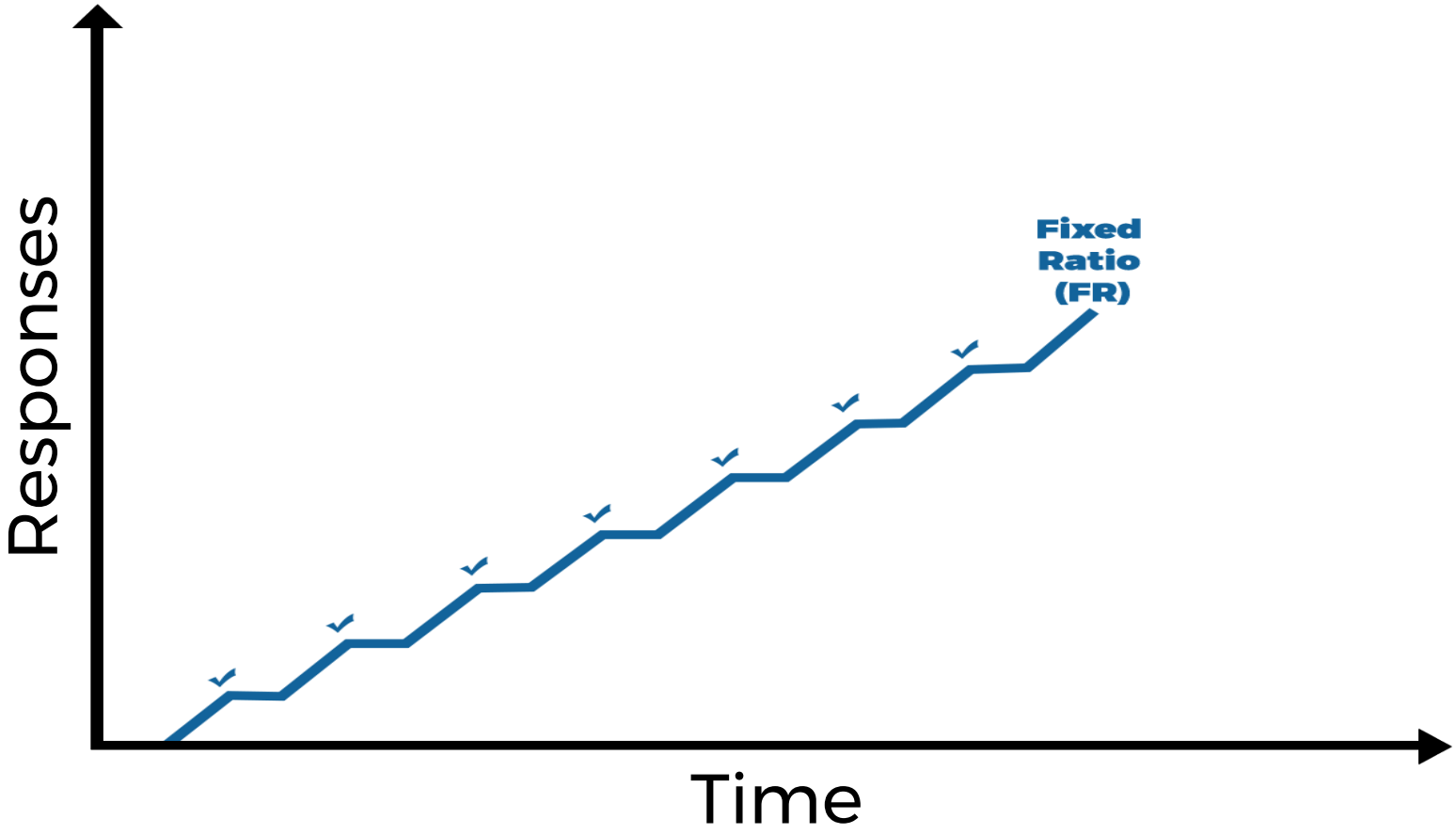
- Rewarding action
- **Responding for a reward**

Fixed Ratio (FR)

Just… one… more… turn…

Turns until a unit/building is ready

Clicks in a clicker


Fixed
Ratio
(FR)
Responses
Time

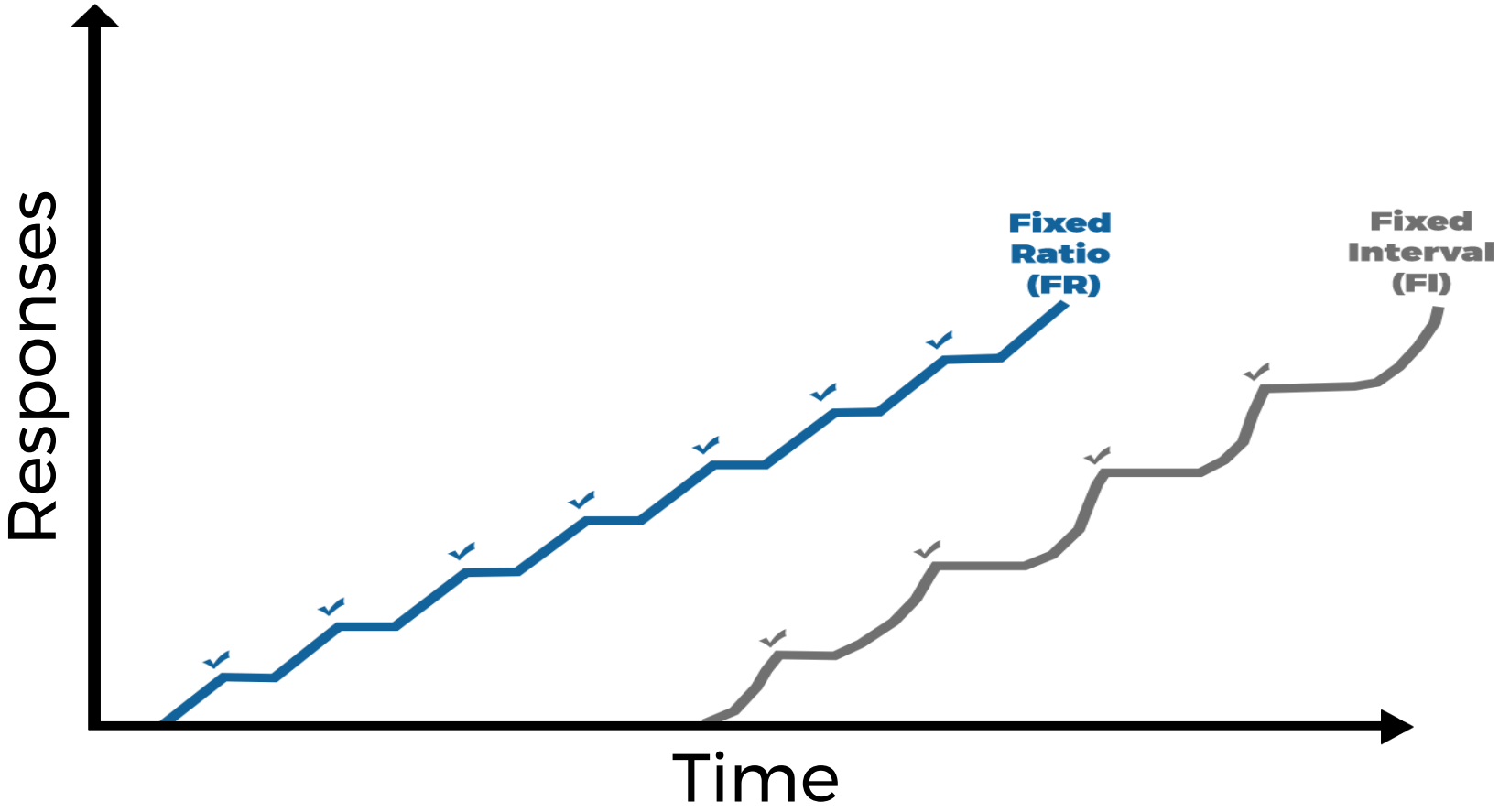
Fixed Interval (FI)

Appointment Gaming

Set monster/loot spawn times

Set world events

Daily login/Timers

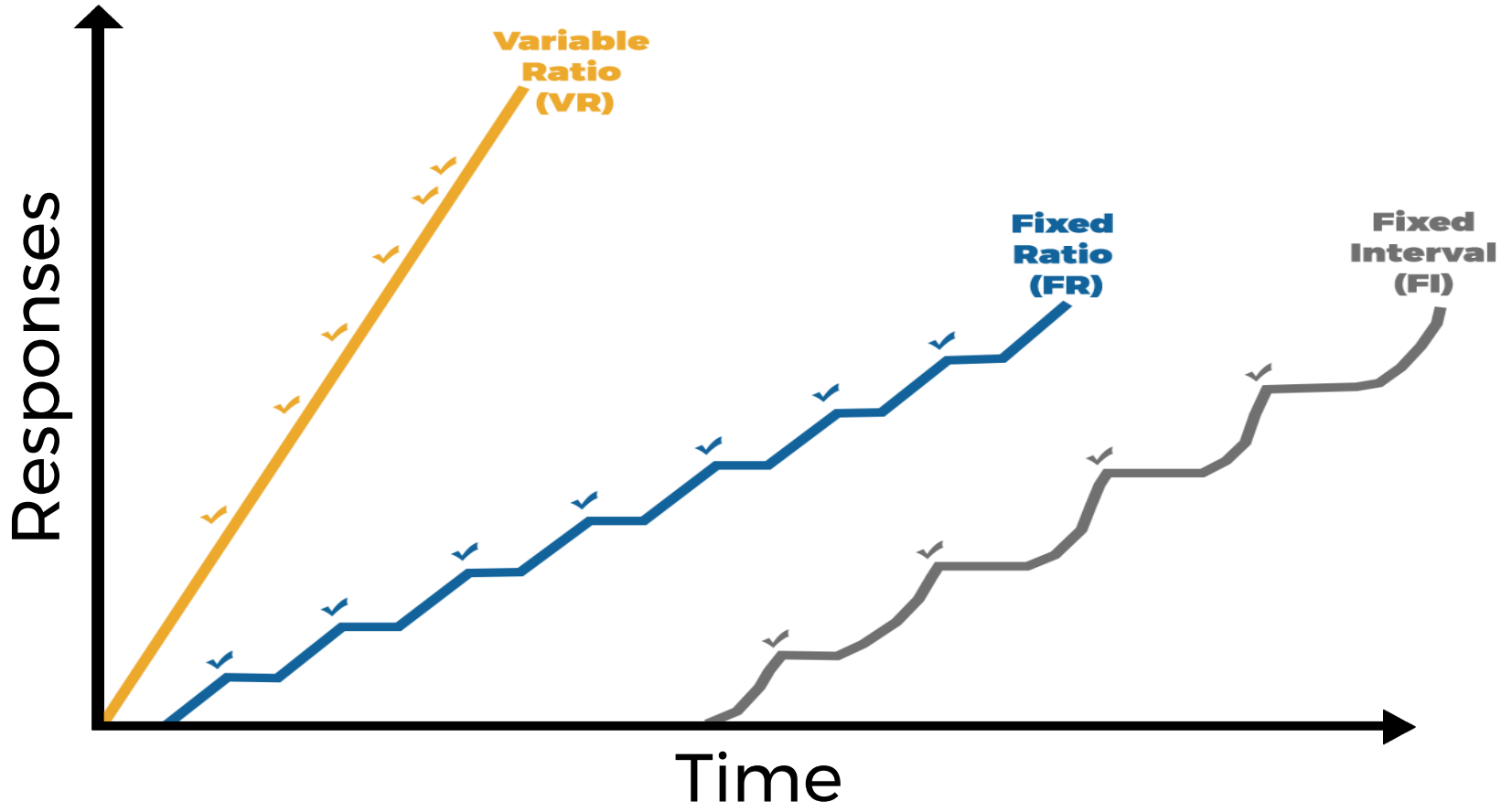

Responses
Time
Fixed Ratio (FR)
Fixed Interval (FI)

Variable Ratio (VR)

Reward Chasing

Loot drops

Critical hits

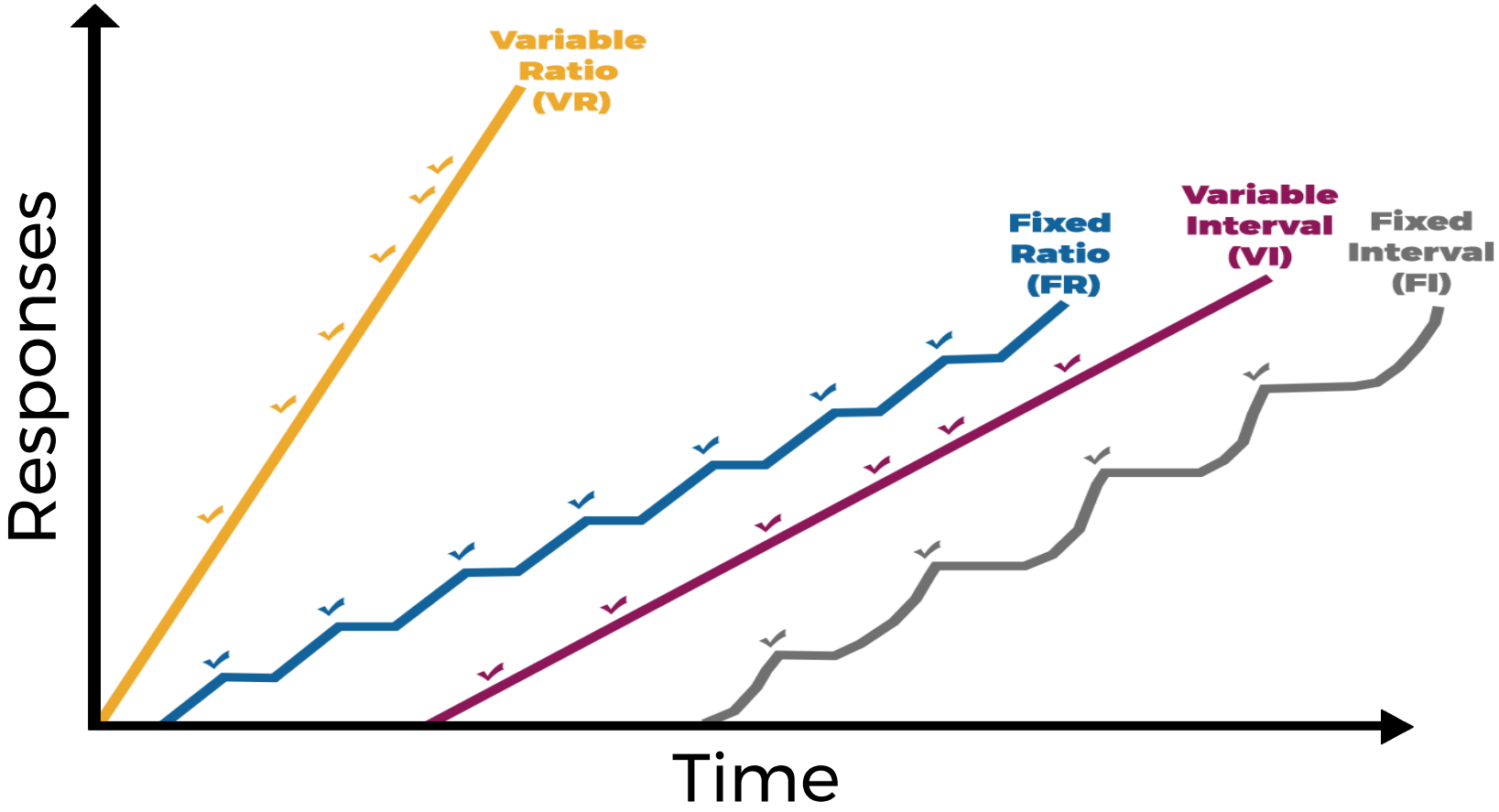

Variable
Ratio
(VR)
Fixed
Ratio
(FR)
Fixed
Interval
(FI)
Responses
Time

Variable Interval (VI)

Event Seeking

Unpredictable monster/loot spawn times

Random world events


Variable Ratio (VR)
Fixed Ratio (FR)
Variable Interval (VI)
Fixed Interval (FI)
Responses
Time

Reward timing & (un)certainty

Immediate for **success, progress**, & **choice**

Delayed feedback/rewards needs stronger support

Reward timing & (un)certainty

Unexpected rewards are motivating

Feedback as a reward – Game Feel

The **ultimate** in
intrinsic motivation

PDF Readers : Video here (active reload)

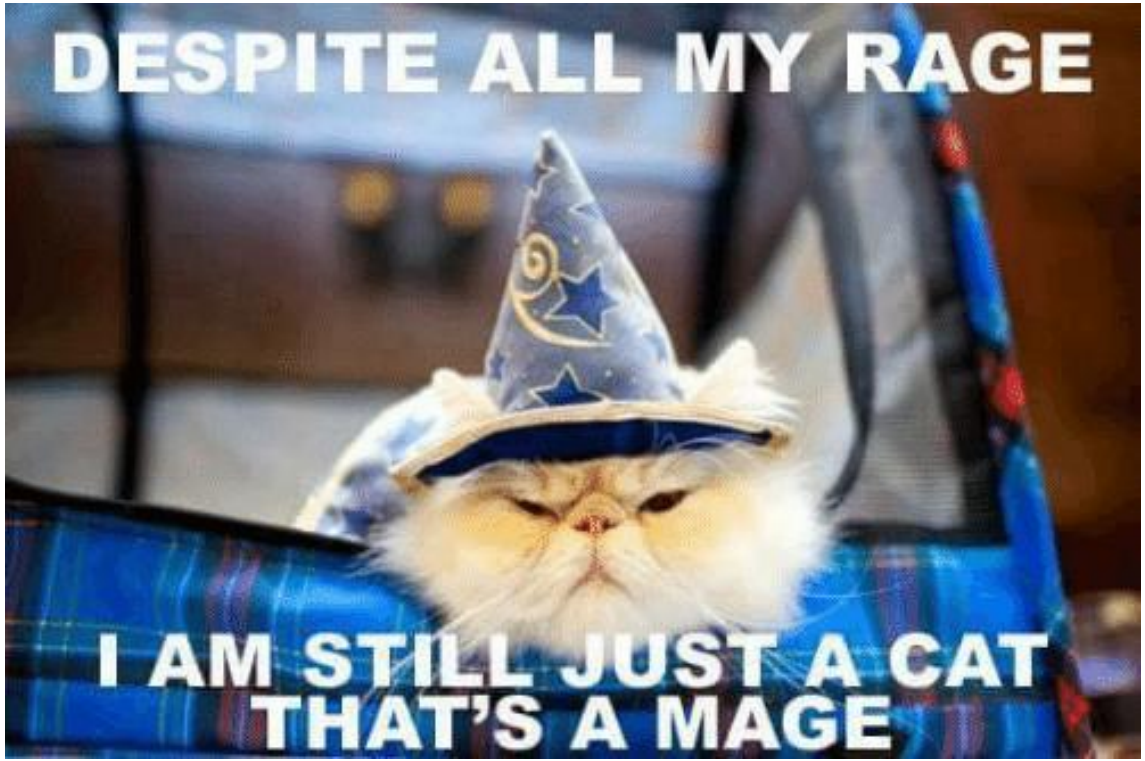
PDF Readers : Video here (Thumper)

PDF Readers : GIF here (Melee Attack)

PDF Readers :
GIF here (Space
Marine Screen
Shake)

PDF Readers : Video here (Steel Trailer)

Were you expecting a dog?

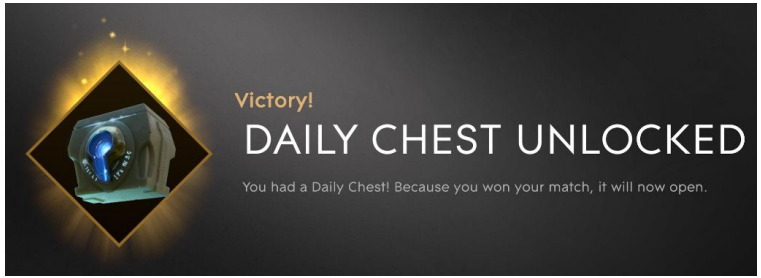


Progression

Progress towards **clear goals** (internal/external) is rewarding & relies on feedback

WEEKLY QUEST
Complete one of these objectives to earn a powerful card pack!
2
Madstone Gem
Passive
7.6 6.5
4
Hunter's Guile
Active
7.6 100
4
Curse of the Leech
Passive
7.6 4
Across multiple victories, destroy 15 harvesters.
0/15
Across multiple victories, destroy 10 towers.
4/10
Win 4 games playing as a Ranger hero.
1/4
Across multiple victories, destroy 10 inhibitors.
1/10
New Quest Available:
6d, 21h
OK

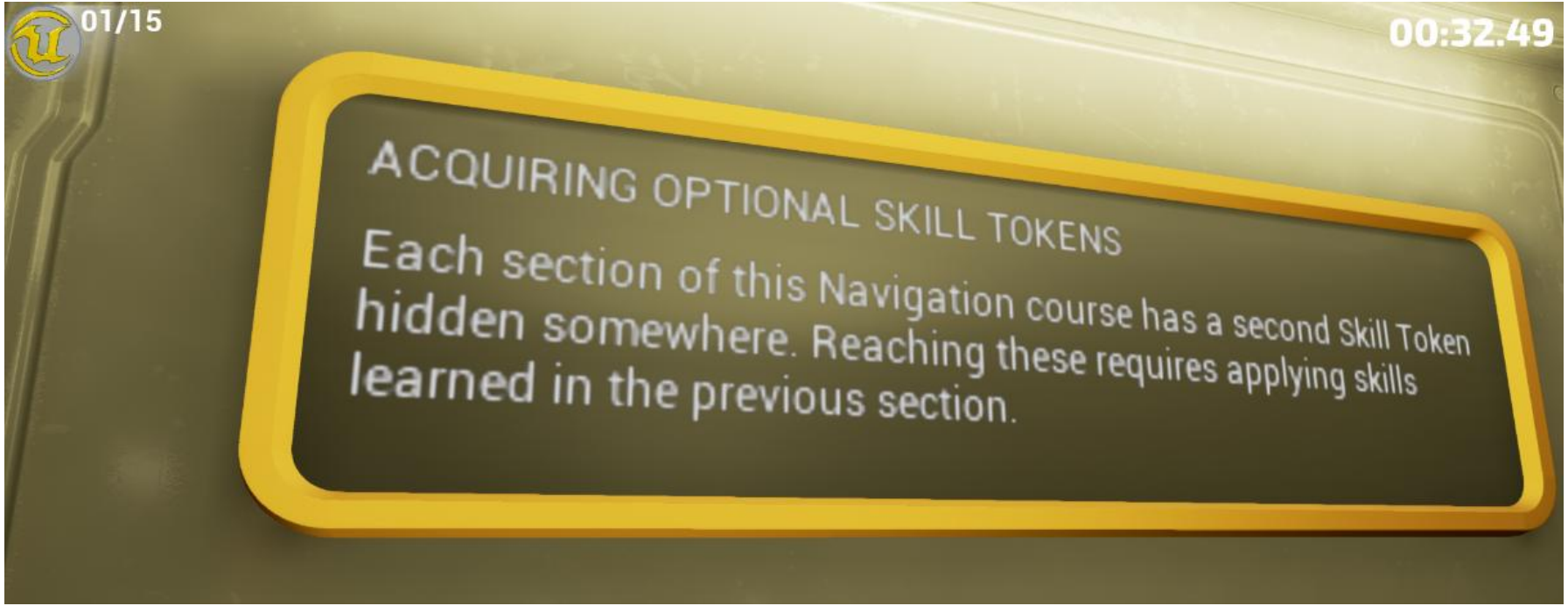
10
XP
21
Q
E
R


Victory!
DAILY CHEST UNLOCKED
You had a Daily Chest! Because you won your match, it will now open.

39
3

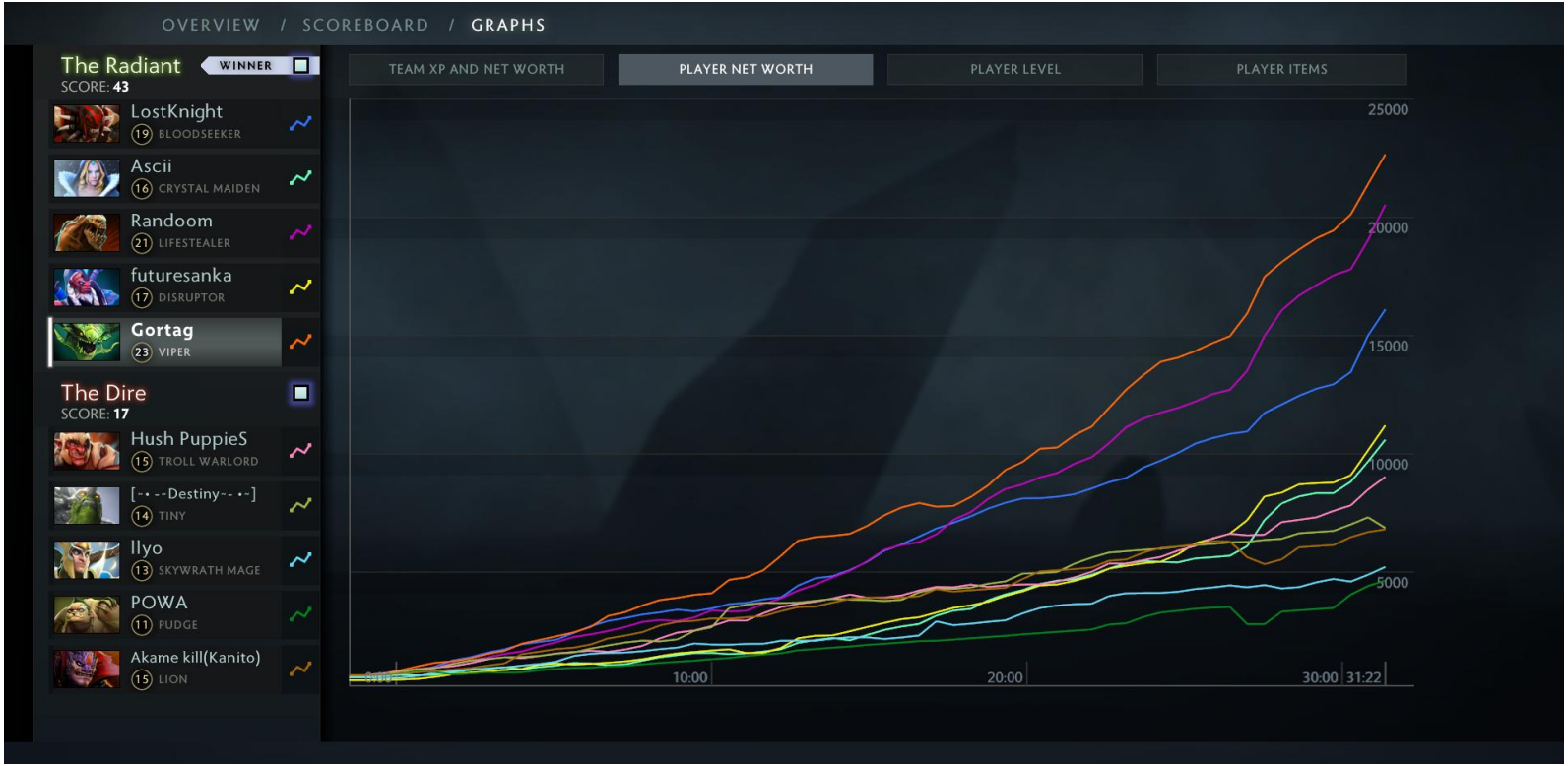
Progression in Tutorials

Progression in Tutorials



10/15
02:47.51
100
25

Social comparison & Progression



Social comparison & Progression

Comparison can open the path to abuse

- Only at the end of the game
- Hide MMR
- Make stat tracking websites opt-in

Social comparison & Progression

Reward: Where there is agreement

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Feeling in control

We like to **feel** like we have choice & control

Feeling in control

We like to **feel** like we have choice & control

We dislike **feeling** limited, controlled, or out of control

(Unless we choose to be controlled & limited)

THE
WITCHER 2
ASSASSINS OF KINGS
ENHANCED EDITION

THE WALKING
DEAD
A TELLTALE GAMES SERIES
ST. JOHN
DAIRY

MASS EFFECT 3
N7
3·6·12
EA BIOWARE

Feeling in control

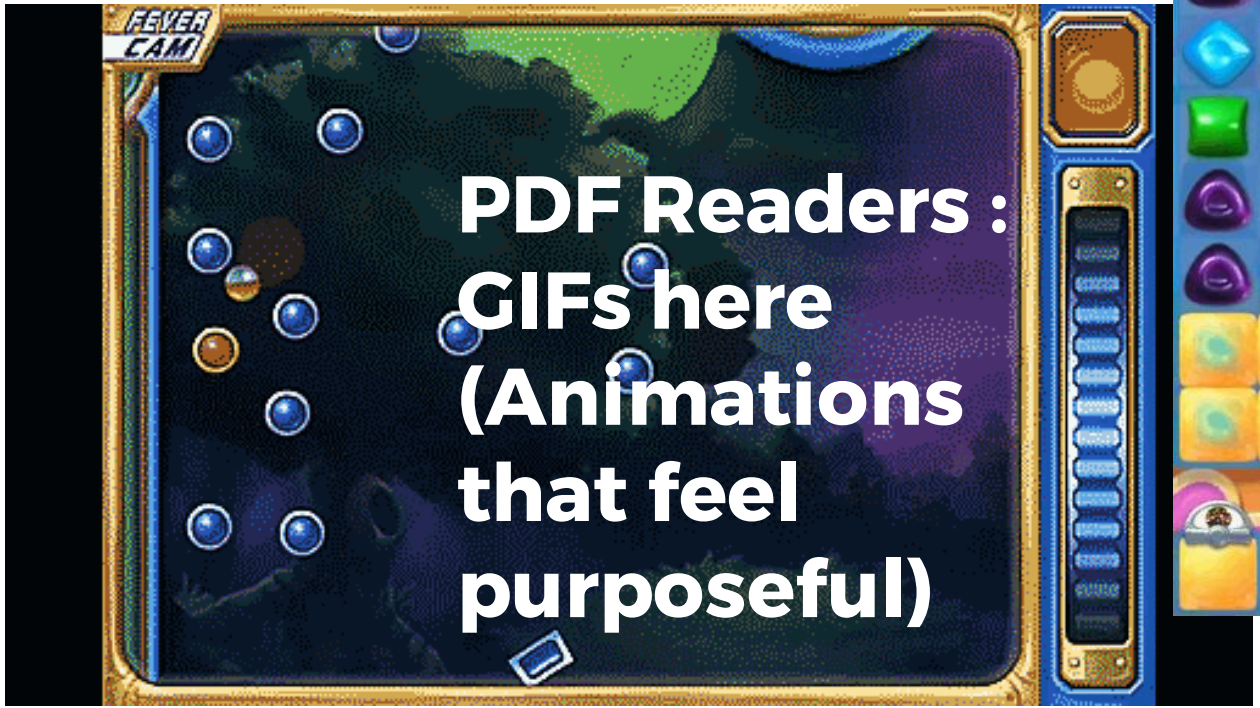
Interacts with activities & progression:

Feeling in control

Alternative to intrinsic vs extrinsic?

- **Autonomous** (self-determined)
- **Controlled** (non self-determined)

Illusion of control

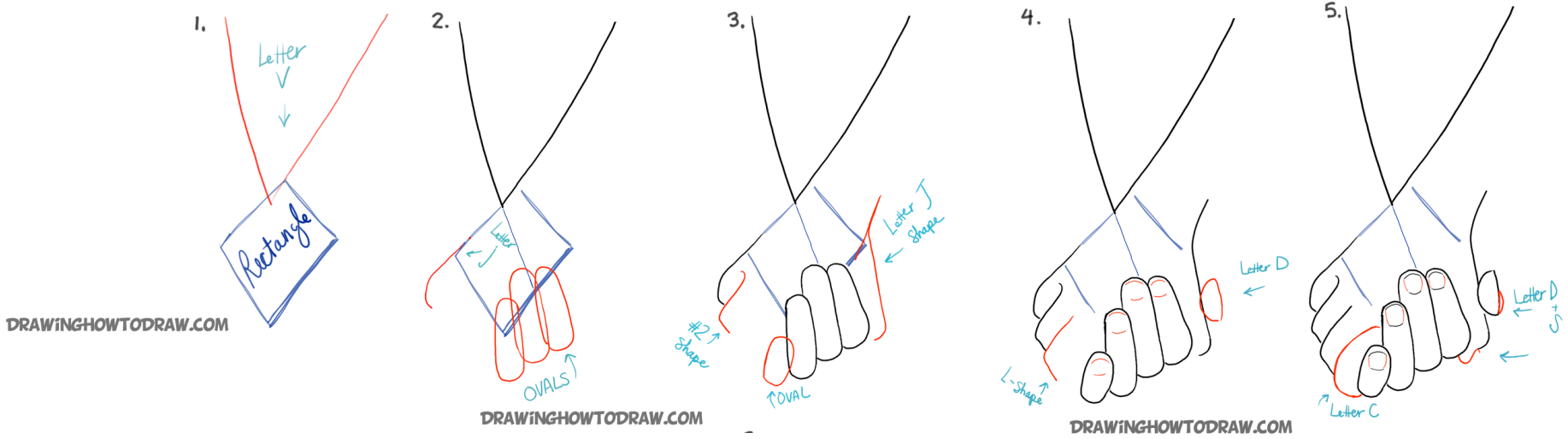


PDF Readers : GIFs here (Animations that feel purposeful)

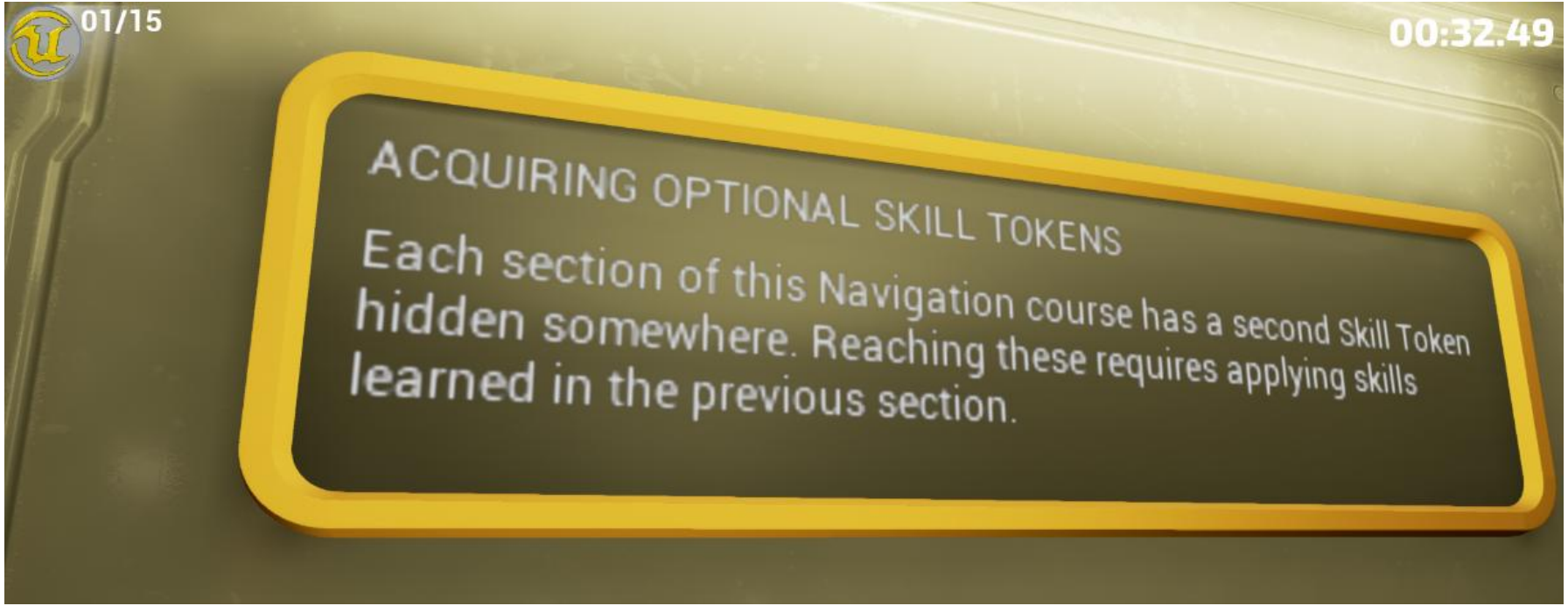
Counter Control

When people feel controlled, we often act counter to it…

Control & Tutorials



Progression in Tutorials



Non-contingent rewards

Non-contingent rewards

Less likely to be seen as "**controlling**"

More likely to be **unexpected**

Sanbonsakura17
Mizzizzippi99
Mizzizzippi99 [Mastiff]
Breauxsejdon [CAR]
[Kraber]
93%
24
L1
R1

You are a **wonderful audience** by the way.

~~I can tell you are paying attention & thinking critically.~~

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Meaning & task relevance

Rewards that are **meaningful** to a player are more motivating

Meaning & task relevance

Show value

(Personalize if you can)

Reward: Where there is agreement

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Performance Comparison

Potentially rewarding if it is in our favor

Performance Comparison

Potentially rewarding if it is in our favor

Potentially motivating if it shows progress or changes expectations positively

Performance Comparison

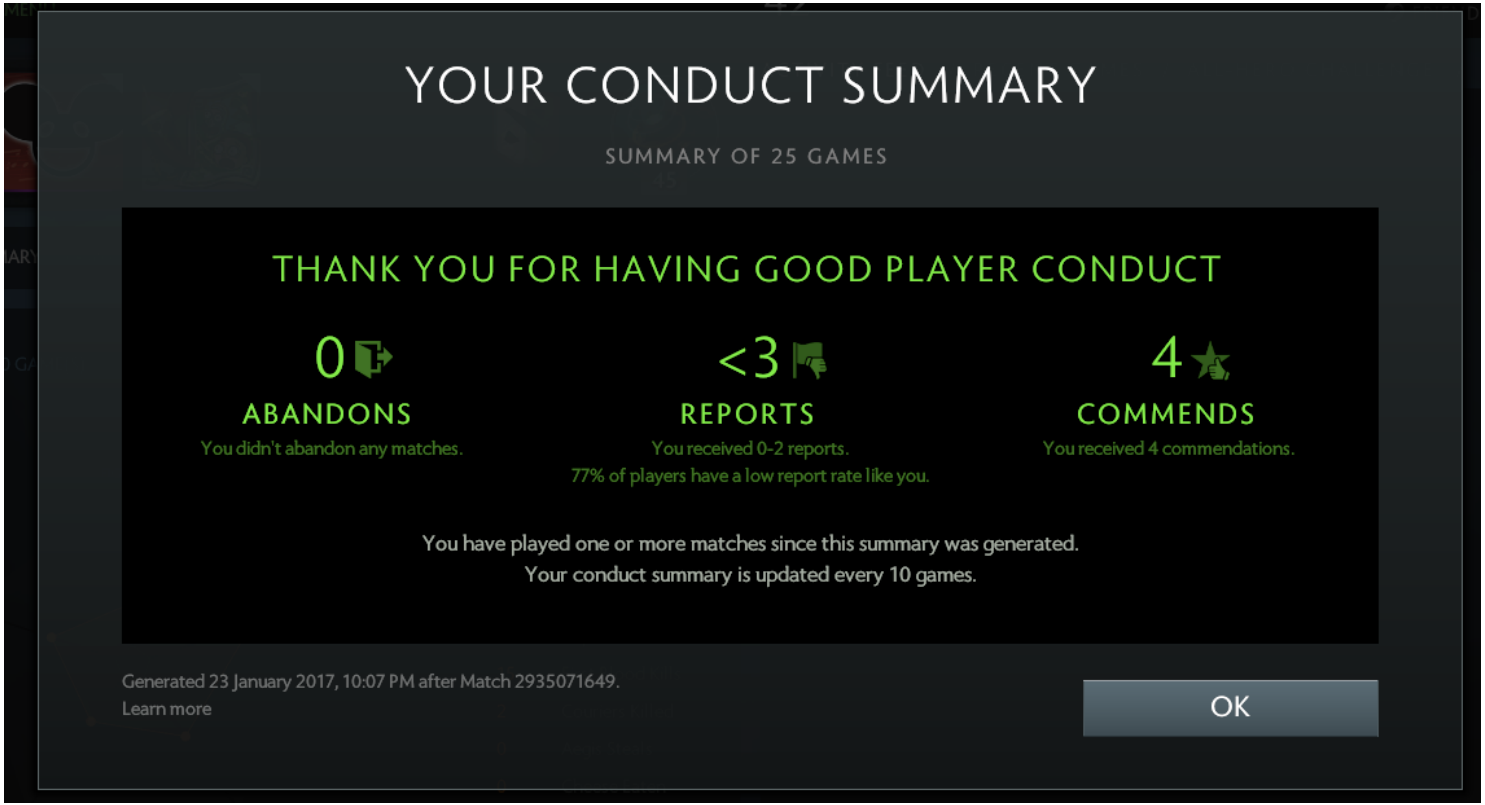
Potentially rewarding if it is in our favor

Potentially motivating if it shows progress or changes expectations positively

Potentially demotivating if it against us or changes expectations negatively

Performance Comparison

Performance Comparison



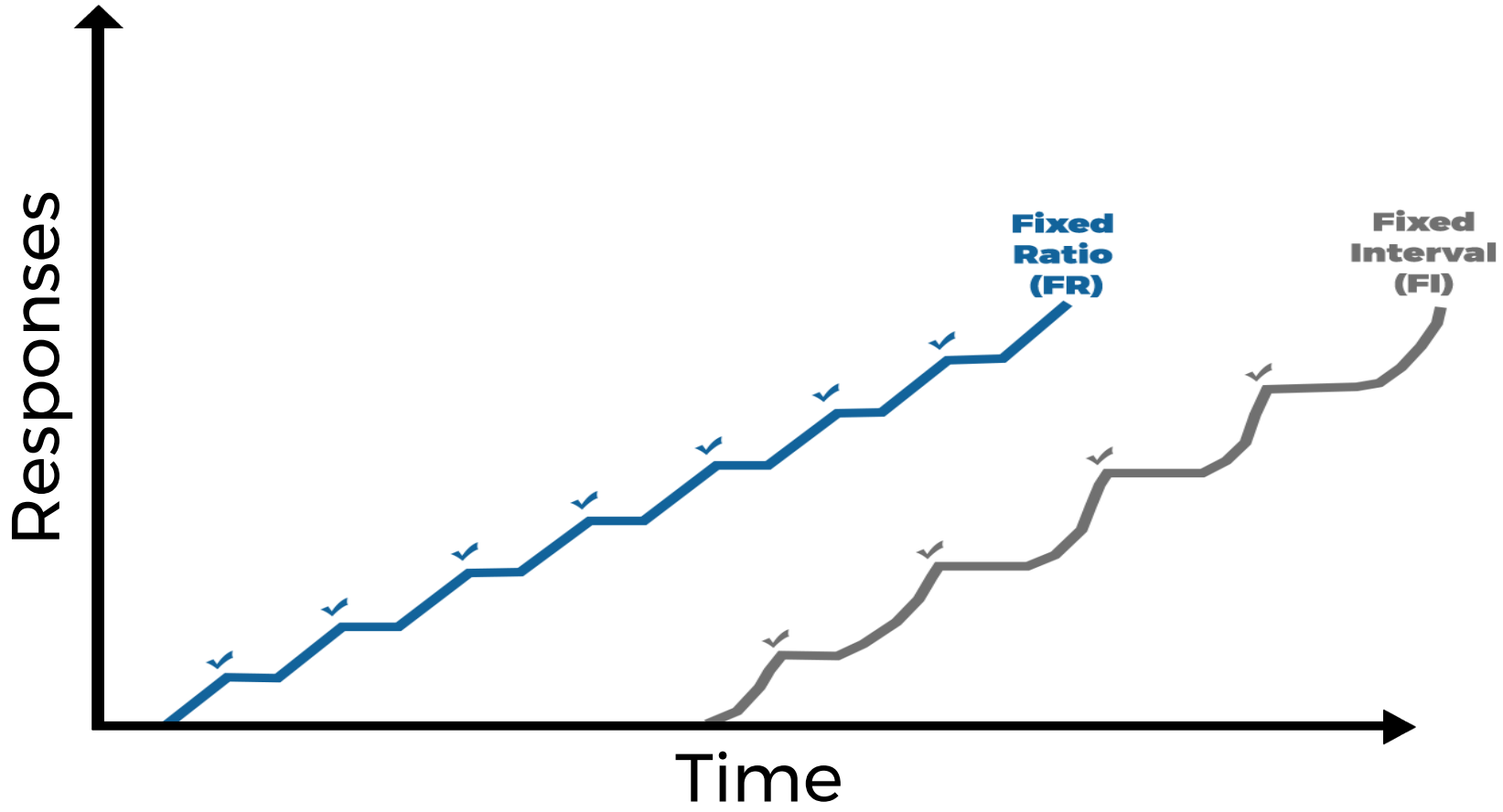
Competition

Can motivate those who think they can win

Competition

Can motivate those who think they can win

With a potential demotivational effect immediately after winning


Responses
Fixed Ratio (FR)
Fixed Interval (FI)
Time

Competition

Can **demotivate** those who don't think they can win

Cooperation

Powerfully motivating

Allows everyone to contribute

Cooperation

Allows for cooperative competition

E.g. Community goals

Cooperation

Allows for reciprocity

Positive Externalities & monetizaton

Reward: Where there is agreement

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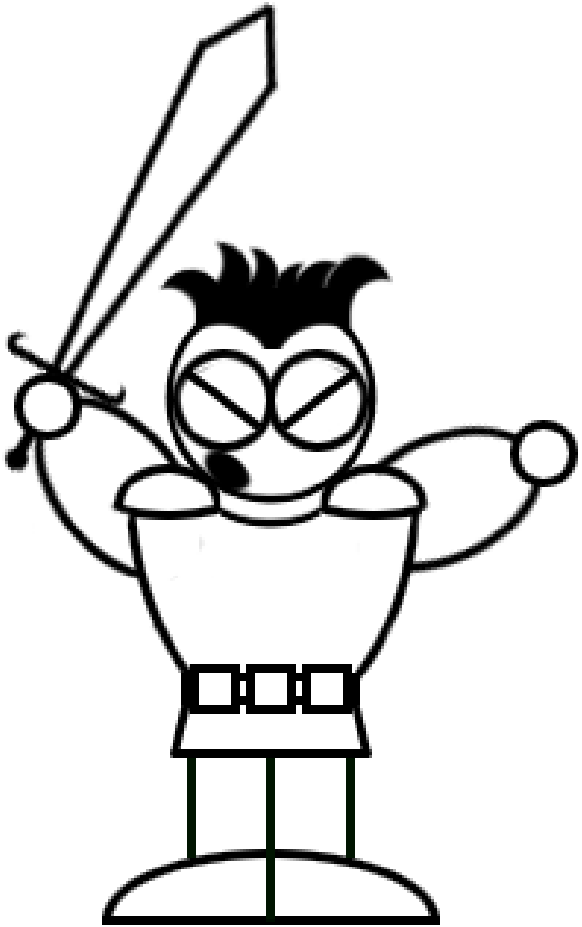
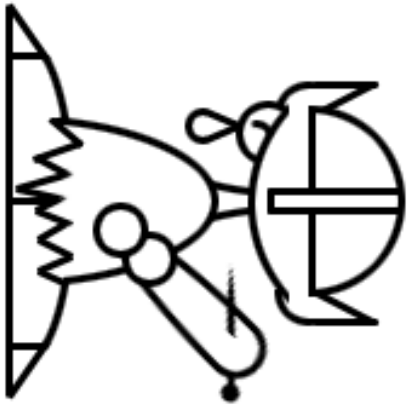
Cognitive Biases & Rewards

Representativeness heuristic

Time/Cost/Effort =

Reward





Representativeness heuristic

Representativeness heuristic

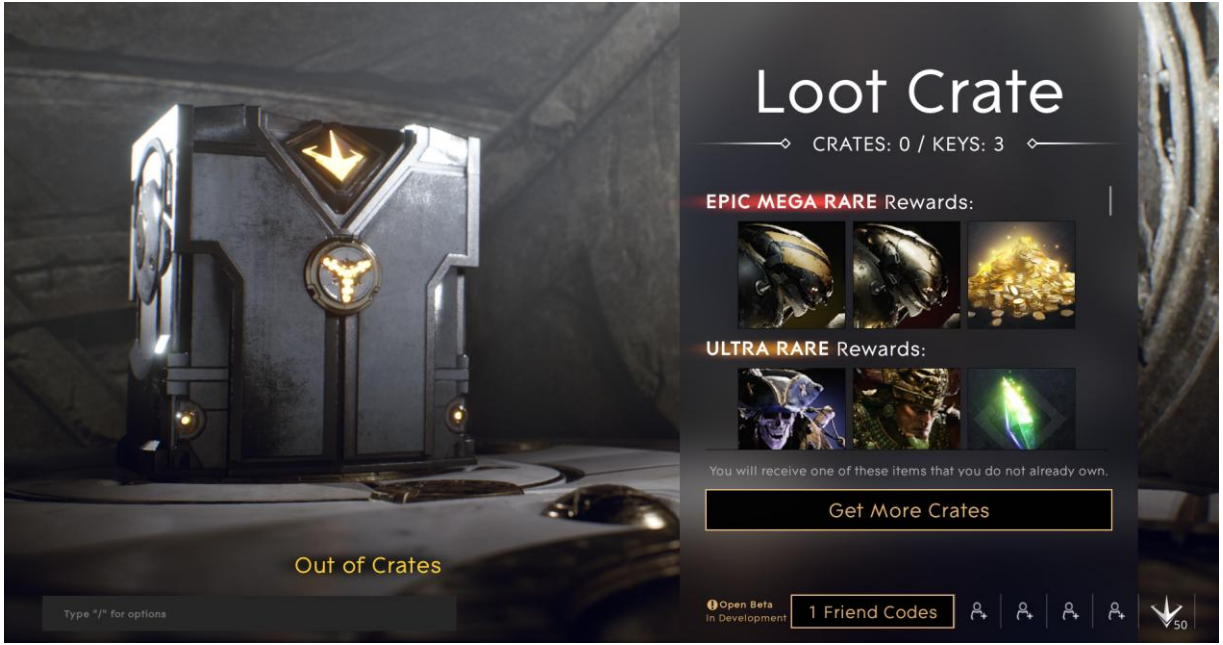
After a string of “bad luck” we expect a payout

BUNGIE

DESTINY

Representativeness heuristic

Non-replacing randomness



Representative Expectations

Loss aversion

Something I **have** > Something I **could** gain

Loss aversion

Continuous login bonuses

Consumables & Durability

Paying to continue

Summary

Summary

Be **(neuro)skeptical**

Practical answers are there if you look for them

Reward is Feedback.

Provide **feedback** on rewards as **close** to the behavior you want to reward as possible.

Mix **certain**, guaranteed, rewards with rewards that feel more **random**

Control & Value

Help players feel in control. This does not mean not guiding or teaching players

Show the **value** of rewards & behavior

Social

Social **comparison**, **competition**, & **cooperation** can motivate, but come with **risks**

- Think about those that **lose**
- Social pressure can be good, but can feel like control

Set & Meet Player Expectations

Understand & **met** (& **exceed**) player expectations

Preventing **loss** can motivate more than working for **gain**

Thank You!

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Gortag LaglGortag Gortag42