Time Pressure as Video Game Design Element and Basic Need Satisfaction

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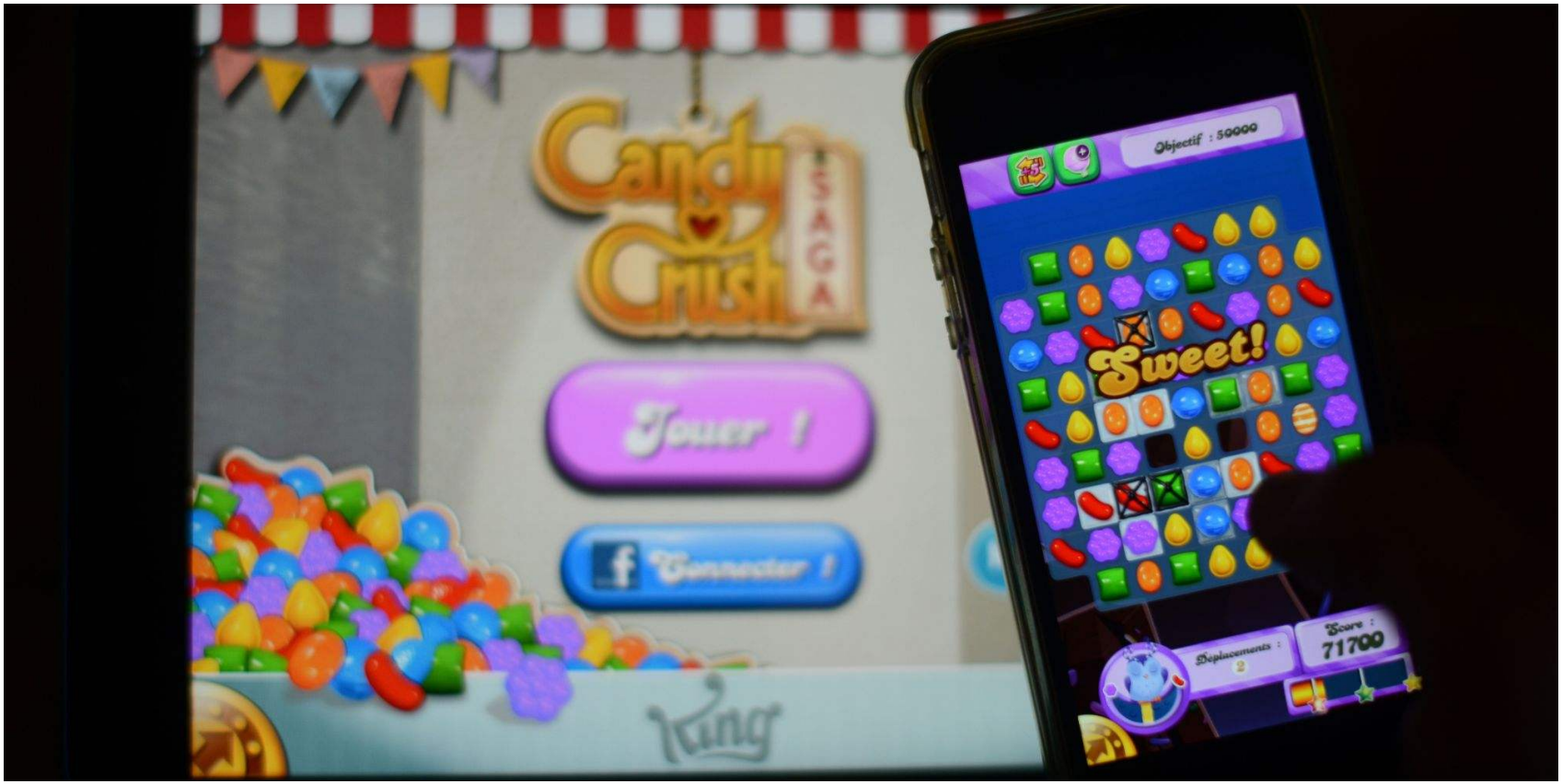
Outline

Why we continue popping bubbles, . . . , till 3 AM in the morning?



Candy Crush Is So Addictive That This Man Didn't Notice He Tore A Tendon,
Retrieved from http://www.huffingtonpost.com/2015/04/14/tendon-tear-candy-crush_n_7062942.html

Reasons Behind Gaming

Players play games for "FUN" [2]

Enjoyment Models and Engagement Factors

- Mechanics/Dynamics/Aesthetics (MDA) [15]
- Achievement/Social/Immersion [37]
- GameFlow [32]
- ...

Psychological Approach

- Self-Determination Theory (SDT) [27] : Power of SDT

Motivational Pull of Video Games (SDT Approach)

Underlying Motivational Factors

- Basic Psychological Need Satisfaction
  - Autonomy: being in control and acting volitional
  - Competence : self-efficacy and mastery
  - Relatedness : meaningful connection to others
- Player Experience of Need Satisfaction (PENS) [28]
- Motivational Outcomes (Intrinsic Motivation, Enjoyment, Well-being, etc.)

Contribution of the Study

- Motivation through game design elements
- Specific game element contribution to the corresponding need satisfactions
- Relationship with other outcomes (Flow, Engagement, Performance and Enjoyment)
- Utilizing game elements to make better games

Presented Work

Aim: To reveal the relationship between time pressure and basic need satisfaction and consequences.

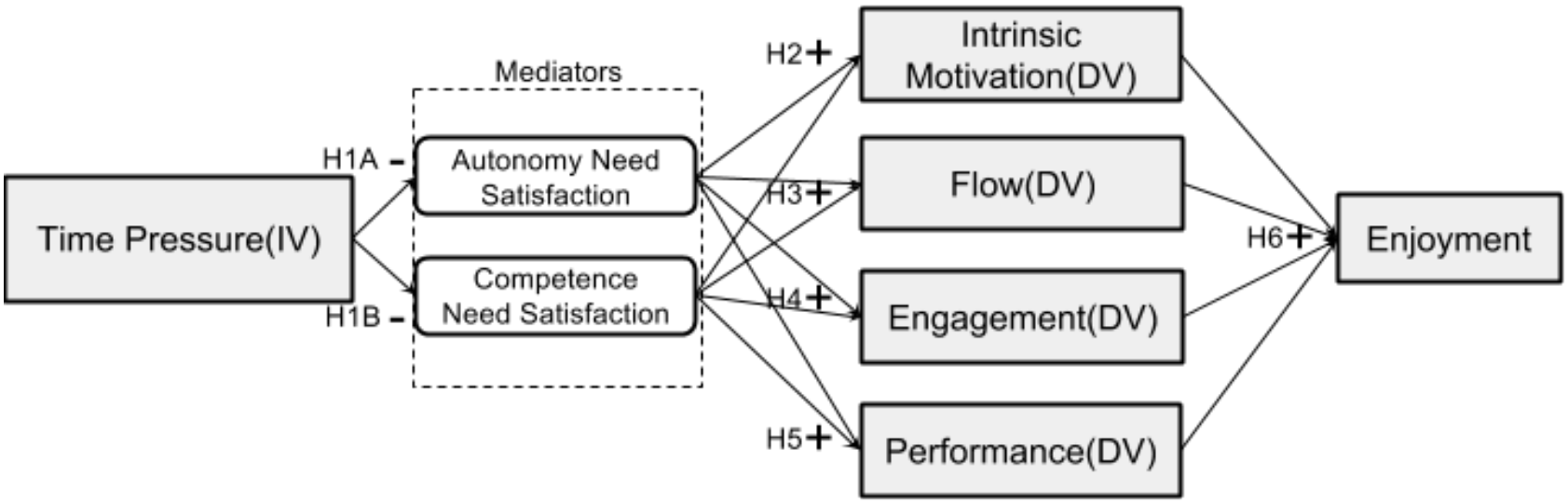


Figure 1: Proposed Research Framework

Self-Determination Theory

Well-formulated framework of self-initiated and autonomous actions [27]

- Intrinsic Motivation: intrinsic appeal of the activity itself, based on one's own interest
  - no external pressure, rewards, punishment or introjected controls (avoiding guilt or anxiety)
- Basic Psychological Needs
  - Autonomy : choices, informative rewards
  - Competence : mastering skills, optimal challenges, achievement goals, positive performance feedbacks
  - Relatedness : sharing, caring, feeling secure

Basic Need Satisfaction in Games

Readily availability of games, consistency between expectations and outcomes in games and intensive exposition of all three needs are some key characteristics of motivational power of video games [29]

- Autonomy in Games: flexibility over movement and strategies, choices over tasks, character customization
- Competence in Games: new abilities, progressive challenges, performance feedbacks, heroic narrative and intuitive controls
- Relatedness in Games: cooperative and competitive group play, teammate interactions (healing), social network integration

Related Work

Game Design Element	Autonomy	Competence	Relatedness	Mediating Effect	Outcomes	Study
{Avatar customization, Donations and Dialogue choices}	★	-	-	★	Enjoyments, Motivations for future play, Effort to play, self-efficacy	(Peng, Lin, Pfeiffer, Karin & Winn, 2012)
{Dynamic difficulty adjustment, Heroism meter, Achievement badges}	-	★	-	★	Enjoyments, Motivations for future play, Effort to play, Self-efficacy	(Peng, Lin, Pfeiffer, Karin & Winn, 2012)
Multiplayer dynamic difficulty adjustment	-	★	-	-	Enjoyment and Performance	(Baldwin, Johnson & Wyeth, 2014)
Game difficulty	-	★	-	-	Enjoyment	(Schmierbach, Chung, Wu & Kim, 2014)
Control Device (Traditional vs Natural Mapping)	★	★	-	★	Enjoyment	(Tamborini, Bowman, Eden, Grizzard & Organ, 2010)
Co-Playing	-	-	★	★	Enjoyment	(Tamborini, Bowman, Eden, Grizzard & Organ, 2010)
Points, Levels and Leaderboards	-	-	-	-	Performance	(Mekler, Brühlmann, Opwis & Tuch, 2013)
Avatar custimization	-	-	-	-	- (Performance, Immersion, Enjoyment or Autonomy was expected)	(Dennie, 2012)

Studies Manipulating Some Game Elements for Motivational Accordances [23], [5], [31], [22], [33], [11]

Time Pressure and Autonomy and Competence

Time Pressure : one of the ten ingredients of great games (as cited in [12])

- **H1A**: Time pressure will diminish Autonomy in the experimental condition
  - feeling of being under control [26, 27, 24, 14] (as cited in [10, 28])
  - absence of choices
  - reduction of decision time
- **H1B**: Time pressure will diminish Competence in the experimental condition
  - time limit is a challenge itself [1, 30, 35, 6]
  - using skills ineffectively with shortened decision making [25]
  - decrease in self-efficacy with failures

Time Pressure and Outcomes

- **H2**: Time pressure will diminish Intrinsic Motivation in the experimental condition
  - direct relation with autonomy and competence need satisfaction [28]
  - mediating effects of autonomy and competence [28, 33, 31]
  - deadlines have undermining effects on intrinsic motivation [3, 16, 10]
- **H3**: Time pressure will diminish Flow in the experimental condition
  - having control over actions (autonomy)
  - time limit as a challenge should be balanced with skills (competence) [25, 34]
  - mediating effects of autonomy and competence

Time Pressure and Outcomes

- **H4**: Time pressure will diminish Engagement in the experimental condition
  - shorter time limits leads disengagement [20]
  - decrease in self-interest and self-efficacy
  - mediating effects of autonomy and competence
- **H5**: Time pressure will diminish Performance in the experimental condition
  - decisions made under time pressure apt to be wrong [18, 4, 25]
  - making effective strategies is very hard under time pressure [19]
  - as time limit gets shorter, players' performance decreases (number of failures increases) [20]
  - positive correlation between competence and performance [21, 16]

Time Pressure and Outcomes

- **H6**: Time pressure will diminish overall Enjoyment in the experimental condition
  - Intrinsic Motivation [28], Flow [32], Engagement [7] and Performance [36, 17] are associated with enjoyment

Participants

- 69 male ; 37 female
- Undergraduates and graduate students from METU
- from Psychology Department and Informatics Institute graduate programs

Measures

Accessed through SurveyMonkey, 7-point Likert scale

1. Demographics and Game Play Questionnaire [AppendixB]
2. Manipulation Check Scale (Time Limit Realization, Perceived Time Pressure and Task Difficulty) [AppendixC]
3. PENS Scale [AppendixD]
   - In-Game Autonomy ($\alpha = .88$)
   - In-Game Competence ($\alpha = .83$)
4. Intrinsic Motivation Inventory (IMI) ($\alpha = .83$) [AppendixE]
5. GameFlow Scale ($\alpha = .88$) [AppendixF]
6. Engagement Scale ($\alpha = .76$) [AppendixG]
7. Game Play Data (for Performance) [AppendixH]

Procedure

Two stages:

1. Pre-Questionnaire (Demographics and Game Play Questionnaire)
2. Lab Session
   1. Game Play session at the Lab, ~2 min.
   2. Post-Questionnaire at the Lab (Scales), ~10 min.

The Experiment

The Experiment:

- Between Subject Experiment
- 2 Conditions: Control (Time Limit OFF) and Experimental Group (Time Limit ON, 120 sec.)

Target Game:

- 3D Shooter (“Survival Shooter" by Unity Technologies)
  - Not well-known (data gathering issues) but highly ranked in the Asset Store (to engage in 2 min.)
- audio-visually immersive, not complex, intuitively controlled
- open-world kind (ensuring different game completion times)

Target Game

Target Game: Tutorial part - Training Part - GamePlay

Target Game and Basic Need Satisfaction

Autonomy Supportive Elements

- freedom (open-world kind)
- make your own decisions (choose whichever dolls to kill)
- strategy (choose how to kill the dolls)
- meaningful narrative

Competence Supportive Elements

- audio-visual performance feedback (granular - taking damage and cumulative - health bar, left dolls number)
- intuitive controls
- optimal challenge
  - the amount of damages of both the players and the dolls
  - obstacle rich environment

Manipulation Check

Table 1: T-Test Results for Manipulation Check

	Control Group (n=50)	Experimental Group (n=51)	
Time Press. Manipulation Scale		M (SD)	t(99)
Realization of time limit	2.64 (2.02)	5.45 (1.72)	7.53*
Perceived time pressure	2.29 (1.62)	4.39 (2.07)	5.65***
Perceived task difficulty	2.30 (1.61)	2.96 (1.95)	1.86

*p <.05, ***p <.001

Primary Analysis

Table 2: T-Test Results for Dependent Variables

	Control Group (n=50)	Experimental Group (n=51)	
Dependent variables	*M* (*SD*)		*t* (99)
Autonomy	3.03 (1.31)	3.37 (1.36)	1.24
Competence	4.83 (1.56)	4.86 (1.40)	0.11
Intrinsic Motivation	3.82 (0.88)	3.96 (0.90)	0.76
Flow	4.84 (1.44)	5.38 (1.02)	2.21*
Engagement	3.52 (0.88)	3.81 (0.95)	1.62
Performance (Left Health / 100)	92.7 (17.4)	94.5 (11.3)	0.62
Enjoyment	4.83 (1.41)	4.94 (1.01)	0.46
Game Play Spent Time (in sec)	130.62 (39.4)	110.49 (10.9)	3.51**

*p <.05, **p <.01

Subgroups Emerged in the Experimental Groups

Table 3: Frequencies of Game End Conditions in the Target Game of the Experiment

	Control Group (n=53)	Experimental Group (n=53)
Game End Conditions		n
Successful	50	29
No Health	3	2
No Time	-	22

Comparison of Subgroups in the Experimental Groups

Table 4: One-Way ANOVA Results for Dependent Variables between No Time and Successful Subgroups in Control and Experimental Conditions

	Control Group (n = 53)	Experimental Group (n = 53)			
	Successful (n = 50)	Successful (n = 29)	No Time (n = 22)		
	M			F (2,98)	Sig.
Perceived Time Press.	2.29	3.76	5.23	21.4	.000***
Autonomy	3.03	3.20	3.56	1.23	.30
Competence	4.83	5.23	4.38	2.16	.12
Intrinsic Motivation	3.82	3.83	4.12	0.96	.39
Flow	4.84	5.14	5.69	3.70	.028*
Engagement	3.52	3.60	4.10	3.24	.043*
Performance	92.7	98.1	89.8	2.31	.11
Enjoyment	4.83	4.93	4.97	.11	.89

*p <.05, ***p <.001

Comparison of Subgroups in the Experimental Groups

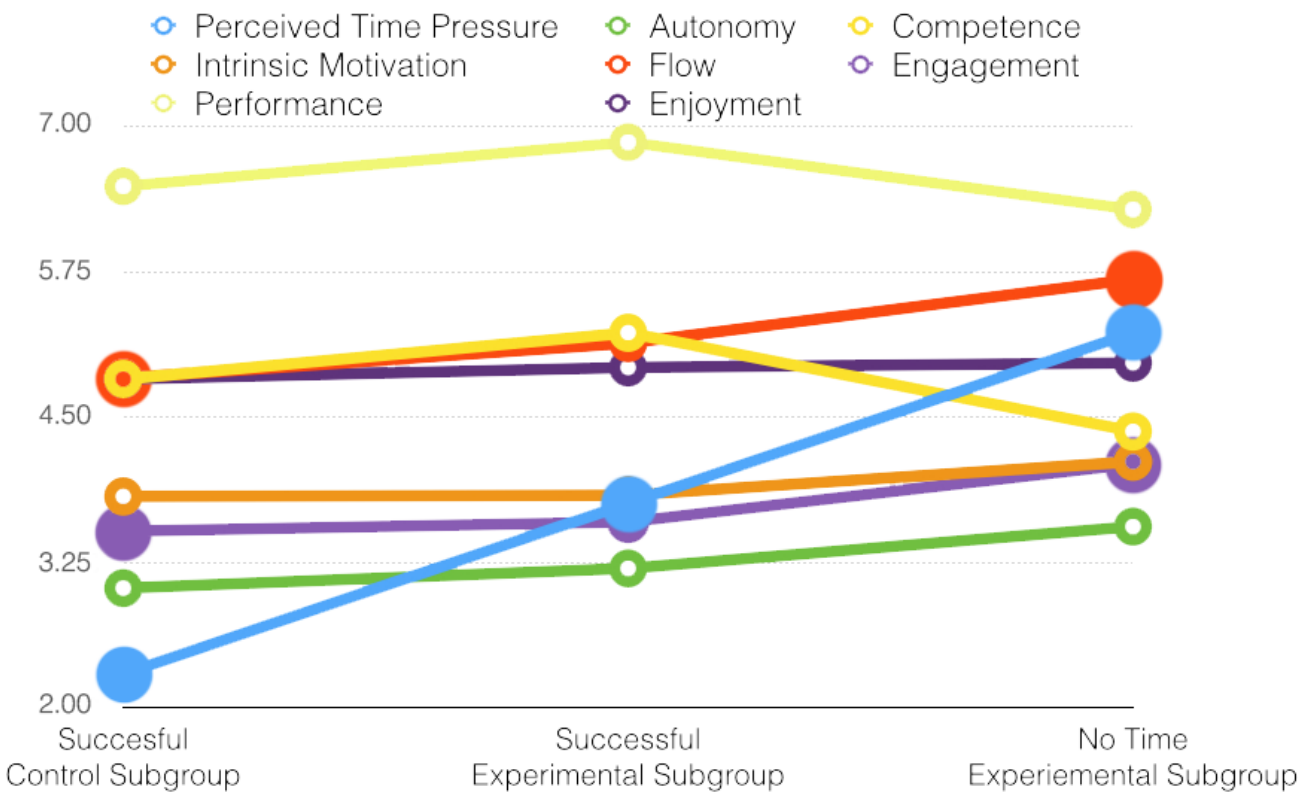


Figure 2: Mean Scores of the Dependent Variables for Subgroups in the Experimental Conditions.
Note: Performance results are scaled to the range 0-7 from 0-100. Significantly different variables are represented as dots.

Discussion

1. Players experienced more Flow and Engagement **even though they failed** in the game because of time limit
   - Zeigarnik effect
2. Competence and Performance (Left Health/100) approached significance between **no time and successful experimental subgroups**, (p = .10, p = .11, respectively)
   - increases with time limit; however, if perceived time pressure increases under that time limit, it starts to diminish them
   - Zeigarnik effect (for the increase), drop in self-efficacy and failures in achieving the goal in the given time limit (for the decrease)

Discussion Cont.

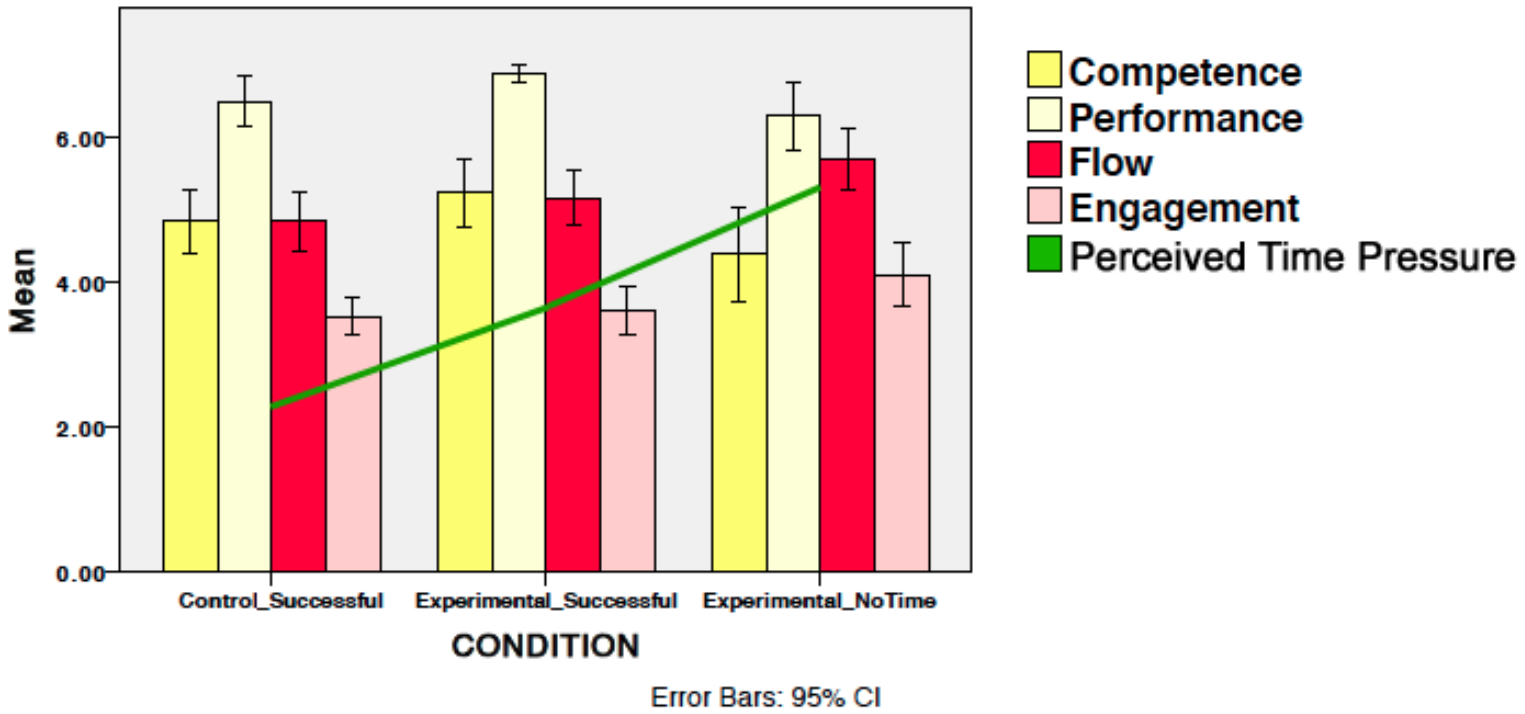


Figure 3: Mean Scores of the Competence, Performance, Flow and Engagement for Subgroups in the Experimental Conditions

Discussion Cont.

2. Competence and Performance approached significance
   - **Inverted-U relationship** between competence (and performance) and time pressure as a challenge [20]

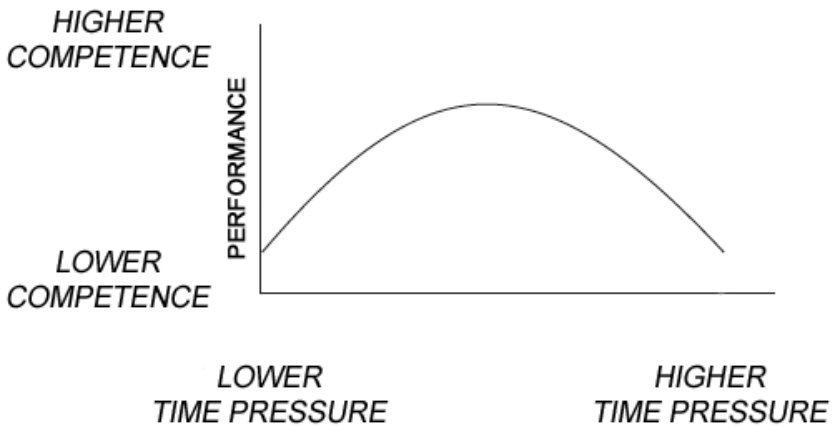


Figure 4: Curvilinear Relationship Between Competence-Performance and Perceived Time Pressure

3. **Change** in autonomy (increased) and competence (decreased) **oppositely** in the experimental group as time pressure increased

General Limitations

1. **Participants**
   - Power of the study is low (more sample size)
   - With more game play experience (6 of 100, hardcore gamers)
   - With wide distribution of age (86 of 101, 20-26)
   - Experience with wide range of game genres (17 of 101, platform; 27 of 101, puzzle games)
2. **Game Genre Effect**
   - Time limit in 3D shooter game is unusual
   - Mastering controls under time pressure
3. **Other Supportive Game Elements**
   - Isolated game features may not be very effective in facilitating motivation [9]
   - No options, character customization, mastery on skills, recovery choices to support autonomy and competence

Conclusion

1. Contribution of a specific game design element (time limit) to the motivational pull of video games
2. Players' flow and engagement increases with time pressure
   - Implementation of time limit in games (e.g. in quests) may increase immersion
3. An indication of curvilinear relationship between **time pressure** as a challenge and **competence and performance**
   - There may be an **intermediate level of perceived time pressure** (as a challenge) provided by time limit mechanics which results in **maximum competence and performance accompanied by flow and engagement**
   - **Positive outcomes** such as flow, engagement and performance may be **explained from the perspective of basic need satisfaction**

Future Work

1. A factorial design may be conducted to observe the effects of different time limits
   - With an **optimal level of time pressure**, autonomy, competence and other outcomes may be facilitated.
   - **Additional scale items** to measure Zeigarnik and failure (and the need for replay triggered by this failure) effects on flow, engagement, performance and competence
2. A formulation of need satisfactions for a wide range of **game genres** [29], by a wide range of **individual game design elements**
3. Interrelations between game design elements to facilitate the need satisfactions (e.g. **time limit with achievements, mastering skills, scores, co-play**)
4. A design heuristics as a guideline **based on psychological satisfaction** to make better games

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Appendix A

Informed Consent Form

Genel Bilgiler
Bu çalışma ODTÜ Enformatik Enstitüsü Oyun Teknolojileri Yüksek Lisans Programı öğrencilerinden İrem Gökçe Yıldırım tarafından yürütülmektedir. Bu form sizi araştırma koşulları hakkında bilgilendirmek icin hazırlanmıştır. Bu calışmanın amacı bazı oyun tasarım özellikleri ve edinilen psikolojik deneyimlerin arasindaki ilişkileri incelemektir. Arastırma internet üzerinden doldurulacak bir anket, devamında tamamlanacak olan bir laboratuvar çalışmasını içermektedir. Anket yaklaşık 5 dakika, laboratuvar çalışması ise 15 dakika sürecektir.
Araştırmada yaklaşık 100 katılımcı hedeflenmektedir. Üniversite öğrencileri katılımcı olarak davet edilecek, çalışmaya katılanlar bu duyurunun yapildiği ders için bonus puan alacaklardir. Alinacak puan dersin oğretim üyesi tarafından belirlenecektir.

Riskler ve Faydalar
Araştırma katılımcı için herhangi bir risk veya fayda içermemektedir.

Gönüllülük Esası
Bu çalışmaya katılmak tamamen gönüllülük esasına dayalıdır. Çalışmayı istediginiz zaman bırakabilir, çalışma esnasında cevap vermek istemediğiniz sorular olursa boş bırakabilirsiniz.

Gizlilik Esası
Çalismaya katılanlardan toplanan veriler tamamen gizli tutulacak, veriler ve kimlik bilgileri herhangi bir şekilde eşleştirilmeyecektir. Katılımcıların isimleri bağımsız bir listede toplanacaktır. Ayrıca toplanan verilere sadece araştırmacılar ulaşabilecektir. Bu araştırmanın sonuçları bilimsel ve profesyonel yayınlarda veya eğitim amaçlı kullanılabilir, fakat katılımcılarin kimliği gizli tutulacaktır.

Irtibat
Çalışmayla ilgili soru ve yorumlarınızı araştırmacıya gokce.aydin@metu.edu.tr adresinden iletebilirsiniz veya 543 342 4219''lu telefondan İrem Gökçe Yıldırım''a ulaşabilirsiniz.

Katılımcı Onayı
***Yukarıdaki bilgileri okudum ve bu araştırmaya gönüllü olarak katiımayı kabul ediyorum.**
☐ Evet ☐ Hayır

Appendix B-1

Demographics and Game Play Questionnaire

1. Yaşınız? _____

2. Cinsiyetiniz? ☐ Kadın ☐ Erkek

3. Lisans Anadalı Fakülteniz? ◯ Mühendislik ◯ Fen Bilimleri ◯ Mimarlık ◯ Eğitim ◯ Sosyal Bilimler ◯ İktisadi ve İdari Bilimler ◯ Diğer (Lütfen Belirtiniz) _____

4. Video oyunları oynar mısınız? ☐ Evet ☐ Hayır

5. *Haftada kaç saat video oyunları oynarsınız? ◯ 1 saatten az ◯ 1-5 ◯ 5-10 ◯ 10-15 ◯ 15'den fazla

6. *Kaç senedir video oyunları oynuyorsunuz? ◯ 1'den az ◯ 1-3 ◯ 3-5 ◯ 5-7 ◯ 7'den fazla

7. Hangi tip oyunları oynamaktan hoslanırsınız?(Çoklu seçim yapabilirsiniz.)
   - ☐ Birinci Şahis Nişancı Oyunları (First Person Shooter)
   - ☐ Rol Yapma Oyunları (Role Playing Games)
   - ☐ Devasa Çok Oyunculu Çevrimici Rol Yapma Oyunları (MMORPG)
   - ☐ Aksiyon Oyunları (Action Games)
   - ☐ Macera Oyunları (Adventure Games)
   - ☐ Puzzle Oyunları (Puzzle Games)
   - ☐ Strateji Oyunları
   - ☐ Gerçek Zamanlı Strateji Oyunları (Real Time Strategy Games)
   - ☐ Sıra Tabanlı Strateji Oyunları (Turn Based Strategy Games)
   - ☐ Gündelik Oyunlar (Casual Games)
   - ☐ Platform Oyunları
   - ☐ Spor Oyunları
   - ☐ Simulasyonlar
   - ☐ Diğer(Lütfen Belirtiniz) _____

Demographics and Game Play Questionnaire, cont.

8 Oyunlarda en çok hoşunuza giden özellikler nelerdir?(Çoklu seçim yapabilirsiniz.)

☐ Arayüz
☐ Karakterler-Modeller
☐ Ses Efektleri-Müzik
☐ Stratejik Davranabilme
☐ Zaman Baskısı
☐ Oyun Mekaniği
☐ Hareket Kabiliyetleri ve Kontroller
☐ Çoklu Oyun Oynayabilme
☐ Hikaye
☐ Başarı ve Kazanımlar
☐ Avatar Özelleştirebilme
☐ Diğer(Lütfen Belirtiniz) _____

9 Kullandığınız oyun platformları nelerdir?(Çoklu seçim yapabilirsiniz.)

☐ PC☐ Xbox☐ PlayStation☐ PlayStation Portable☐ Wii☐ Android Mobil Cihazlar☐ iOS Mobil Cihazlar
☐ Diğer(Lütfen Belirtiniz) _____

10 Kendinizi nasıl hedefi olan bir oyuncu olarak tanımlarsınız?

◯ Öğrenmeye ve yetkinliklerini arttırmaya çalışan
◯ Öğrenememekten ve yetkinliklerini arttıramamaktan endişe duyan
◯ Diğerlerinden daha iyi performans göstermeye çalışan
◯ Diğerlerinden kötü perfomans göstermekten kaçınan

Appendix C

Manipulation Check Scale

Aşağıdaki her bir ifadenin sizin düşüncenize göre ne kadar doğru olduğunu, aşağıdaki ölçek skalasını kullanarak belirtiniz.

1	2	3	4	5	6	7
Kesinlikle katılmıyorum			Ne katılıyorum ne katılmıyorum			Kesinlikle katılıyorum

1. Oyundaki görseller guzeldi.
2. Oyunda kullanılan objeleri kolayca tanımlayabildim.
3. Oyunu oynarken zaman kısıtlamasi vardı.
4. Oyunda kullanılan müzikler ve ses efektleri etkileyiciydi.
5. Oyunun kontrolleri öğrenmek oldukça kolaydı.
6. Oyunu oynarken zaman baskisi altındaydım.
7. Oyunda ortamı gezip, objeleri incelemek istedim.
8. Oyunda hedef görevi gerçekleştirmek zordu.
9. Bu oyunu oynamaya gelecekte devam edebilirim.
10. Oyun kontrolleri sezgiseldi.
11. Oyunda birşey yapmak istediğimde, karşılık gelen kontrolleri hatırlamak kolaydı.

Appendix D

PENS Scale

In-Game Autonomy Scale

1. Oyun ilginç seçenek ve tercihler sunuyor.
2. Oyun ilginç seyler yapmanıza olanak sağlıyor.
3. Oyunda çok fazla özgürlük hissettim.

In-Game Competence Scale

1. Oyunda kendimi yeterli hissettim.
2. Oynarken kendimi becerikli ve etkili hissettim.
3. Oynama yeteneğim ile oyundaki mücadeleler çok dengeli bir sekilde örtüşüyordu.

Appendix D-1

PENS Scale (Original) [11, 28, 23]

In-Game Autonomy Scale

1. The game provides me with interesting options and choices
2. The game lets you do interesting things
3. I experienced a lot of freedom in the game

In-Game Competence Scale

1. I feel competent at the game.
2. I feel very capable and effective when playing.
3. My ability to play the game is well matched with the game's challenges.

Appendix E

IMI Scale (Enjoyment and Intrinsic Motivation)

1. Oyunu oynarken keyif aldım. -Enjoyment
2. Oyunu oynamak eğlenceliydi. -Enjoyment
3. Oyunun sıkıcı olduğunu düsünüyorum. (R) -Enjoyment
4. Oyun dikkatimi toplayamadı. (R) -Enjoyment
5. Oyunu oynamayı çok ilginç buldum. -Enjoyment
6. Oyunu oynamanın oldukça keyifli olduğunu düşünüyorum. -Enjoyment
7. Oyunu oynarken, oyundan ne kadar keyif aldığımı düşünüyordum. -Enjoyment
8. Bu oyunda çok fazla efor sarfettim.
9. Oyunda çok fazla çabaladım.
10. Oyunda iyi yapabilmek benim için önemliydi.
11. Oynarken kendimi çok gergin hissettim.
12. Oynarken çok rahattım. (R)
13. Oynarken kendimi endişeli hissettim.
14. Oynarken üzerimde baskı hissettim.

Appendix E-1

IMI Scale (Original) [www.selfdeterminationtheory.org]

Interest/Enjoyment

1. I enjoyed doing this activity very much.
2. This activity was fun to do.
3. I thought this was a boring activity. (R)
4. This activity did not hold my attention at all. (R)
5. I would describe this activity as very interesting.
6. I thought this activity was quite enjoyable.
7. While I was doing this activity, I was thinking about how much I enjoyed it.

Effort/Importance

8. I put a lot of effort into this.
9. I tried very hard on this activity.
10. It was important to me to do well at this task.

Pressure/Tension

11. I felt very tense while doing this activity.
12. I was very relaxed in doing these. (R)
13. I was anxious while working on this task.
14. I felt pressured while doing these.

Appendix F

GameFlow Scale (Immersion)

1. Oynarken etrafımdakilerin daha az farkındaydım.
2. Oynarken daha az farkındalık sahibiydim ve günlük yaşam hakkında daha az kaygılıydım.
3. Oynarken değiştirilmiş bir zaman deneyimi yaşadım.
4. Kendimi duygusal olarak oyunun içindeymişim gibi hissettim.
5. Tüm duyularımla kendimi oyunun içindeymişim gibi hissettim.

Appendix F-1

GameFlow Scale (Immersion) (Original) [32]

1. Players should become less aware of their surroundings
2. Players should become less self-aware and less worried about everyday life or self
3. Players should experience an altered sense of time
4. Players should feel emotionally involved in the game
5. Players should feel viscerally involved in the game

EGameFlow Scale (Immersion) (Original) [13]

1. I become unaware of my surroundings while playing the game
2. I temporarily forget worries about everyday life while playing the game
3. I experience an altered sense of time
4. I feel emotionally involved in the game
5. I feel viscerally involved in the game

Appendix G

Engagement Scale

1. Kendimi korkmuş hissettim.
2. Oyunu oynarken nerede olduğumu unuttum.
3. Kendimi farklı hissettim.
4. Oynarken oyuna dalıp gittiğimi hissettim.
5. Oyun çok gerçekçiydi.
6. Oynarken telaşlandım.
7. Nasıl oynayacagimi düşünmeden kendiliğimden oynadım.
8. Oynamak beni rahatlattı.
9. Herşey kendi kendine oluyor gibi gözüktü.
10. Düşüncelerim aklımdan hızlı bir şekilde akıyordu.

Appendix G-1

Engagement Scale (Original) [8]

1. I feel scared.
2. I lose track of where I am.
3. I feel different.
4. I feel spaced out.
5. The game feels real.
6. I get wound up.
7. I play without thinking how to play.
8. Playing makes me feel calm.
9. Things seem to happen automatically.
10. My thoughts go fast.

Appendix H

Game Play Data

- **Completion Status:** game-end condition of game play (one of the variables below) depending on the achievement of the goal
  1. Successful: if the player completes the game successfully by achieving the goal
  2. No Time: if the player couldn't achieve the goal in the given time in the experimental condition
  3. No Health: if the player lose his health completely and die in gameplay
- **Spent Time:** gameplay duration
- **Left Enemy:** the number of left enemy at the time game ends
- **Left Health:** players' left health (over 100) at the time game ends
- **Distance to Target:** the left distance to the target at the time game ends