

## **BAB V**

### **PENUTUP**

#### **5.1 Kesimpulan**

Berdasarkan hasil analisis dari penelitian yang telah dilakukan, maka penulis dapat memberikan kesimpulan sebagai berikut:

##### **5.1.1 Kesimpulan Analisis Statistik Deskriptif**

1. Responden dalam penelitian ini didominasi oleh Laki-laki dengan jumlah 127 responden atau sekitar 82% dari total 154 responden, sedangkan responden Perempuan berjumlah 27 responden atau sekitar 18% dari total 154 responden.
2. Responden dalam penelitian ini didominasi oleh usia 15-22 tahun dengan jumlah 78 responden atau sekitar 51% dari total 154 responden, untuk usia 23-28 tahun respondennya berjumlah 76 atau sekitar 49% dari total 154 responden.
3. Responden dalam penelitian ini didominasi oleh responden dengan pengalaman bermain game Mobile Legends selama 1-3 tahun dengan jumlah 71 responden atau sekitar 46% dari total 154 responden, selanjutnya responden dengan pengalaman bermain game Mobile Legends selama <1 tahun dengan jumlah 44 responden atau sekitar 29% dari total 154

responden, dan yang terakhir responden dengan pengalaman bermain game Mobile Legends selama >3 tahun dengan jumlah 39 responden atau sekitar 25% dari total 154 responden.

4. Responden dalam penelitian ini didominasi oleh responden dengan waktu yang dihabiskan sehari-hari untuk bermain game Mobile Legends selama 2-6 jam sehari dengan jumlah 80 responden atau sekitar 52% dari total 154 responden, selanjutnya responden dengan waktu yang dihabiskan sehari-hari untuk bermain game Mobile Legends selama <2 jam sehari dengan jumlah 49 responden atau sekitar 32% dari total 154 responden, dan yang terakhir responden dengan waktu yang dihabiskan sehari-hari untuk bermain game Mobile Legends selama >6 jam sehari dengan jumlah 25 responden atau sekitar 16% dari total 154 responden.
5. Responden dalam penelitian ini didominasi oleh responden dengan rata-rata pengeluaran perbulan (didalam game) yang dialokasikan untuk bermain game Mobile Legends sebesar < Rp. 200.000 perbulan dengan jumlah 78 responden atau sekitar 51% dari total 154 responden, selanjutnya responden dengan rata-rata pengeluaran perbulan (didalam game) yang dialokasikan untuk bermain game Mobile Legends sebesar Rp. 200.000 – Rp. 600.000 perbulan dengan jumlah 61 responden atau sekitar 39% dari total 154 responden, dan yang terakhir responden dengan rata-rata pengeluaran perbulan (didalam game) yang dialokasikan untuk bermain game Mobile Legends sebesar > Rp. 600.000 perbulan dengan jumlah 15 responden atau sekitar 10% dari total 154 responden.

### **5.1.2 Kesimpulan Analisis Regresi Sederhana, Berganda, dan MRA**

1. Persepsi Kontrol Perilaku berpengaruh pada Kecanduan Game Online (H1 tidak didukung)
2. Norma Deskriptif berpengaruh pada Perasaan Gembira (H2 didukung)
3. Norma Deskriptif berpengaruh pada Kecanduan Game Online (H3 tidak didukung)
4. Perasaan Gembira berpengaruh pada Kecanduan Game Online (H4 didukung)
5. Kepuasan berpengaruh pada Loyalitas (H5 didukung)
6. Kecanduan Game Online berpengaruh pada Loyalitas (H6 didukung)
7. Kecanduan Game Online berpengaruh dalam memoderasi Kepuasan dan Loyalitas (H7 tidak didukung)

### **5.1.3 Kesimpulan Uji Beda**

#### **5.1.3.1 Kesimpulan Uji Beda Berdasarkan Jenis Kelamin Menggunakan *Independent Sample T-Test***

Berdasarkan uji beda yang dilakukan dalam penelitian, diperoleh hasil bahwa tidak ada perbedaan persepsi responden berdasarkan Jenis Kelamin, hal tersebut berkaitan dengan Loyalitas konsumen game Mobile Legends. Namun terdapat perbedaan persepsi responden berdasarkan Jenis Kelamin yang berkaitan dengan Persepsi Kontrol Perilaku, Norma Deskriptif, Persepsi Gembira, Kecanduan Game Online, dan Kepuasan konsumen game Mobile Legends.

Responden yang berjenis kelamin Laki-laki cenderung memiliki penilaian Persepsi Kontrol Perilaku, Norma Deskriptif, Persepsi Gembira, Kecanduan Game Online, dan Kepuasan yang paling baik dan paling tinggi terhadap game Mobile Legends.

#### **5.1.3.2 Kesimpulan Uji Beda Berdasarkan Usia Menggunakan *Independent Sample T-Test***

Berdasarkan uji beda yang dilakukan dalam penelitian, diperoleh hasil bahwa tidak ada perbedaan persepsi responden berdasarkan Usia, hal tersebut berkaitan dengan Persepsi Kontrol Perilaku dan Norma Deskriptif konsumen game Mobile Legends. Namun terdapat perbedaan persepsi responden berdasarkan Usia yang berkaitan dengan Persepsi Gembira, Kecanduan Game Online, Kepuasan, dan Loyalitas konsumen game Mobile Legends.

Responden yang berusia  $\geq 23$  tahun cenderung memiliki penilaian Persepsi Gembira, Kecanduan Game Online, Kepuasan, dan Loyalitas yang paling baik dan paling tinggi terhadap game Mobile Legends.

### **5.1.3.3 Kesimpulan Uji Beda Berdasarkan Pengalaman Bermain Game Mobile Legends Menggunakan *One Way ANOVA***

Berdasarkan uji beda yang dilakukan dalam penelitian, diperoleh hasil bahwa tidak ada perbedaan persepsi responden berdasarkan pengalaman bermain game Mobile Legends, hal tersebut berkaitan dengan Loyalitas konsumen game Mobile Legends. Namun terdapat perbedaan persepsi responden berdasarkan pengalaman bermain game Mobile Legends yang berkaitan dengan Persepsi Kontrol Perilaku, Norma Deskriptif, Persepsi Gembira, Kecanduan Game Online dan Kepuasan konsumen game Mobile Legends.

Responden dengan pengalaman bermain game Mobile Legends >3 tahun cenderung memiliki penilaian Persepsi Kontrol Perilaku, Norma Deskriptif, Persepsi Gembira, Kecanduan Game Online dan Kepuasan yang paling baik dan paling tinggi terhadap game Mobile Legends.

### **5.1.3.4 Kesimpulan Uji Beda Berdasarkan Waktu Yang Dhabiskan Sehari-hari Untuk Bermain Game Mobile Legends Menggunakan *One Way ANOVA***

Berdasarkan uji beda yang dilakukan dalam penelitian, diperoleh hasil bahwa terdapat perbedaan persepsi responden berdasarkan waktu yang dihabiskan sehari-hari untuk bermain game Mobile Legends yang berkaitan dengan Persepsi Kontrol Perilaku, Norma Deskriptif, Persepsi Gembira, Kecanduan Game Online, Kepuasan, dan Loyalitas konsumen game Mobile Legends.

Responden dengan waktu yang dihabiskan sehari-hari untuk bermain game Mobile Legends >6 jam cenderung memiliki penilaian Persepsi Kontrol Perilaku, Norma Deskriptif, Persepsi Gembira, Kecanduan Game Online, Kepuasan, dan Loyalitas yang paling baik dan paling tinggi terhadap game Mobile Legends.

#### **5.1.3.5 Kesimpulan Uji Beda Berdasarkan Rata-rata Pengeluaran Perbulan Yang Dialokasikan Untuk Game Mobile Legends Menggunakan *One Way ANOVA***

Berdasarkan uji beda yang dilakukan dalam penelitian, diperoleh hasil bahwa terdapat perbedaan persepsi responden berdasarkan rata-rata pengeluaran perbulan yang dialokasikan untuk game Mobile Legends yang berkaitan dengan Persepsi Kontrol Perilaku, Norma Deskriptif, Persepsi Gembira, Kecanduan Game Online, Kepuasan, dan Loyalitas konsumen game Mobile Legends.

Responden dengan rata-rata pengeluaran perbulan yang dialokasikan untuk game Mobile Legends sebesar Rp. 200.000 – Rp. 600.000 dan >Rp. 600.000 cenderung memiliki penilaian Persepsi Kontrol Perilaku, Norma Deskriptif, Persepsi Gembira, Kecanduan Game Online, Kepuasan, dan Loyalitas yang paling baik dan paling tinggi terhadap game Mobile Legends.

## 5.2 Keterbatasan Penelitian dan Saran

Penelitian ini tentunya memiliki kelemahan atau keterbatasan, oleh karena itu peneliti perlu memberikan saran bagi peneliti selanjutnya, berupa:

1. Penelitian ini hanya berfokus pada beberapa tempat di Yogyakarta, sehingga tempat lain tidak terjangkau, untuk penelitian selanjutnya diharapkan dapat mencakup beberapa tempat yang lebih luas agar dapat mengetahui perbedaan persepsi responden di tempat yang satu dengan tempat lainnya.
2. Penelitian ini hanya mencakup game online Mobile Legends saja, untuk penelitian selanjutnya diharapkan dapat menambahkan beberapa game online lainnya seperti *Player Unknown Battle Ground* (PUBG), *Arena of Valor* (AOV), *Ragnarok Online*, dll sehingga kita dapat mengetahui persepsi responden apakah berbeda-beda pada setiap game yang dimainkan.
3. Penelitian ini hanya memaparkan beberapa faktor yang mempengaruhi kecanduan game online, sehingga masih banyak faktor-faktor lain yang belum diteliti, untuk penelitian selanjutnya diharapkan menambahkan beberapa faktor lain yang mempengaruhi kecanduan game online.

## 5.3 Implikasi Manajerial

Dalam dunia game, umur dan jenis kelamin tidak menjadi penghalang mereka untuk bermain game online. Tidak bisa dipungkiri bahwa laki-laki atau perempuan, kaum muda atau kaum tua, mereka semua menyukai game online.

Game online sangat digemari karena mereka menganggap bermain game akan menghibur mereka, menghilangkan stress, dapat mencari teman baru, membangun hubungan dan relasi serta membentuk komunitas game dengan unsur gembira. Persepsi gembira menjadi salah satu alasan mereka untuk memainkan game online, karena jika game tersebut membuat mereka marah atau stress, game tersebut akan cepat ditinggalkan. Norma deskriptif juga berperan besar dalam bermain game online, hal ini didasari rasa kebersamaan untuk memainkan game online bersama teman, mengikuti trend yang sedang viral, sehingga seseorang tidak akan merasa ketinggalan jaman ketika teman-teman disekitar mereka memainkan game online. Seseorang akan menjadi kecanduan ketika mereka bermain game melewati batas, tidak bisa mengontrol diri dan mulai menjadikan dunia maya sebagai dunia nyata mereka. Penelitian ini menunjukkan bahwa kecanduan game online membuat konsumennya merasa puas dan menjadi loyal terhadap game tersebut. Padahal kecanduan itu adalah efek negatif, namun konsumen yang terkena efek negatif tersebut adalah konsumen yang merasa puas dan loyal dengan game online tersebut. Perusahaan game online perlu meningkatkan kualitas produk dan jasa agar konsumen semakin puas dan loyal. Peningkatan kualitas disini dimaksudkan seperti kesalahan program yang membuat game online sering terputus dari server, penanggulangan adanya *cheat* atau *third party program* yang merugikan konsumen game online, pembaharuan didalam game seperti penambahan karakter, map baru, fitur baru, sistem keamanan akun yang kuat, grafik yang bagus dan layanan customer service yang *fast response*. Semua ini diperlukan untuk menjaga kepuasan



dan loyalitas konsumen agar konsumen tidak merasa jenuh, kecewa dan akhirnya berpindah kegame lainnya.

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## KUESIONER PENELITIAN

### IDENTITAS RESPONDEN

1. Jenis Kelamin :  
Laki-laki  Perempuan
2. Usia : ..... tahun
3. Apakah anda pernah bermain game Mobile Legends? Ya/Tidak
4. Pengalaman bermain game Mobile Legends :  
<1 tahun   
1 – 3 tahun   
>3 tahun
5. Waktu yang dihabiskan sehari-hari untuk bermain game Mobile Legends :  
<2 jam   
2 – 6 jam   
>6 jam

6. Rata-rata pengeluaran perbulan (didalam game) yang dialokasikan untuk game Mobile Legends :  
<200 ribu Rupiah   
200 – 600 ribu Rupiah   
>600 ribu Rupiah

### PETUNJUK PENGISIAN KUESIONER

Bapak/Ibu/Saudara/Saudari cukup memberikan tanda *checklist* (✓) pada pilihan jawaban yang tersedia sesuai dengan pendapat Bapak/Ibu/Saudara/Saudari. Setiap pernyataan mengharapkan hanya ada satu jawaban. Setiap angka akan mewakili tingkat kesesuaian dengan pendapat Bapak/Ibu/Saudara/Saudari. Skor/Nilai jawaban adalah sebagai berikut:

Skor/Nilai 1 : Sangat tidak setuju (STS)

Skor/Nilai 2 : Tidak setuju (TS)

Skor/Nilai 3 : Netral (N)

Skor/Nilai 4 : Setuju (S)

Skor/Nilai 5 : Sangat setuju (SS)

## DAFTAR PERTANYAAN

### Persepsi Kontrol Perilaku

No.	Pertanyaan	(1) STS	(2) TS	(3) N	(4) S	(5) SS
1	Saya percaya bahwa saya bisa mengendalikan diri saya untuk bermain atau tidak bermain game Mobile Legends					
2	Saya percaya bahwa saya bisa mengendalikan diri saya dalam bermain game Mobile Legends					

3	Saya memiliki tingkat kepercayaan diri yang cukup dalam membuat keputusan untuk memainkan game Mobile Legends					
4	Saya memiliki tingkat pengetahuan yang cukup untuk memainkan game Mobile Legends					

### Norma Deskriptif

No.	Pertanyaan	(1)	(2)	(3)	(4)	(5)
		STS	TS	KS	SS	SS
1	Sebagian besar orang yang saya kenal dekat, bermain game Mobile Legends					
2	Sebagian besar orang yang saya kenal dekat, percaya game Mobile Legends itu menyenangkan					
3	Sebagian besar orang yang saya kenal dekat, terus-menerus memainkan game Mobile Legends					

### Persepsi Gembira

No.	Pertanyaan	(1)	(2)	(3)	(4)	(5)
		STS	TS	KS	S	SS
1	Proses memainkan game Mobile Legends ini menyenangkan					
2	Saat bermain game Mobile Legends ini, hati saya merasa senang					
3	Secara keseluruhan, saya percaya bahwa game Mobile Legends ini menyenangkan					

**Kecanduan Game Online**

No	Pertanyaan	(1) STS	(2) TS	(3) KS	(4) S	(5) SS
1	Saya merasa perlu untuk meningkatkan jumlah waktu bermain game Mobile Legends agar mencapai kepuasan					
2	Saya merasa disibukkan dengan game Mobile Legends (bayangkan saat offline dan anda terus memikirkan kapan sesi online anda berikutnya)					
3	Saya pernah berbohong kepada teman atau anggota keluarga					

	untuk menyembunyikan sejauh mana saya bermain game Mobie Legends					
4	Saya merasa gelisah, murung, tertekan, dan mudah marah ketika mencoba untuk berhenti bermain game Mobile Legends					
5	Saya berulang kali gagal untuk melakukan upaya mengontrol, mengurangi, atau menghentikan game Mobile Legends					
6	Saya menggunakan game Mobile Legends sebagai cara untuk melarikan diri dari masalah atau menghilangkan perasaan gelisah,					

	rasa bersalah, kecemasan atau depresi					
7	Saya menghabiskan waktu untuk bermain game Mobile Legends sesuai dengan yang semula saya tentukan					
8	Saya membahayakan atau beresiko kehilangan hubungan yang signifikan, pekerjaan, pendidikan atau peluang karir karena perilaku bermain game Mobile Legends saya					



### Kepuasan

No.	Pertanyaan	(1) STS	(2) TS	(3) KS	(4) S	(5) SS
1	Saya suka konten game, dari game Mobile Legends ini					
2	Saya senang dengan layanan yang diberikan oleh vendor game Mobile Legends ini					
3	Vendor game Mobile Legends ini berkinerja baik dalam menangani perilaku bermain game yang oportunistik					
4	Saya puas dengan adminstrasi akun dari vendor game Mobile Legends ini					
5	Saya senang dengan kualitas jaringan server game yang disediakan oleh vendor game Mobile Legends ini					
6	Secara keseluruhan, saya puas dengan game Mobile Legends ini					

### Loyalitas

No.	Pertanyaan	(1) STS	(2) TS	(3) KS	(4) S	(5) SS
1	Dibandingkan dengan game online lainnya, saya lebih suka game Mobile Legends ini					
2	Saya akan merekomendasikan game Mobile Legends ini kepada orang lain					
3	Saya akan memainkan kembali game Mobile Legends ini ketika saya ingin bermain game online nanti					
4	Ketika saya ingin bermain game online, game Mobile Legends ini adalah pilihan pertama saya					

**Lampiran 2**  
**Jawaban Kuesioner**

J K	U	A P	P E	W A	R A	P P 1	P P 2	P K P 3	P K P 4	N D 1	N D 2	N D 3	P G 1	P G 2	P G 3	K G O 1	K G O 2	K G O 3	K G O 4	K G O 5	K G O 6	K G O 7	K G O 8	K P 1	K P 2	K P 3	K P 4	K P 5	K P 6	L Y 1	L Y 2	L Y 3	L Y 4	
1	2	Y	3	3	2	2	2	2	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
1	2	Y	0	2	2	5	5	5	4	3	3	4	4	4	4	3	2	2	2	2	2	5	2	4	3	4	4	4	4	4	4	4	4	4
1	7	Y	8	2	1	3	5	5	4	3	5	5	5	5	5	4	3	2	2	3	3	4	2	5	5	4	5	3	5	2	4	4	4	1
1	2	Y	4	a	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	3	4	3	4	3
1	2	Y	2	a	2	2	1	4	4	4	4	4	4	4	3	2	2	2	1	1	4	4	2	2	3	4	3	2	4	4	4	4	4	4
1	2	Y	3	a	1	1	1	5	4	4	4	4	4	4	4	4	2	4	2	4	4	4	4	4	2	4	4	4	4	4	3	2	4	2
1	2	Y	4	a	3	3	2	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	3	3	3	3
1	2	Y	3	a	2	1	1	5	4	4	4	4	4	4	2	1	2	1	2	2	2	2	4	3	3	3	3	4	4	3	3	3	2	
1	2	Y	0	a	2	2	1	3	3	3	5	3	3	4	3	5	4	2	3	1	3	3	4	3	4	3	3	3	3	3	3	3	3	3

1	1	Y	2	2	1	5	5	5	4	4	4	4	5	5	4	3	2	1	2	2	1	1	1	4	4	4	4	3	3	3	3	3	3	3	3	
1	2	Y	1	1	1	5	5	5	3	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
1	2	Y	1	1	1	4	3	4	4	4	3	4	4	5	4	4	5	4	5	4	5	4	5	4	4	5	4	4	5	4	3	4	5	4	5	
1	2	Y	2	2	1	5	4	3	4	4	3	4	4	3	4	4	3	3	4	4	4	4	3	3	5	4	3	4	5	5	4	4	4	3	3	
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1	2	Y	2	2	1	5	5	5	5	4	4	3	4	3	3	2	1	2	2	2	3	5	1	3	3	3	2	2	4	1	3	2	2	2	2	
1	2	Y	2	2	2	4	4	5	4	4	5	4	5	4	4	4	5	5	4	5	4	5	5	5	4	5	3	4	4	3	3	5	4	4	4	
1	2	Y	1	1	1	5	5	4	1	5	4	4	3	3	2	2	2	1	2	2	2	4	1	2	2	3	4	3	3	1	2	2	2	2	2	
1	2	Y	2	2	1	3	3	4	4	3	3	3	4	4	4	4	3	2	2	4	3	2	4	3	3	4	3	3	4	4	4	4	4	4	4	
1	2	Y	3	2	1	2	2	4	4	5	5	5	4	3	4	4	2	2	3	2	5	5	4	5	2	3	4	3	5	3	4	4	4	4	4	
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1	2	Y	2	2	1	4	4	4	3	2	3	3	5	4	4	2	2	2	2	2	2	2	2	4	4	3	4	1	3	3	3	3	3	3	3	
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1	2	Y	3	2	1	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	1	3	1	5	5	5	5	5	5	5	5	4	4	5	
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1	2	Y	3	3	1	4	4	4	4	5	5	5	5	5	5	4	4	3	3	3	1	3	1	5	5	5	4	5	4	4	4	4	4	4	
1	2	Y	2	1	1	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	1	3	1	5	5	4	4	4	4	5	4	4	4	4	
1	2	Y	1	1	1	3	3	3	3	4	4	4	4	4	4	2	2	2	2	2	1	4	1	4	4	4	4	4	4	4	5	4	4	4	4
1	2	Y	3	3	3	4	4	4	4	4	4	4	4	4	5	5	5	1	5	5	1	1	1	5	5	5	5	5	5	4	4	4	4	4	
1	2	Y	2	2	1	5	5	5	4	5	4	5	5	4	5	5	5	5	5	5	3	3	3	5	5	4	4	4	5	4	4	4	4	4	
1	2	Y	3	3	2	5	4	4	4	4	4	4	4	4	4	3	3	3	3	1	1	3	1	5	5	5	4	5	5	5	5	5	5	5	

1	2	Y	2	2	2	5	5	5	5	4	4	5	5	4	4	5	4	4	5	4	1	1	1	5	5	5	4	5	4	5	4	4	4		
1	2	Y	2	1	1	4	4	4	4	4	4	4	4	4	4	3	3	1	2	3	2	3	2	5	4	4	5	4	5	5	4	5	5		
1	2	Y	3	2	1	5	5	5	5	5	5	5	5	4	5	3	3	2	3	3	1	3	1	5	4	5	5	5	5	4	4	4	4		
2	2	Y	3	1	1	1	4	4	4	3	4	4	4	4	4	4	2	2	2	2	2	1	4	1	4	4	3	3	4	5	4	4	4	4	
2	1	Y	9	1	1	1	5	5	4	4	4	4	4	4	4	4	2	2	2	2	2	1	4	1	5	5	4	4	3	5	4	4	4	3	
2	2	Y	4	1	1	1	4	4	4	3	4	4	4	4	4	4	2	2	2	2	2	1	3	1	4	4	3	3	4	4	4	4	4	3	
1	1	Y	8	2	2	2	4	4	4	4	5	5	5	5	5	5	4	4	3	4	3	1	3	1	5	5	5	5	5	5	5	5	5	5	
1	1	Y	8	2	2	2	5	5	5	5	5	5	5	5	5	4	4	4	4	4	3	1	3	1	5	5	4	4	5	5	5	5	5	5	
1	2	Y	8	3	2	1	5	5	5	5	5	5	5	5	4	4	3	4	3	2	3	2	3	2	5	5	5	5	5	5	5	5	4	4	4
1	2	Y	5	1	1	1	4	4	4	3	4	4	4	4	5	5	5	3	3	1	2	1	1	3	1	5	5	5	4	4	5	5	5	5	4
1	2	Y	5	2	2	2	5	4	4	5	5	5	5	5	5	5	4	4	4	4	3	1	3	2	5	5	5	5	5	5	5	5	4	4	4
1	1	Y	6	1	2	1	5	4	5	5	4	4	4	4	5	4	4	3	4	3	3	1	3	2	5	4	3	4	5	5	5	4	4	5	
2	1	Y	8	1	1	1	4	4	4	4	4	4	4	3	3	3	4	4	3	4	4	1	3	1	4	3	4	3	4	5	5	5	4	3	
1	1	Y	9	2	2	2	5	5	4	5	4	4	5	5	4	5	3	4	1	4	3	1	3	1	5	4	5	4	4	5	5	4	5	5	



**Lampiran 3**  
**Hasil Uji Validitas dan Reliabilitas**

**1. Persepsi Kontrol Perilaku**

Case Processing Summary			
		N	%
Cases	Valid	154	100.0
	Excluded <sup>a</sup>	0	.0
	Total	154	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.778	.786	4

Item Statistics			
	Mean	Std. Deviation	N
1. Saya percaya bahwa saya bisa mengendalikan diri saya untuk bermain atau tidak bermain game Mobile Legends	4.34	.786	154
2. Saya percaya bahwa saya bisa mengendalikan diri saya dalam bermain game Mobile Legends	4.28	.812	154
3. Saya memiliki tingkat kepercayaan diri yang cukup dalam membuat keputusan untuk memainkan game Mobile Legends	4.29	.702	154
4. Saya memiliki tingkat pengetahuan yang cukup untuk memainkan game Mobile Legends	4.22	.834	154

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.281	4.221	4.338	.117	1.028	.002	4

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
1. Saya percaya bahwa saya bisa mengendalikan diri saya untuk bermain atau tidak bermain game Mobile Legends	12.79	3.437	.642	.627	.693
2. Saya percaya bahwa saya bisa mengendalikan diri saya dalam bermain game Mobile Legends	12.84	3.244	.691	.654	.665
3. Saya memiliki tingkat kepercayaan diri yang cukup dalam membuat keputusan untuk memainkan game Mobile Legends	12.84	3.562	.706	.502	.669
4. Saya memiliki tingkat pengetahuan yang cukup untuk memainkan game Mobile Legends	12.90	4.075	.343	.241	.848

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
17.12	5.926	2.434	4

## 2. Norma Deskriptif

Case Processing Summary			
		N	%
Cases	Valid	154	100.0
	Excluded <sup>a</sup>	0	.0
	Total	154	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.841	.850	3

Item Statistics			
	Mean	Std. Deviation	N
1. Sebagian besar orang yang saya kenal dekat, bermain game Mobile Legends	4.33	.687	154
2. Sebagian besar orang yang saya kenal dekat, percaya game Mobile Legends itu menyenangkan	4.20	.699	154
3. Sebagian besar orang yang saya kenal dekat, terus-menerus memainkan game Mobile Legends	4.13	.861	154

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.221	4.130	4.331	.201	1.049	.010	3



<b>Item-Total Statistics</b>					
	Scale Mean if Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
1. Sebagian besar orang yang saya kenal dekat, bermain game Mobile Legends	8.33	1.962	.748	.578	.746
2. Sebagian besar orang yang saya kenal dekat, percaya game Mobile Legends itu menyenangkan	8.46	1.963	.726	.555	.764
3. Sebagian besar orang yang saya kenal dekat, terus-menerus memainkan game Mobile Legends	8.53	1.649	.670	.450	.836

<b>Scale Statistics</b>			
Mean	Variance	Std. Deviation	N of Items
12.66	3.872	1.968	3

### 3. Persepsi Gembira

<b>Case Processing Summary</b>			
		N	%
Cases	Valid	154	100.0
	Excluded <sup>a</sup>	0	.0
	Total	154	100.0

a. Listwise deletion based on all variables in the procedure.

<b>Reliability Statistics</b>		
	Cronbach's Alpha Based on Standardized Items	N of Items
Cronbach's Alpha	.906	3

<b>Item Statistics</b>			
	Mean	Std. Deviation	N
1. Proses memainkan game Mobile Legends ini menyenangkan	4.27	.735	154
2. Saat bermain game Mobile Legends ini, hati saya merasa senang	4.22	.778	154
3. Secara keseluruhan, saya percaya bahwa game Mobile Legends ini menyenangkan	4.27	.723	154

<b>Summary Item Statistics</b>							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.253	4.221	4.273	.052	1.012	.001	3

<b>Item-Total Statistics</b>						
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted	
1. Proses memainkan game Mobile Legends ini menyenangkan	8.49	1.951	.838	.703	.844	
2. Saat bermain game Mobile Legends ini, hati saya merasa senang	8.54	1.897	.798	.640	.879	
3. Secara keseluruhan, saya percaya bahwa game Mobile Legends ini menyenangkan	8.49	2.029	.804	.654	.873	

<b>Scale Statistics</b>			
Mean	Variance	Std. Deviation	N of Items
12.76	4.210	2.052	3

#### 4. Kecanduan Game Online

Case Processing Summary			
		N	%
Cases	Valid	154	100.0
	Excluded <sup>a</sup>	0	.0
	Total	154	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.764	.743	8

Item Statistics			
	Mean	Std. Deviation	N
1. Saya merasa perlu untuk meningkatkan jumlah waktu bermain game Mobile Legends agar mencapai kepuasan	3.47	1.049	154
2. Saya merasa disibukkan dengan game Mobile Legends (bayangkan saat offline dan anda terus memikirkan kapan sesi online anda berikutnya)	3.36	1.147	154
3. Saya pernah berbohong kepada teman atau anggota keluarga untuk menyembunyikan sejauh mana saya bermain game Mobile Legends	3.23	1.357	154
4. Saya merasa gelisah, murung, tertekan, dan mudah marah ketika mencoba untuk berhenti bermain game Mobile Legends	3.11	1.261	154
5. Saya berulang kali gagal untuk melakukan upaya mengontrol, mengurangi, atau menghentikan game Mobile Legends	3.08	1.207	154

6. Saya menggunakan game Mobile Legends sebagai cara untuk melarikan diri dari masalah atau menghilangkan perasaan gelisah, rasa bersalah, kecemasan atau depresi	2.29	1.096	154
7. Saya menghabiskan waktu untuk bermain game Mobile Legends sesuai dengan yang semula saya tentukan	2.82	.998	154
8. Saya membahayakan atau beresiko kehilangan hubungan yang signifikan, pekerjaan, pendidikan atau peluang karir karena perilaku bermain game Mobile Legends saya	1.97	1.050	154

#### Summary Item Statistics

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	2.917	1.968	3.474	1.506	1.766	.281	8

#### Item-Total Statistics

	Scale Mean if Deleted	Scale Variance if Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
1. Saya merasa perlu untuk meningkatkan jumlah waktu bermain game Mobile Legends agar mencapai kepuasan	19.86	24.210	.651	.705	.709
2. Saya merasa disibukkan dengan game Mobile Legends (bayangkan saat offline dan anda terus memikirkan kapan sesi online anda berikutnya)	19.98	23.039	.697	.782	.696

3. Saya pernah berbohong kepada teman atau anggota keluarga untuk menyembunyikan sejauh mana saya bermain game Mobie Legends	20.10	21.728	.669	.563	.696
4. Saya merasa gelisah, murung, tertekan, dan mudah marah ketika mencoba untuk berhenti bermain game Mobile Legends	20.23	22.020	.712	.814	.689
5. Saya berulang kali gagal untuk melakukan upaya mengontrol, mengurangi, atau menghentikan game Mobile Legends	20.26	21.854	.772	.768	.678
6. Saya menggunakan game Mobile Legends sebagai cara untuk melarikan diri dari masalah atau menghilangkan perasaan gelisah, rasa bersalah, kecemasan atau depresi	21.05	28.318	.215	.393	.779
7. Saya menghabiskan waktu untuk bermain game Mobile Legends sesuai dengan yang semula saya tentukan	20.51	34.068	-.261	.361	.838
8. Saya membahayakan atau beresiko kehilangan hubungan yang signifikan, pekerjaan, pendidikan atau peluang karir karena perilaku bermain game Mobile Legends saya	21.37	27.542	.307	.359	.764

<b>Scale Statistics</b>			
Mean	Variance	Std. Deviation	N of Items
23.34	32.029	5.659	8

## 5. Kepuasan

Case Processing Summary			
		N	%
Cases	Valid	154	100.0
	Excluded <sup>a</sup>	0	.0
	Total	154	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.900	.903	6

Item Statistics			
	Mean	Std. Deviation	N
1. Saya suka konten game, dari game Mobile Legends ini	4.34	.743	154
2. Saya senang dengan layanan yang diberikan oleh vendor game Mobile Legends ini	4.16	.804	154
3. Vendor game Mobile Legends ini berkinerja baik dalam menangani perilaku bermain game yang oportunistik (perilaku bermain game yang menggunakan jalan pintas untuk membuat diri nya lebih unggul dari player lainnya)	4.09	.778	154
4. Saya puas dengan adminstrasi akun dari vendor game Mobile Legends ini (pelayanan registrasi akun / lupa password, Bind akun, dan recharge)	4.05	.739	154
5. Saya senang dengan kualitas jaringan server game yang disediakan oleh vendor game Mobile Legends ini	4.01	.946	154
6. Secara keseluruhan, saya puas dengan game Mobile Legends ini	4.26	.739	154

<b>Summary Item Statistics</b>							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.152	4.006	4.338	.331	1.083	.016	6

<b>Item-Total Statistics</b>					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
1. Saya suka konten game, dari game Mobile Legends ini	20.57	10.704	.805	.679	.872
2. Saya senang dengan layanan yang diberikan oleh vendor game Mobile Legends ini	20.75	10.452	.783	.646	.874
3. Vendor game Mobile Legends ini berkinerja baik dalam menangani perilaku bermain game yang oportunistik (perilaku bermain game yang menggunakan jalan pintas untuk membuat diri nya lebih unggul dari player lainnya)	20.82	11.012	.687	.506	.888
4. Saya puas dengan adminstrasi akun dari vendor game Mobile Legends ini (pelayanan registrasi akun / lupa password, Bind akun, dan recharge)	20.86	11.025	.733	.557	.882

5. Saya senang dengan kualitas jaringan server game yang disediakan oleh vendor game Mobile Legends ini	20.90	10.141	.686	.476	.893
6. Secara keseluruhan, saya puas dengan game Mobile Legends ini	20.65	11.131	.708	.519	.885

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
24.91	15.168	3.895	6

## 6. Loyalitas

Case Processing Summary			
		N	%
Cases	Valid	154	100.0
	Excluded <sup>a</sup>	0	.0
	Total	154	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.907	.910	4

Item Statistics			
	Mean	Std. Deviation	N
1. Dibandingkan dengan game online lainnya, saya lebih suka game Mobile Legends	4.09	.993	154
2. Saya akan merekomendasikan game Mobile Legends kepada orang lain	3.99	.800	154
3. Saya akan memainkan kembali game Mobile Legends ini ketika saya ingin bermain game online nanti	4.06	.781	154



4. Ketika saya ingin bermain game online, game Mobile Legends ini adalah pilihan pertama saya	3.90	.916	154
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Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.010	3.896	4.091	.195	1.050	.008	4

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
1. Dibandingkan dengan game online lainnya, saya lebih suka game Mobile Legends	11.95	5.004	.818	.671	.874
2. Saya akan merekomendasikan game Mobile Legends kepada orang lain	12.05	5.827	.816	.667	.873
3. Saya akan memainkan kembali game Mobile Legends ini ketika saya ingin bermain game online nanti	11.97	6.143	.740	.549	.898
4. Ketika saya ingin bermain game online, game Mobile Legends ini adalah pilihan pertama saya	12.14	5.339	.813	.668	.872

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
16.04	9.619	3.102	4

## Lampiran 4

### Hasil Uji Regresi

#### 1. Hasil Analisis Regresi Berganda Variabel Independen Persepsi Kontrol Perilaku, Norma Deskriptif, Persepsi Gembira, pada Variabel Dependen Kecanduan Game Online

Variables Entered/Removed <sup>a</sup>			
Model	Variables Entered	Variables Removed	Method
1	PG, PKP, ND <sup>b</sup>	.	Enter
a. Dependent Variable: KGO			
b. All requested variables entered.			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.404 <sup>a</sup>	.163	.146	.65363
a. Predictors: (Constant), PG, PKP, ND				

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.484	3	4.161	9.740	.000 <sup>b</sup>
	Residual	64.085	150	.427		
	Total	76.569	153			
a. Dependent Variable: KGO						
b. Predictors: (Constant), PG, PKP, ND						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.815	.430		1.892	.060
	PKP	.071	.102	.061	.698	.486
	ND	.138	.113	.128	1.224	.223
	PG	.285	.101	.276	2.831	.005
a. Dependent Variable: KGO						

**2. Hasil Analisis Regresi Berganda Variabel Independen Kecanduan Game Online dan Kepuasan pada Variabel Dependen Loyalitas**

Variables Entered/Removed <sup>a</sup>			
Model	Variables Entered	Variables Removed	Method
1	KP, KGO <sup>b</sup>	.	Enter
a. Dependent Variable: LY			
b. All requested variables entered.			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.781 <sup>a</sup>	.610	.604	.48764
a. Predictors: (Constant), KP, KGO				

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.078	2	28.039	117.913	.000 <sup>b</sup>
	Residual	35.907	151	.238		
	Total	91.985	153			
a. Dependent Variable: LY						
b. Predictors: (Constant), KP, KGO						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.047	.262		.181	.857
	KGO	.124	.062	.113	2.014	.046
	KP	.867	.067	.726	12.931	.000
a. Dependent Variable: LY						

**3. Hasil Analisis Regresi Sederhana Variabel Independen Norma Deskriptif pada Variabel Dependen Persepsi Gembira**

Variables Entered/Removed <sup>a</sup>			
Model	Variables Entered	Variables Removed	Method
1	ND <sup>b</sup>	.	Enter
a. Dependent Variable: PG			
b. All requested variables entered.			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.637 <sup>a</sup>	.406	.402	.52894
a. Predictors: (Constant), ND				

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.041	1	29.041	103.800	.000 <sup>b</sup>
	Residual	42.527	152	.280		
	Total	71.568	153			
a. Dependent Variable: PG						
b. Predictors: (Constant), ND						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.450	.278		5.207	.000
	ND	.664	.065	.637	10.188	.000
a. Dependent Variable: PG						

**4. Hasil Analisis Regresi Sederhana Variabel Independen Kecanduan Game Online pada Variabel Dependen Loyalitas**

Variables Entered/Removed <sup>a</sup>			
Model	Variables Entered	Variables Removed	Method
1	KGO <sup>b</sup>	.	Enter
a. Dependent Variable: LY			
b. All requested variables entered.			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.421 <sup>a</sup>	.177	.172	.70558
a. Predictors: (Constant), KGO				

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.314	1	16.314	32.769	.000 <sup>b</sup>
	Residual	75.672	152	.498		
	Total	91.985	153			
a. Dependent Variable: LY						
b. Predictors: (Constant), KGO						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.663	.242		11.005	.000
	KGO	.462	.081	.421	5.724	.000
a. Dependent Variable: LY						

**5. Hasil Analisis Regresi Sederhana Variabel Independen Kepuasan pada Variabel Dependen Loyalitas**

Variables Entered/Removed <sup>a</sup>			
Model	Variables Entered	Variables Removed	Method
1	KP <sup>b</sup>	.	Enter
a. Dependent Variable: LY			
b. All requested variables entered.			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.774 <sup>a</sup>	.599	.597	.49252
a. Predictors: (Constant), KP				

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.114	1	55.114	227.201	.000 <sup>b</sup>
	Residual	36.872	152	.243		
	Total	91.985	153			
a. Dependent Variable: LY						
b. Predictors: (Constant), KP						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.171	.258		.664	.508
	KP	.925	.061	.774	15.073	.000
a. Dependent Variable: LY						

## 6. Hasil Analisis MRA Variabel Moderasi pada Variabel Dependen Loyalitas

Variables Entered/Removed <sup>a</sup>			
Model	Variables Entered	Variables Removed	Method
1	SNM, Zscore(KP), Zscore(KGO) <sup>b</sup>	.	Enter
a. Dependent Variable: LY			
b. All requested variables entered.			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.781 <sup>a</sup>	.610	.602	.48926
a. Predictors: (Constant), SNM, Zscore(KP), Zscore(KGO)				

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.079	3	18.693	78.089	.000 <sup>b</sup>
	Residual	35.907	150	.239		
	Total	91.985	153			
a. Dependent Variable: LY						
b. Predictors: (Constant), SNM, Zscore(KP), Zscore(KGO)						

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.011	.069		58.527	.000
	Zscore(KP)	.563	.044	.726	12.880	.000
	Zscore(KGO)	.088	.044	.113	2.005	.047
	SNM	-.002	.064	-.001	-.029	.977

a. Dependent Variable: LY

**7. Hasil Uji Beda berdasarkan Jenis Kelamin menggunakan *Independent Sample T-Test***

Group Statistics					
	Jenis Kelamin	N	Mean	Std. Deviation	Std. Error Mean
PKP	Laki-Laki	127	4,3465	,61564	,05463
	Perempuan	27	3,9722	,47197	,09083
ND	Laki-Laki	127	4,2835	,66012	,05858
	Perempuan	27	3,9259	,55726	,10725
PG	Laki-Laki	127	4,3281	,62429	,05540
	Perempuan	27	3,9012	,84132	,16191
KGO	Laki-Laki	127	3,0000	,66462	,05898
	Perempuan	27	2,5278	,78319	,15072
KP	Laki-Laki	127	4,2126	,66391	,05891
	Perempuan	27	3,8642	,48928	,09416
LY	Laki-Laki	127	4,0472	,77775	,06901
	Perempuan	27	3,8333	,75320	,14495



Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
PKP	Equal variances assumed	2,204	,140	2,975	152	,003	,37423	,12578	,12572	,62274
	Equal variances not assumed			3,531	46,945	,001	,37423	,10599	,16100	,58747
ND	Equal variances assumed	1,968	,163	2,621	152	,010	,35754	,13641	,08803	,62705
	Equal variances not assumed			2,926	43,037	,005	,35754	,12220	,11111	,60397
PG	Equal variances assumed	,354	,553	3,022	152	,003	,42685	,14123	,14781	,70589
	Equal variances not assumed			2,494	32,352	,018	,42685	,17113	,07842	,77527
KGO	Equal variances assumed	1,848	,176	3,247	152	,001	,47222	,14545	,18485	,75959
	Equal variances not assumed			2,918	34,404	,006	,47222	,16185	,14344	,80100
KP	Equal variances assumed	6,023	,015	2,579	152	,011	,34840	,13509	,08151	,61529
	Equal variances not assumed			3,137	48,796	,003	,34840	,11107	,12517	,57163
LY	Equal variances assumed	,819	,367	1,305	152	,194	,21391	,16394	-,10999	,53781
	Equal variances not assumed			1,332	38,713	,191	,21391	,16054	-,11090	,53872

**8. Hasil Uji Beda berdasarkan Usia menggunakan *Independent Sample T-Test***

Group Statistics					
	Umur	N	Mean	Std. Deviation	Std. Error Mean
PKP	<23	78	4.2244	.67611	.07655
	>=23	76	4.3388	.52868	.06064
ND	<23	78	4.1368	.74717	.08460
	>=23	76	4.3070	.53821	.06174
PG	<23	78	4.0385	.77101	.08730
	>=23	76	4.4737	.49669	.05697
KGO	<23	78	2.7596	.73656	.08340
	>=23	76	3.0789	.64156	.07359
KP	<23	78	3.9615	.70297	.07960
	>=23	76	4.3465	.52547	.06028
LY	<23	78	3.8494	.90124	.10205
	>=23	76	4.1743	.58169	.06672

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
PKP	Equal variances assumed	2.020	.157	-1.168	152	.245	-.11446	.09797	-.30802	.07911
	Equal variances not assumed			-1.172	145.242	.243	-.11446	.09766	-.30748	.07857

ND	Equal variances assumed	4.097	.045	-1.619	152	.108	-.17027	.10517	-.37804	.03751
	Equal variances not assumed			-1.626	140.066	.106	-.17027	.10473	-.37732	.03679
PG	Equal variances assumed	2.294	.132	-4.152	152	.000	-.43522	.10481	-.64230	-.22815
	Equal variances not assumed			-4.175	131.980	.000	-.43522	.10425	-.64143	-.22901
KGO	Equal variances assumed	2.758	.099	-2.866	152	.005	-.31933	.11143	-.53947	-.09919
	Equal variances not assumed			-2.871	150.140	.005	-.31933	.11123	-.53910	-.09956
KP	Equal variances assumed	6.199	.014	-3.841	152	.000	-.38495	.10021	-.58294	-.18696
	Equal variances not assumed			-3.856	142.517	.000	-.38495	.09984	-.58232	-.18759
LY	Equal variances assumed	11.868	.001	-2.651	152	.009	-.32498	.12258	-.56717	-.08280
	Equal variances not assumed			-2.665	132.122	.009	-.32498	.12192	-.56616	-.08381

## 9. Hasil Uji Beda Berdasarkan Pengalaman Bermain Game Mobile Legends Menggunakan *One Way ANOVA*

Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
PKP	<1 tahun	44	4.0682	.69959	.10547	3.8555	4.2809	1.00	5.00
	1-3 tahun	71	4.3134	.52563	.06238	4.1890	4.4378	3.00	5.00
	>3 tahun	39	4.4615	.58360	.09345	4.2724	4.6507	2.75	5.00
	Total	154	4.2808	.60858	.04904	4.1840	4.3777	1.00	5.00

ND	<1 tahun	44	3.9470	.63873	.09629	3.7528	4.1412	1.00	5.00
	1-3 tahun	71	4.2066	.67228	.07978	4.0474	4.3657	2.33	5.00
	>3 tahun	39	4.5556	.48566	.07777	4.3981	4.7130	3.33	5.00
	Total	154	4.2208	.65593	.05286	4.1164	4.3252	1.00	5.00
PG	<1 tahun	44	3.9167	.84488	.12737	3.6598	4.1735	1.00	5.00
	1-3 tahun	71	4.3052	.54844	.06509	4.1754	4.4350	2.67	5.00
	>3 tahun	39	4.5385	.54940	.08797	4.3604	4.7166	3.00	5.00
	Total	154	4.2532	.68393	.05511	4.1444	4.3621	1.00	5.00
KGO	<1 tahun	44	2.5909	.79942	.12052	2.3479	2.8340	1.25	4.50
	1-3 tahun	71	2.9701	.64658	.07673	2.8170	3.1231	1.63	4.63
	>3 tahun	39	3.1891	.56332	.09020	3.0065	3.3717	1.75	4.13
	Total	154	2.9172	.70743	.05701	2.8046	3.0298	1.25	4.63
KP	<1 tahun	44	3.9205	.64348	.09701	3.7248	4.1161	2.00	5.00
	1-3 tahun	71	4.1667	.63932	.07587	4.0153	4.3180	2.83	5.00
	>3 tahun	39	4.3846	.59745	.09567	4.1909	4.5783	3.00	5.00
	Total	154	4.1515	.64911	.05231	4.0482	4.2549	2.00	5.00
LY	<1 tahun	44	3.8352	.86761	.13080	3.5715	4.0990	1.00	5.00
	1-3 tahun	71	4.0458	.73230	.08691	3.8724	4.2191	2.00	5.00
	>3 tahun	39	4.1410	.72501	.11609	3.9060	4.3760	2.00	5.00
	Total	154	4.0097	.77538	.06248	3.8863	4.1332	1.00	5.00
MOD	<1 tahun	44	15.5076	5.26742	.79409	13.9061	17.1090	2.83	25.00
	1-3 tahun	71	17.1843	5.00187	.59361	16.0003	18.3682	5.67	25.00
	>3 tahun	39	18.4808	4.93349	.78999	16.8815	20.0800	6.00	25.00
	Total	154	17.0335	5.14815	.41485	16.2140	17.8531	2.83	25.00

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
PKP	Between Groups	3.338	2	1.669	4.726	.010
	Within Groups	53.328	151	.353		
	Total	56.666	153			
ND	Between Groups	7.684	2	3.842	9.978	.000
	Within Groups	58.143	151	.385		

	Total	65.827	153			
PG	Between Groups	8.349	2	4.174	9.970	.000
	Within Groups	63.219	151	.419		
	Total	71.568	153			
KGO	Between Groups	7.766	2	3.883	8.522	.000
	Within Groups	68.803	151	.456		
	Total	76.569	153			
KP	Between Groups	4.485	2	2.242	5.645	.004
	Within Groups	59.980	151	.397		
	Total	64.465	153			
LY	Between Groups	2.104	2	1.052	1.768	.174
	Within Groups	89.881	151	.595		
	Total	91.985	153			
MOD	Between Groups	185.755	2	92.877	3.625	.029
	Within Groups	3869.267	151	25.624		
	Total	4055.021	153			

### 10. Hasil Uji Beda Berdasarkan Waktu Yang Dhabiskan Sehari-hari Untuk Bermain Game Mobile Legends Menggunakan *One Way ANOVA*

Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
PKP	<2 jam	49	3.9949	.67022	.09575	3.8024	4.1874	1.00	5.00
	2-6 jam	80	4.4219	.50094	.05601	4.3104	4.5334	3.00	5.00
	>6 jam	25	4.3900	.62533	.12507	4.1319	4.6481	2.75	5.00
	Total	154	4.2808	.60858	.04904	4.1840	4.3777	1.00	5.00
ND	<2 jam	49	3.8980	.73976	.10568	3.6855	4.1104	1.00	5.00
	2-6 jam	80	4.3375	.57244	.06400	4.2101	4.4649	2.67	5.00
	>6 jam	25	4.4800	.49141	.09828	4.2772	4.6828	3.67	5.00
	Total	154	4.2208	.65593	.05286	4.1164	4.3252	1.00	5.00
PG	<2 jam	49	3.9252	.83407	.11915	3.6856	4.1647	1.00	5.00

	2-6 jam	80	4.3792	.55052	.06155	4.2567	4.5017	2.67	5.00
	>6 jam	25	4.4933	.51027	.10205	4.2827	4.7040	3.33	5.00
	Total	154	4.2532	.68393	.05511	4.1444	4.3621	1.00	5.00
KGO	<2 jam	49	2.4388	.68708	.09815	2.2414	2.6361	1.25	4.50
	2-6 jam	80	3.0891	.61049	.06826	2.9532	3.2249	1.63	4.63
	>6 jam	25	3.3050	.54496	.10899	3.0801	3.5299	2.13	4.13
	Total	154	2.9172	.70743	.05701	2.8046	3.0298	1.25	4.63
KP	<2 jam	49	3.8673	.67699	.09671	3.6729	4.0618	2.00	5.00
	2-6 jam	80	4.2646	.61148	.06837	4.1285	4.4007	2.83	5.00
	>6 jam	25	4.3467	.53989	.10798	4.1238	4.5695	3.17	5.00
	Total	154	4.1515	.64911	.05231	4.0482	4.2549	2.00	5.00
LY	<2 jam	49	3.6837	.85509	.12216	3.4381	3.9293	1.00	5.00
	2-6 jam	80	4.1531	.71212	.07962	3.9947	4.3116	2.00	5.00
	>6 jam	25	4.1900	.61779	.12356	3.9350	4.4450	3.00	5.00
	Total	154	4.0097	.77538	.06248	3.8863	4.1332	1.00	5.00
MOD	<2 jam	49	14.6990	5.25722	.75103	13.1889	16.2090	2.83	25.00
	2-6 jam	80	18.0292	4.88480	.54614	16.9421	19.1162	5.67	25.00
	>6 jam	25	18.4233	4.32382	.86476	16.6385	20.2081	9.50	25.00
	Total	154	17.0335	5.14815	.41485	16.2140	17.8531	2.83	25.00

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
PKP	Between Groups	5.896	2	2.948	8.767	.000
	Within Groups	50.770	151	.336		
	Total	56.666	153			
ND	Between Groups	7.876	2	3.938	10.261	.000
	Within Groups	57.951	151	.384		
	Total	65.827	153			
PG	Between Groups	7.984	2	3.992	9.480	.000
	Within Groups	63.584	151	.421		
	Total	71.568	153			
KGO	Between Groups	17.338	2	8.669	22.101	.000

	Within Groups	59.231	151	.392		
	Total	76.569	153			
KP	Between Groups	5.932	2	2.966	7.651	.001
	Within Groups	58.533	151	.388		
	Total	64.465	153			
LY	Between Groups	7.667	2	3.833	6.865	.001
	Within Groups	84.319	151	.558		
	Total	91.985	153			
MOD	Between Groups	394.648	2	197.324	8.140	.000
	Within Groups	3660.373	151	24.241		
	Total	4055.021	153			

### 11. Hasil Uji Beda Berdasarkan Rata-rata Pengeluaran Perbulan Yang Dialokasikan Untuk Game Mobile Legends Menggunakan *One Way ANOVA*

Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
PKP	< Rp.200.000	78	4.1058	.64153	.07264	3.9611	4.2504	1.00	5.00
	Rp.200.000 - Rp.600.000	61	4.4590	.51877	.06642	4.3262	4.5919	2.75	5.00
	> Rp.600.000	15	4.4667	.53341	.13773	4.1713	4.7621	3.50	5.00
	Total	154	4.2808	.60858	.04904	4.1840	4.3777	1.00	5.00
ND	< Rp.200.000	78	4.0043	.70351	.07966	3.8457	4.1629	1.00	5.00
	Rp.200.000 - Rp.600.000	61	4.4536	.49078	.06284	4.3279	4.5792	3.00	5.00
	> Rp.600.000	15	4.4000	.64488	.16651	4.0429	4.7571	3.33	5.00
	Total	154	4.2208	.65593	.05286	4.1164	4.3252	1.00	5.00
PG	< Rp.200.000	78	4.0470	.77427	.08767	3.8724	4.2216	1.00	5.00
	Rp.200.000 - Rp.600.000	61	4.4754	.46131	.05907	4.3573	4.5936	3.00	5.00

	> Rp.600.000	15	4.4222	.64816	.16735	4.0633	4.7812	3.33	5.00
	Total	154	4.2532	.68393	.05511	4.1444	4.3621	1.00	5.00
KGO	< Rp.200.000	78	2.5946	.72137	.08168	2.4319	2.7572	1.25	4.50
	Rp.200.000 - Rp.600.000	61	3.2152	.49746	.06369	3.0878	3.3426	1.75	4.63
	> Rp.600.000	15	3.3833	.58909	.15210	3.0571	3.7096	2.25	4.50
	Total	154	2.9172	.70743	.05701	2.8046	3.0298	1.25	4.63
KP	< Rp.200.000	78	3.8846	.65922	.07464	3.7360	4.0332	2.00	5.00
	Rp.200.000 - Rp.600.000	61	4.4235	.50330	.06444	4.2946	4.5524	2.83	5.00
	> Rp.600.000	15	4.4333	.56974	.14711	4.1178	4.7488	3.33	5.00
	Total	154	4.1515	.64911	.05231	4.0482	4.2549	2.00	5.00
LY	< Rp.200.000	78	3.7083	.80018	.09060	3.5279	3.8887	1.00	5.00
	Rp.200.000 - Rp.600.000	61	4.3689	.54315	.06954	4.2297	4.5080	3.00	5.00
	> Rp.600.000	15	4.1167	.83915	.21667	3.6520	4.5814	2.25	5.00
	Total	154	4.0097	.77538	.06248	3.8863	4.1332	1.00	5.00
MOD	< Rp.200.000	78	14.8162	5.02857	.56937	13.6825	15.9500	2.83	25.00
	Rp.200.000 - Rp.600.000	61	19.5014	3.97829	.50937	18.4825	20.5203	8.50	25.00
	> Rp.600.000	15	18.5278	5.14004	1.32715	15.6813	21.3742	7.50	25.00
	Total	154	17.0335	5.14815	.41485	16.2140	17.8531	2.83	25.00

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
PKP	Between Groups	4.845	2	2.423	7.059	.001
	Within Groups	51.821	151	.343		
	Total	56.666	153			
ND	Between Groups	7.443	2	3.722	9.625	.000
	Within Groups	58.384	151	.387		
	Total	65.827	153			
PG	Between Groups	6.757	2	3.378	7.871	.001



	Within Groups	64.811	151	.429		
	Total	71.568	153			
KGO	Between Groups	16.795	2	8.397	21.213	.000
	Within Groups	59.774	151	.396		
	Total	76.569	153			
KP	Between Groups	11.260	2	5.630	15.979	.000
	Within Groups	53.205	151	.352		
	Total	64.465	153			
LY	Between Groups	15.124	2	7.562	14.856	.000
	Within Groups	76.861	151	.509		
	Total	91.985	153			
MOD	Between Groups	788.472	2	394.236	18.224	.000
	Within Groups	3266.549	151	21.633		
	Total	4055.021	153			



# The role of Internet addiction in online game loyalty: an exploratory study

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The role of Internet addiction

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## Abstract

**Purpose** – The paper's aim is to explore the factors that affect the online game addiction and the role that online game addiction plays in the relationship between online satisfaction and loyalty.

**Design/methodology/approach** – A web survey of online game players was conducted, with 1,186 valid responses collected. Structure equation modeling – specifically partial least squares – was used to assess the relationships in the proposed research framework.

**Findings** – The results indicate that perceived playfulness and descriptive norms influence online game addiction. Furthermore, descriptive norms indirectly affect online game addiction through perceived playfulness. Addiction also directly contributes to loyalty and attenuates the relationship between satisfaction and loyalty. This finding partially explains why people remain loyal to an online game despite being dissatisfied.

**Practical implications** – Online gaming vendors should strive to create amusing game content and to maintain their online game communities in order to enhance players' perceptions of playfulness and the effects of social influences. Also, because satisfaction is the most significant indicator of loyalty, vendors can enhance loyalty by providing better services, such as fraud prevention and the detection of cheating behaviors.

**Originality/value** – The value of this study is that it reveals the moderating influences of addiction on the satisfaction-loyalty relationship and factors that contribute to the online game addiction. Moreover, while many past studies focused on addiction's negative effects and on groups considered particularly vulnerable to Internet addiction, this paper extends previous work by investigating the relationship of addiction to other marketing variables and by using a more general population, mostly young adults, as research subjects.

**Keywords** Indoor games, Internet, Addiction, Customer satisfaction, Customer loyalty

**Paper type** Research paper

## Introduction

A recent survey of Internet entertainment behaviors in Taiwan revealed that online games are the most popular entertainment applications on the Internet in terms of the number of people participating, their willingness to pay, and their intention to use these applications in the future (Liu and Chou, 2008). In fact, 60 percent of the survey's respondents indicated that they play online games every day, and 33 percent of the respondents spend more than 3 h in each session. This statistics indicate that online game players demonstrate high "stickiness," or loyalty, to playing online games. Nevertheless, the survey also revealed that 55 percent of the online game players reported high dissatisfaction with online games. This finding is inconsistent with the



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widely accepted concept that customers' satisfaction should be key to achieving loyalty (Dick and Basu, 1994; Oliver, 1999). What are the factors that cause this seemingly contradictory result?

The positive linear relationship between satisfaction and loyalty was thought to be nearly intuitive (Anderson and Srinivasan, 2003). Considerable evidence has also accumulated in literature (Oliver, 1996, 1999; Mittal and Kamakura, 2001; Shankar et al., 2003). However, Jones and Sasser (1995) argued that the satisfaction-loyalty relationship would vary depending on the competitive nature of industry. In line with this view, past studies have proposed factors that would moderate the relationship between satisfaction and loyalty in order to explain the phenomenon more clearly (Homburg and Giering, 2001; Anderson and Srinivasan, 2003; Rodgers et al., 2005). Prior results showed that the relationship could be reinforced or weakened when significant moderating variables exist.

On the other hand, the attractiveness of the Internet could lead to excessive use. Past research has described this phenomenon as Internet addiction, or Internet dependence (Griffiths, 2000; Soule et al., 2003; Widyanto and Griffiths, 2006). This problematic usage is viewed as a kind of psychological dependence.

Young (1998b) argued that the Internet itself is not addictive but rather that its applications have the potential to become addictive, particularly highly interactive applications like online chatting, dating, or online gaming. Past studies have worked primarily in a psychological context, focusing on the negative effects of Internet addiction and on examining such vulnerable groups as adolescents or young students (Kandell, 1998; Nalwa and Anand, 2003; Chou et al., 2005; Wan and Chiou, 2006). Few studies have investigated the role of addiction in populations of young adults. However, with the proliferation of online games, more and more adults have begun to participate, and adolescents are no longer the predominant population of online game players (Wood et al., 2004). Past studies have also conducted relatively little empirical research on the relationships of addiction to other attitudes or behaviors. Therefore, exploring the factors that influence the formation of addiction and the relationships between addiction and other attitudinal or behavioral variables would help both the researchers and practitioners better understand the role that addiction plays in the context of online games.

The following research questions (RQs) for this exploratory study are therefore proposed:

RQ1. What are the factors that contribute to the formation of online game addiction?

RQ2. What role does online game addiction play in the relationship between satisfaction and loyalty?

The remainder of this paper is outlined as follows. First section includes literature review and development of the research framework and hypotheses. The research method and procedures used in the empirical study are then described. Following are the results and analysis of the data collected. Finally, the paper concludes with interpretation of the findings, discussion of implications, and the limitations of this study. In addition, areas for future research are also suggested.

Research framework

The research framework is shown in Figure 1. The construct relationships and hypotheses are elaborated as follows.

Online game and addiction

Online game can be defined as computer games in which many people can participate at the same time through online communication networks (Kim et al., 2002). Two important characteristics separate online game from conventional computer games. First, players gain access to the game directly through a server, and the server can update games directly on a real-time basis. Second, players can interact not only with the games but also with other players. Among the various types of online game, Massively Multiplayer Online Role-Playing Games (MMORPGs) are considered the most attractive (Ng and Wiemer-Hastings, 2005; Wan and Chiou, 2006). The MMORPGs' social interaction features and continuous updates with new game contents make the games' challenges seem endless (Ng and Wiemer-Hastings, 2005). It is possible for players to engage with MMORPGs for many hours a day over the courses of years. Excessive time spent in this manner could lead to the problematic behavior known as Internet addiction.

Internet addiction (or Internet dependence), in contrast with substance addictions such as nicotine or caffeine addiction, is viewed as a psychological dependence on or a behavioral addiction to the Internet (Kandell, 1998; Griffiths, 2000). Agreement of the exact terminology for this phenomenon has not yet been reached; several terms describing similar concepts were used in the literature (Chen et al., 2004). However, several symptoms of Internet addiction have been identified in previous studies (Armstrong et al., 2000; Chou et al., 2005), which include:

- tolerance, or a need for increased lengths of time online;
- withdrawal, i.e. unpleasant feelings when off-line or obsessive thinking about the Internet;
- negative life consequences, such as social or occupational problem and relationship difficulties; and
- deceit, such as lying about the level of use once the problematic behaviors have been formed (Nalwa and Anand, 2003; Soule et al., 2003; Widyanto and Griffiths, 2006).

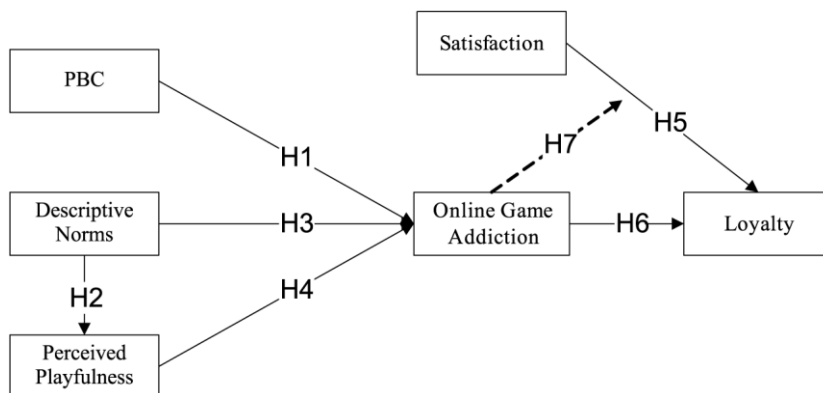


Figure 1. Research framework

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Past investigations of Internet addiction have been primarily psychological studies that focused on the adolescents and did not distinguish the different kinds of Internet applications (Chou and Hsiao, 2000; Morahan-Martin and Schumacher, 2000; Caplan, 2003; Leung, 2004; Hur, 2006). Young (1998b), however, pointed out that it is not the Internet itself but rather the Internet's applications that are potentially addictive. Moreover, as the number of online gamers has grown, more and more adults have engaged in playing online game. Game playing is no longer exclusively the domain of adolescents (Wood et al., 2004). This study, therefore, focuses on investigating the role of addiction in the context of MMORPGs.

#### Perceived behavioral control

Developed on the basis of the theory of reasoned action, the theory of planned behavior incorporated the concept of perceived behavioral control (PBC) to enable more accurate predictions of specific behaviors (Ajzen and Madden, 1986; Ajzen, 1991). PBC represents perceptions of control but not actual control; these perceptions are of greater psychological interest than is actual control (Ajzen, 1991). Ajzen and Madden (1986)

further stated that "a behavior may be said to be completely under a person's control if the person can decide at will to perform it or not to perform it". Accordingly, when players feel that playing online game is completely under their control, the implication is that they believe that they are in control of deciding whether to play or not play online games. Moving this concept to a wider sphere, as a global evaluation, this study defines PBC of playing online game as the degree to which a person believes he/she has control over whether or not to play online games.

As mentioned earlier, online game addiction can be viewed as a dependence on online games. In other words, when players feel they are losing control over whether or not to play online games, it is a signal that their playing is becoming compulsive and that they may develop online game addiction. In contrast, when players are more aware of being in control of the decision of whether or not to play online games, they are less likely to develop an addiction. This study therefore proposes the following hypothesis:

H1. Perceived behavior control is negatively associated with online game addiction.

#### Descriptive norms

Social influence has been proposed as having a profound impact on users' perception and behavior. The concept of social influence includes two distinct constructs – subjective and descriptive norms – which have been supported by previous studies (Rivis and Sheeran, 2003a). Subjective norms are the perceived social pressures to perform or not perform a specific behavior (Ajzen and Fishbein, 1977; Ajzen, 1991); In contrast, descriptive norms are perceptions of the attitudes and behaviors of significant others (Rivis and Sheeran, 2003b). Although many studies have focused on subjective norms, relatively few have examined the influence of descriptive norms on behavior. However, through the lens of social learning theory, the demonstrability of a certain behavior in other people influences one's own behavior (Akers and Lee, 1996; Elek et al., 2006). In other words, when we observe other people performing a certain behavior, we are more likely to believe that it is a sensible thing to do. To investigate why people play online games, Hsu and Lu (2004) proposed a similar factor, namely perceived critical mass, which refers to perceptions of how many people are using a

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particular innovative technology. Results support the view that perceptions of what others are doing will influence one's own behavior. However, Hsu and Lu's concept of critical mass does not distinguish whether the "other people" are important or not to the users, whereas the term descriptive norms refers to the perceptions of the attitude and behavior of significant others, such as friends. Hence, this study defines descriptive norms as the extent to which the players believe that most of their significant others are playing online games.

In contrast to conventional computer games, an important characteristic of online games is the ability to interact with other players (Lo et al., 2005). In the virtual world of online games, players who play by themselves may become bored as they succeed in uncomplicated goals. Ng and Wiemer-Hastings (2005) stated that the social interaction features in MMORPGs are highly essential. Instead of playing alone, online games players must join a "guild" or "clan" and collaborate with other players to achieve increasingly complex goals and gain more bonuses, such as virtual property or more game experiences. When real-world interpersonal relationships extend into the virtual world, the players' perceived enjoyment of playing collectively with their significant others – their friends – further increases. Hence, we propose the following hypothesis:

H2. Descriptive norms are positively associated with perceived playfulness.

Wan and Chiou (2006) conducted in-depth interviews with the addicted online game players in Taiwan to investigate the reasons for their addiction. They found that online games provide the addicted players another channel for satisfying their need for interpersonal relationships. When people sense that significant others around them are participating in online games, they may start playing the online game as a means of socialization (Yee, 2006) and eventually become more immersed than they would have otherwise. Social interaction features, then, which are considered one of the highly addictive attributes of online games, could lead to online game addiction. The following hypothesis is thus proposed:

H3. Descriptive norms are positively associated with online game addiction.

#### Perceived playfulness

Playfulness, which serves as players' intrinsic motivation and is inherently characteristic of games, could be one of the major reasons why people to participate in playing games (Moon and Kim, 2001; Kim et al., 2002). Explicitly, people play games for fun, or for satisfying their desire for entertainment. A previous study has found that perceived playfulness (or enjoyment) strongly influence people's participation in online games (Hsu and Lu, 2007). Other studies have also proposed that a "flow" experience may be a major factor contributing to players' participation in online games (Chou and Ting, 2003; Choi and Kim, 2004; Hsu and Lu, 2004). Among the dimensions of flow, intrinsic interest – that is, perceived pleasure or enjoyment – plays an important role in presenting the optimal experience (Webster and Martocchio, 1992; Webster et al., 1993; Woszczyński et al., 2002). On the other hand, according to the Play Theory of Mass Communication (Stephenson, 1988), using the Internet provides a pleasurable communication experience and repeatedly draws users to the Internet. Once an individual feels "good" about playing online games, he or she might repeatedly seek the optimal experience in online games, so the possibility of developing online game addiction is likely to be higher. This study therefore defines perceived playfulness

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as the extent of enjoyment perceived by players while playing online games and posits the following hypothesis:

H4. Perceived playfulness is positively associated with online game addiction.

#### Satisfaction and loyalty

The objectives of businesses' marketing activities are often the development, maintenance, or enhancement of customer loyalty (Dick and Basu, 1994). Maintaining customer loyalty not only economizes on the cost of acquiring new customers, but it also brings in substantial revenues (Reichheld and Schefter, 2000; Semeijn et al., 2005). For online gaming vendors, the revenues come from two major sources. One is "monthly game card" or "fee for network connection", which players need to buy in advance and consume as they play games online. The other is the "virtual property", which players can buy and then use to enhance the capabilities of their in-game characters (Chen et al., 2005). The more the players play the game, the greater the required fees and the more likely that players will spend money on acquiring fancier virtual property. Therefore, maintaining players' loyalty provides online gaming vendors with revenue. Loyalty has been conceptualized as comprising both attitudinal and behavioral characteristics (Oliver, 1999). The behavioral aspect refers to the intention to make repeated purchases, and the attitudinal aspect refers to the favorable attitude toward or preference for certain services or a certain product or firm (Homburg and Giering, 2001; Wangenheim and Bayon, 2004). This study adopts this perspective and thus defines online game loyalty as the degree to which players have a favorable attitude or preference for a specific online game and intend to continue playing it.

Previous research has identified satisfaction as key to achieving customers' loyalty (Dick and Basu, 1994; Oliver, 1999). Oliver (1996) defined satisfaction as "the consumers' fulfillment response, the degree to which the level of fulfillment is pleasant or unpleasant". Moreover, satisfaction can be viewed as a post-purchase attitude and the customer's emotional response to the transaction experience (Rodgers et al., 2005). It reflects customers' cumulative impressions of a firm's service performance (Yang and Peterson, 2004). This study therefore defines online game satisfaction as an online game player's cumulative evaluation of the fulfillment provided by the specific online gaming vendor. The relationship between satisfaction and loyalty is assumed to be positive (Zeithaml et al., 1996). This is widely recognized in previous empirical studies (Homburg and Giering, 2001; Shankar et al., 2003; Olsen et al., 2005). Consequently, the following hypothesis is proposed:

H5. Satisfaction is positively associated with loyalty.

As discussed above, online games can be addictive; online game addiction is viewed as psychological dependence on playing online games. Once the dependency has developed, online game players are more likely to stick to a specific game for a long time. In other words, the loyalty is more likely to have developed. Becker and Murphy (1988) proposed the Theory of Rational Addiction to explain addictive behaviors and to argue that the addiction, whether it is to substances or activities, can be rational. The theory was further tested with empirical data by other researchers (Cameron, 1999; Gruber and Koszegi, 2001). The theory suggests that because rational consumers seek to maximize utility from preferences, addiction can be rational in the sense that it



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involves seeking maximum value for stable preferences. This study therefore posits the following hypothesis:

H6. Online game addiction is positively associated with loyalty.

The relationship between satisfaction and loyalty seems to be nearly intuitive. However, previous research has identified varied relationships between satisfaction and loyalty under different conditions (Mittal and Kamakura, 2001; Anderson and Srinivasan, 2003; Olsen et al., 2005). Jones and Sasser (1995) found that the satisfaction-loyalty relationship changes in different competitive environments. For example, in the local telephone industry, customer loyalty could be maintained despite a low satisfaction level. In the automobile industry, however, the level of loyalty increased significantly only after a customer's satisfaction level had reached a certain threshold. To explore the phenomenon, moderating factors have been proposed and examined by a limited group of studies (Homburg and Giering, 2001). Rodgers et al. (2005) found that the consumer's online experience moderates the satisfaction-loyalty relationship. When the consumer has had more online experience, the online satisfaction-loyalty relationship is stronger. Homburg and Giering (2001) proposed personal characteristics – gender, age, income, involvement and seeking variety – as moderators. Results showed that the vigor of the relationship between customer satisfaction and loyalty is strongly influenced by the characteristics of the customers. Moreover, Anderson and Srinivasan (2003) argued that the relationship of satisfaction and loyalty is moderated by the consumer's individual level variables and firms' business level variables. Their results supported their view. Notably, in their work, consumers with high level of inertia have lower sensitivity of e-satisfaction to e-loyalty. In other words, the level of inertia attenuates, or negatively moderates, the relationship between e-satisfaction and e-loyalty. Because online game addiction is viewed as a psychological dependence on the online game, players' preference or patronage to the game could be the result of addiction rather than the result of a conscious evaluation of the perceived value (costs vs benefits) of playing the game. Thus, players with higher level of addiction may be less sensible with the relationship between online games satisfaction and loyalty. The following hypothesis is therefore posited:

H7. Online game addiction negatively moderates (attenuates) the relationship between satisfaction and loyalty to an online game.

## Methodology

### Measures

Measures were adapted primarily and whenever possible from previously validated questionnaires. Minor modifications were made to fit the context of the present study. Items for descriptive norms and PBC were adapted from Theory of Planned Behavior literature (Ajzen and Madden, 1986; Ravis and Sheeran, 2003a). Items for perceived playfulness and loyalty were adapted from online game and marketing research (Choi and Kim, 2004; Yang and Peterson, 2004; Hsu and Lu, 2007).

Online game are different from conventional computer games in that they involve not only game content but also the online gaming vendors' services, such as account administration, fraud handling, and other customer services. On the basis of the characteristics summarized by previous online game research, scale items for online



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game satisfaction were adapted from online marketing and online game literature (Anderson and Srinivasan, 2003; Choi and Kim, 2004; Liu and Chou, 2008).

Scale items for online game addiction were primarily adapted from previous Internet addiction studies (Young, 1998b; Chou and Hsiao, 2000). This study proposes online game addiction as a formative construct. In contrast to the reflective construct, the formative construct has two important properties. First, the indicators of a formative scale cause changes in the latent scale; the latent variable is defined as a linear sum of a set of measurements. Second, formative indicators need not to be intercorrelated (Chin, 1998; Diamantopoulos and Winklhofer, 2001). To the authors' best knowledge, previous studies have rarely adopted the formative approach. However, according to the literature, the level of online game addiction is determined by examining the diagnostic criteria, or symptoms (Chou et al., 2005; Widyanto and Griffiths, 2006). The level of addiction is higher when there is a greater number of symptoms or when an individual symptom is particularly extreme. In addition, the symptoms are not necessarily related to each other. Thus, formative approach is better suited to the indicators of online game addiction.

All items except online game addiction were measured using five-point Likert scales, anchored from "strongly disagree" to "strongly agree". Addiction was measured using six-point scales to assess the extent of the symptoms that online gamer experienced. Scales were anchored from 0 for "does not apply" to 1-5 for rarely, occasionally, frequently, often, and always, respectively. An early version of the questionnaire was sent to two doctoral students, majors in e-marketing and IT adoption, who checked the face validity. The questionnaire was revised to incorporate their feedback. Moreover, to clarify the clarity and wording of the questionnaire, a preliminary pilot test was employed with 76 students in two classes at a Taiwan college. Feedback from the pilot test led to further modifications and refinements of the initial instrument.

#### Data collection

Empirical data were collected by conducting a web survey of online game users. Invitation messages were posted in game-related online discussion forums in one bulletin board system (BBS) and two game-related web sites, Bahamut ([www.gamer.com.tw](http://www.gamer.com.tw)) and Gamebase ([www.gamebase.com.tw](http://www.gamebase.com.tw)). Bahamut is the biggest game-related web site in Taiwan; its web site traffic up to 2007 was ranked one of the four most trafficked web sites ([www.alexa.com/data/details/traffic\\_details/gamer.com.tw](http://www.alexa.com/data/details/traffic_details/gamer.com.tw) (accessed on December 28, 2007)). Gamebase is the second biggest game-related web sites in Taiwan. Both web sites had attracted more than a million registered members by 2007. With the help of these two web site administrators, a hyperlink directed to the survey was placed on their homepage. The invitation messages were also posted in the most heavily trafficked online game discussion forums on both sites. The BBS was PTT ([telnet://ptt.cc](http://telnet://ptt.cc)), which is the most popular BBS in Taiwan. More than tens of thousands people hook onto the BBS daily for socializing or for browsing and exchanging information. Survey messages were posted in the online game-related discussion boards. Incentives in the form of chances to win prizes were offered to those who completely filled out the questionnaire. This study focuses on the role of addiction in the context of online games, so using these subjects was appropriate because people who visit the game-related web sites and discussion forums regularly are mostly online gamers.

About 1,308 responses in total were collected in a two-week period. Respondents' e-mail addresses were used to filter out duplicated responses. By eliminating invalid responses and those who do not mostly play MMORPGs, 1,186 responses provided the complete and valid data in the final sample (90.67 percent). The respondents' profiles are summarized in Table I. Among the respondents, 71.59 percent are males. A substantial portion (63 percent) of all respondents were 20-30 years old. This profile is consistent with that of a large-scale survey of online game players in Taiwan (Liu and Chou, 2008).

Average online gamers	Modest		High		All			
n Percentage	n	Percentage	n	Percentage	n	Percentage	1,186	100
Characteristics	813	68.5	345	29.1	28	2.4		
<b>Gender</b>								
Male	576	71	252	73	21	75	849	72
Female	237	29	93	27	7	25	337	28
<b>Occupation</b>								
Full-time student	363	45	178	52	11	39	552	47
Part-time student <sup>a</sup>	79	10	58	17	4	14	141	12
Full-time employee	371	46	109	32	13	46	493	42
<b>Age</b>								
< 15	28	3	35	10	1	4	64	5
16 - 19	164	20	85	25	7	25	256	22
20 - 24	317	39	130	38	10	36	457	39
25 - 30	208	26	72	21	8	29	288	24
> 31	96	12	23	7	2	7	121	10
<b>Experience</b>								
< 6 months	55	7	19	6	1	4	75	6
6 months-1 year	52	6	23	7	1	4	76	6
1-2 years	68	8	31	9	0	0	99	8
2-3 years	55	7	30	9	0	0	85	7
> 3 years	583	72	242	70	26	93	851	72
<b>Time spent (daily)</b>								
< 2 hours	201	25	52	15	3	11	256	22
2-4 hours	281	35	127	37	1	4	409	34
4-6 hours	201	25	84	24	7	25	292	25
6-8 hours	75	9	39	11	7	25	121	10
> 8 hours	55	7	43	12	10	36	108	9
<b>Education</b>								
High school or less	234	29	139	40	12	43	385	32
College	151	19	54	16	6	21	211	18
Bachelor's degree	376	46	131	38	10	36	517	44
Graduate degree	52	6	21	6	0	0	73	6
<b>Average spending amount on online game<sup>b</sup></b>								
< 200	435	54	144	42	8	29	587	49
200-500	268	33	141	41	11	39	420	35
500-800	55	7	23	7	1	4	79	7
800-1000	29	4	14	4	6	21	49	4
> 1000	26	3	23	7	2	7	51	4

Notes: <sup>a</sup>Refers to those who have a regular, full-time job, but attend the school when off-work.  
<sup>b</sup>Monthly, in NTD

Table I.  
Profile of respondents

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As for game-playing behaviors, most of the respondents spent 2-6 h a day playing online game; on the other hand, most players spend less than 500 New Taiwan dollars (approximately \$16 US) each month on online games. Finally, 72 percent of all of the respondents have been playing online games for more than 3 years.

To access the level of respondents' online game addiction, participant's responses to addiction items, which were adapted from the criteria used in Young's Internet Addiction Test (IAT) (Young, 1998b), were added together to form each respondent's addiction score. The IAT consists of a list of symptoms to help assess respondents' level of addiction. Respondents were asked to check the frequency with which the symptoms occurred in their daily lives. The higher the frequency, the higher the IAT score or the level of addiction. In this study, those who scored 17 or below, a score indicating that the majority of the addictive symptoms rarely or occasionally occurred, were classified as average online gamers. Respondents who scored between 18 and 31, a score indicating that most of the symptoms frequently occurred, were categorized as belonging to the medium addiction group. The remaining respondents were classified as belonging to the high addiction group; their scores of 32 or higher indicated that the symptoms often or always occurred. As summarized in Table I, most of respondents were average online gamers (n = 813, 68.5 percent), and a moderate portion of the sample belonged to the modest addiction group (n = 345, 29.1 percent). Only a very small portion of the sample belonged to the high addiction group (n = 28, 2.4 percent). This profile is similar to a previous study in Asia. Hur (2006) applied the Internet addiction disorder (IAD) diagnostic criteria to assess the level of IAD in high school students in Korea. The results showed that participants who were suffering from severe IAD represented only a small portion (approximately 2 percent) of the total sample (n = 239). Also, most of the respondents were considered average Internet users. Consistent with Young's (1998b) conclusion, the medium and high addiction group spent more time playing games than that the low addiction group did. Although students and adolescents have been considered more vulnerable to Internet dependence (Young, 1998b; Nalwa and Anand, 2003; Mafe and Blas, 2006), the results of this study in Table I show that players with full-time jobs could also suffer from severe online game addiction (46 percent in high addiction group). Moreover, young adults – respondents 20-30 years old – comprised the majority (65 percent) of the high addiction group.

## Results

We used partial least squares (PLS) to analyze our data for the following reasons. First, PLS is known for its ability to handle both the reflective and formative factors (Chin, 1998). Second, PLS places minimal restrictions on the distributional characteristics and sample size. Lastly, this study is an exploratory study in nature, and PLS is a better means for an exploratory approach (Chin, 2000).

This study used the PLS-Graph version 3.00 (Build 1130) and two-step analysis approach as suggested by Anderson and Gerbing (1988). The significance level of indicators and path coefficients were assessed by using bootstrapping procedure.

## Measurement model

Reliability for reflective scales was assessed by composite reliability. As shown in Table II, all factor loadings exceed the recommended 0.7 threshold except for one item

Construct/indicators	Scale type	Loading/weights <sup>a</sup>	CR <sup>b</sup>	AVE <sup>b</sup>	S.E	t-statistic
Descriptive norms	Reflective		0.886	0.797		
DN1		0.8218			0.0239	34.3572
DN2		0.9588			0.0078	122.3366
Playfulness	Reflective		0.910	0.771		
PLAY1		0.8731			0.0120	72.9831
PLAY2		0.8929			0.0085	104.9906
PLAY3		0.8683			0.0126	68.9187
PBC	Reflective		0.900	0.818		
PBC1		0.8931			0.0083	108.0181
PBC2		0.9156			0.0060	152.7212
Satisfaction	Reflective		0.896	0.591		
SAT1		0.7262			0.0155	46.9167
SAT2		0.7859			0.0169	46.5252
SAT3		0.7676			0.0145	52.8518
SAT4		0.8102			0.0129	62.6668
SAT5		0.6525			0.0243	26.8319
SAT6		0.8533			0.0089	95.8151
Loyalty	Reflective		0.868	0.624		
LOY1		0.8195			0.0114	71.8705
LOY2		0.6533			0.0260	25.1197
LOY3		0.8595			0.0098	87.8410
LOY4		0.8129			0.0128	63.5396
Online-game Addiction	Formative		NA <sup>c</sup>	NA		
ADD1		0.0274			0.0552	0.4967
ADD2		0.2986			0.0693	4.3116
ADD3		0.1294			0.0495	2.6159
ADD4		0.1486			0.0701	2.1212
ADD5		0.5568			0.0608	9.5470
ADD6		0.0205			0.0535	0.3830
ADD7		≥ 0.0597			0.0521	1.1469
ADD8		0.1836			0.0577	3.1835
Addiction-Satisfaction Interaction	NA		NA	NA		
Add *Sat		1.0000			0.0000	0.0000

Notes: <sup>a</sup>For reflective scales, the standardized loading is provided; for formative scales, the weight of the linear combination is given. <sup>b</sup>CR, composite reliability; AVE, average variance extracted, both are not applicable to formative scale. <sup>c</sup>NA, not applicable

Table II. Factor loadings and reliability

for satisfaction and one item for loyalty (Nunnally, 1978). Moreover, the AVE were all above the 0.5 threshold (Fornell and Larcker, 1981), ranging from 0.591 to 0.818. The results demonstrate adequate convergent validity for an exploratory study. To assess discriminant validity, the root square of AVE and all reflective inter-construct correlations were compared. All inter-construct correlations are shown as elements off the diagonal of the matrix in Table III, while the square roots of AVE are shown in the diagonal elements. All the square roots of AVE should be larger than off-diagonal elements in the same row and column (Sanchez-Franco and Roldan, 2005). Our results demonstrate adequate discriminant validity for all the reflective constructs. The means of each construct are presented in Table III. It is worth noting that the average rating of satisfaction (mean  $\frac{1}{4}$  2.85) is slightly below the neutral value (i.e. 3), whereas the mean

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of loyalty is above the neutral value. This may imply that our respondents, on average, are marginally dissatisfied with online games, but they still demonstrate a certain degree of loyalty to them (mean  $\frac{1}{4}$  3.51).

The conventional reliability and validity assessment, as shown above, applies only to the reflective scales (Chin, 1998; Diamantopoulos and Winklhofer, 2001; Jarvis et al., 2003). Following the procedures that Li et al. (2006) applied, this study conducted a series of regression models for testing the multicollinearity between the indicators of each formative scale. Each indicator was selected as a dependent variable, once at a time, while the remaining indicators served as independent variables. The variance inflation factor (VIF) of the coefficient of the independent variables was used to check the level of multicollinearity. All the VIFs in our test were less than the threshold, i.e. 10 (Li et al., 2006). Table IV shows the correlations of the indicators of the formative scales. Therefore, the multicollinearity problem was not present in our formative scale.

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### Structural model

As shown in Figure 2, all paths were significant at the  $p \geq 0.05$  level or above. Hence, H1  $\geq 6$  are all supported. Consistent with prior literature, satisfaction has the strongest relationship with loyalty. On the other hand, although the direct effect of descriptive norms on online game addiction ( $b \frac{1}{4}$  0.070) was relatively small, it was statistically significant at the  $p \geq 0.05$  level. Meanwhile, descriptive norms were positively associated with perceived playfulness ( $b \frac{1}{4}$  0.305,  $p \geq 0.01$ ) and showed indirect effect on online game addiction through perceived playfulness ( $b \frac{1}{4}$  0.159,  $p \geq 0.01$ ). This result indicates that descriptive norms are important contributors to perceived playfulness and online game addiction.

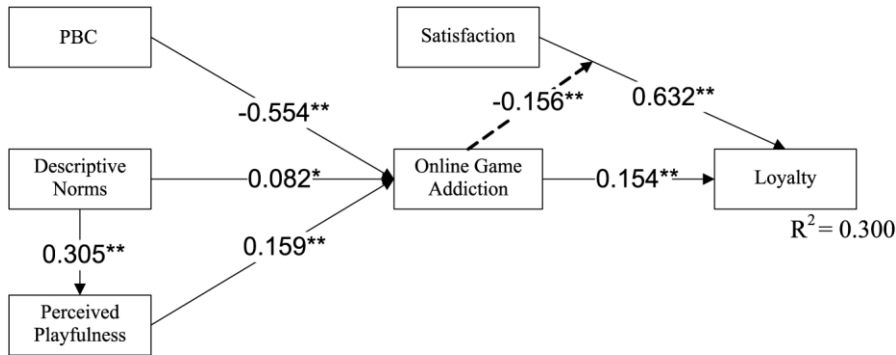
Table III. Inter-construct correlation

Mean	SD	DN	Playfulness	PBC	Satisfaction	Loyalty	Addiction		
			D.N	3.65	0.84	0.893			
			Playfulness	3.80	0.66	0.305	0.878		
			PBC	3.88	0.85	$\geq 0.031$	$\geq 0.092$	0.904	
			Satisfaction	2.85	0.82	0.104	0.308	$\geq 0.025$	0.769
			Loyalty	3.51	0.77	0.179	0.431	$\geq 0.081$	0.517
			Addiction	1.70	0.95	0.148	0.235	$\geq 0.571$	0.076
									0.194
									NA

Notes: Diagonal elements are the square root of average variance extracted (AVE) of the reflective scales. Off-diagonal elements are correlations between constructs. NA, not applicable

Table IV. Correlation of formative scales

	Add1	Add2	Add3	Add4	Add5	Add6	Add7	Add8
ADD1	1.000							
ADD2	0.520**	1.000						
ADD3	0.319**	0.304**	1.000					
ADD4	0.416**	0.466**	0.403**	1.000				
ADD5	0.373**	0.381**	0.380**	0.665**	1.000			
ADD6	0.326**	0.287**	0.318**	0.479**	0.426**	1.000		
ADD7	0.312**	0.253**	0.331**	0.431**	0.442**	0.394**	1.000	
ADD8	0.239**	0.283**	0.352**	0.443**	0.465**	0.367**	0.549**	1.000



Notes: \*: Significant at the  $p < 0.05$  level; \*\*: Significant at the  $p < 0.01$  level

For estimating the interaction effect, this study adopted the procedure of Chin et al. (2003). Moreover, due to the formative nature of the construct online game addiction and followed the suggestion by Chin, factor scores were used to represent the two constructs and then to multiply them to create the interaction term.

The test of moderating effect, H7 (the moderating effect of online game addiction on the satisfaction-loyalty relationship), was also supported. In particular, online game addiction negatively moderates the relationship between satisfaction and loyalty ( $b = -0.156$ ,  $p < 0.01$ ). The moderating effect size was estimated by computing Cohen's  $f^2$  following the guidelines of Chin et al. (2003). The computed Cohen's  $f^2$  is 0.011, indicating a rather small effect size. The small effect may be due to the limited number of indicators for the interaction term. This issue will be discussed in more details in the final section.

## Discussion

The purposes of this preliminary and exploratory study were to investigate the factors that influence online game addiction and the role of addiction in the online satisfaction-loyalty relationship. Instead of focusing on groups usually considered particularly vulnerable to Internet addiction, this paper conducted an empirical survey of the general population, mostly young adults, and collected data from 1,186 online gamers. Some useful results are produced and can serve as the basis for more in-depth research.

First, according to previous studies, students and adolescents were thought to be vulnerable to Internet addiction as they generally have more time and resources (such as being on campus) for accessing the Internet (Young, 1998b; Nalwa and Anand, 2003; Soule et al., 2003). However, as shown in Table I, most members of the high addiction group either had a full-time job or were 20-30 years old. This result differs from previous research (Soule et al., 2003; Widyanto and Griffiths, 2006). Second, perceived playfulness and descriptive norms are factors that directly contribute to online game addiction. In line with the literature, players seeking pleasurable experiences become repeated users (Hsu and Lu, 2007). These players are thus more likely to develop psychological dependence on online games (Chou and Hsiao, 2000). Descriptive norms also have a positive indirect effect on addiction through perceived playfulness.

Figure 2. PLS Results for the proposed model

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In other words, online game players might derive more pleasure from playing game when their friends or significant others also participate. Finally, when players feel that they are more in control of deciding whether or not to play, they are less likely to develop a dependence on online games.

In examining the role of addiction in the relationship between online satisfaction and loyalty, our results indicate that online game addiction not only directly affects player's loyalty but also attenuates the relationship between satisfaction and loyalty. When a player has developed dependence (i.e. an addiction) on online games, playing online game becomes more compulsive than volitional. Therefore, an addicted online gamer would be less discerning when evaluating game content and online game provides' services. This finding could partially explain the phenomenon of players' remaining loyal to an online game despite being dissatisfied.

### Implications, limitations and future research

#### Academic implications

The results of this study have several important academic implications. First, consistent with previous literature (Rivis and Sheeran, 2003a,b; Elek et al., 2006), descriptive norms (i.e. what significant others do) are shown to be an important form of social influences. People's behaviors are influenced not only by social pressure (i.e. subjective norms) but also by the behaviors and attitudes of others. Hence, this study suggests that descriptive norms should be considered as an important factor when investigating people's behavior on the Internet, especially highly interactive applications. Second, past studies focused mainly on the negative effects of addiction, whereas this paper proposed online game addiction as an important factor that directly contributes to loyalty and attenuates the relationship between online satisfaction and loyalty. As Chen et al. (2004) noted, modest level of dependence on the Internet is not necessarily detrimental; people might habitually use Internet as means of socialization and further satisfy their social needs. However, once the excessive use behavior, or addiction, has been formed, the situation might result in harmful effects on their personal life. Chen et al. (2004) indicated that very limited research has been conducted to examine the different effects of various levels of Internet addiction. Therefore, this study suggests that this issue should be further elaborated and examined in a broader empirical context.

#### Practical implications

Several implications for practitioners can be drawn from this study. First, these results indicate that perceived playfulness plays a significant role in developing a dependence on games. Online gaming vendors should work hard to create innovative and amusing game content that would intrigue game players and provide pleasurable experiences. Second, descriptive norms increase the perceived playfulness of online games. This result stresses the importance of community features of online game. Online gaming vendors should maintain their virtual communities by providing more game functions for social interaction, such as in-game chatting or goals that need to be collectively achieved. Campaigns, such as rewarding the most active communities or providing incentives for introducing friends as new members to the communities, should also be conducted to expand the scale of their community. However, in seeking player's stickiness to the online games, online game vendors should also consider the balance



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between the negative and positive effects of addiction in the addiction-loyalty relationship. Finally, although addiction directly affects loyalty and attenuates the online satisfaction-loyalty relationship, satisfaction is still the most significant factor that influences loyalty, a finding that is consistent with previous studies. With many competing games available as alternatives, online gaming vendors should work hard to provide better services that will gain players' loyalty, especially those features that most players are dissatisfied with, such as insufficient account protection, fraud prevention, and detection of opportunistic behaviors (Liu and Chou, 2008).

#### Limitations and future research

The findings of this study should be interpreted cautiously because of the following limitations. First, although our findings suggest that addiction attenuates the online satisfaction-loyalty relationship, the calculated effect size is rather small. This result might be due to the single indicator used for interaction term. Chin et al. (2003) found that a majority of past IS studies have either failed to detect a moderating effect or provided a small effect size values. To better explore the phenomenon, they conducted a series of Monte Carlo Simulation for investigating the interaction effects with various combinations of indicators and sample sizes. Results showed that a limited number of indicators could possibly cause an underestimation of the existing moderating effect. Survey instruments used in this study were mainly adapted from previous research. Although the scales were pilot-tested and met the criteria of reliability and validity for an exploratory study, researchers who want to better explore the role of online addiction in the relationship between satisfaction and loyalty should develop more elaborate scales of the research constructs. Another limitation was that the sample was self-selected and not drawn randomly from overall online game players in Taiwan. This sampling bias limits the external validity of the study. Fortunately, the characteristics of samples are similar with those in previous research in related areas (Choi and Kim, 2004; Hur, 2006). Third, data were collected in the form of self-reports, so a social desirability bias might exist. This bias is generated by people's tendencies to report socially desirable responses and to deny possessing socially undesirable attitudes or performing undesirable behaviors (Beck and Ajzen, 1991). Therefore, the level of addiction might be underestimated in this study.

The study also encourages further research in the following areas. First, our findings indicate that perceived playfulness and descriptive norms positively affect online game addiction. Hence, the antecedents of the two constructs and the specific online game features that would increase players' perceived playfulness is worth further investigation. Implications from the above could provide constructive suggestions for online game developers.

Next, the proposed research model apparently does not include all the relevant variables. Based on the results of this study, future research can further investigate other potential moderators of the online satisfaction-loyalty relationship.

Finally, past studies have acknowledged that the more interactive the function of Internet applications, the more addictive they would be (Young, 1998b; Chen et al., 2004; Widyanto and Griffiths, 2006). The subjects discussed in the literature are mostly conventional applications, or Web 1.0 applications, such as online chatting or gaming. With the proliferation of Web 2.0 applications, users are more interconnected as they were encouraged to collaboratively use, share and create the online contents (O'Reilly, 2005).



In other words, users might find that Web 2.0 applications to be more interactive than before. Moreover, the influences from significant others, i.e. descriptive norms, are also likely to be more profound. For example, Facebook ([www.facebook.com](http://www.facebook.com)), a renowned Web 2.0 application of social networking, which provides social functions for people to connect and interact with others, such as maintaining and sharing one's own personal profile, adding friends or joining specific networks. With the website's rapid growth in recent years, some users have developed dependence on it. The emerging phenomenon is known as Facebook addiction (<http://apps.facebook.com/causes/17996> (accessed on July 20, 2008)) and has posed problems to people's daily life (<http://sophos.com/pressoffice/news/articles/2007/10/facebook-addiction.html> (accessed on July 20, 2008)). Concluding from above, this study suggests that future research could further explore the role of addiction and its potential effect with Web 2.0 applications.

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Scale			Sources
518	Perceived behavioral control (1986) PBC1	I believe that I am in control of to play or not to play online game	Ajzen and Madden
	PBC1	I believe I have complete control over whether you do or do not play online game?	
	Descriptive norms		Rivis and Sheeran (2003a)
	DN1	Most of the people I know best are playing online game	
	DN2	Most of the people I know best believe that online game is playfulness	
	Perceived playfulness		Hsu and Lu (2007)
	PLAY1	The process of playing this online game is enjoyable	
	PLAY2	While playing this online game, I experienced pleasure	
	PLAY3	Overall, I believe that this online game is playful	
	Online game addiction		Young (1998b)
	ADD1	Do you feel the need to play the online game with increasing amounts of time in order to achieve satisfaction?	
	ADD2	Do you feel preoccupied with the Internet (think about it when off line or anticipate your next online session)?	
	ADD3	Have you lied to friends or family members to conceal the extent of your online gaming?	
	ADD4	Do you feel restless, moody, depressed, or irritable when attempting to cut down or stop online gaming?	
	ADD5	Have you repeatedly made unsuccessful efforts to control, cut back, or stop online gaming?	
	ADD6	Do you use online gaming as a way of escaping from problems or relieving feelings of helplessness, guilt, anxiety, or depression?	
	ADD7	Do you spend time on playing online game than originally intended?	
	ADD8	Have you jeopardized or risked the loss of significant relationship, job, educational, or career opportunity because of your online gaming behavior?	
	Satisfaction (2003); Choi and Kim (2004); Liu and Chou (2008)		Anderson and Srinivasan
	SAT1	I like the game content of this online game	
SAT2	I am pleased with the services provided by this online gaming vendor		
SAT3	This online gaming vendor performs well in handling opportunistic gaming behavior		

Table AI.

(continued)

Scale	Sources
SAT4 this online gaming vendor	I am satisfied with the account administration of
SAT5 provided by this online gaming vendors	I am pleased with the networking quality
SAT6	Overall, I am satisfied with this online game
Loyalty Yang and Peterson (2004)	Choi and Kim (2004);
LOY1 this online game	In comparison with other online games, I prefer
LOY2	I would recommend this online game to others
LOY3	I would re-use this online game when I want to play online games later
LOY4 my first choice	When I want to play online game, this game is

Table AI.

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