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ปัจจัยที่ส่งผลต่อการตัดสินใจซื้อการ์ตูนบนโทรศัพท์มือถือของนักเรียน ในประเทศไทย

Factors that Affect Buying Decision on Mobile Comic of Students in Thailand

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บทคัดย่อ

วัตถุประสงค์ของงานวิจัยคือการศึกษปัจจัยที่มีอิทธิพลต่อการตัดสินใจซื้อการ์ตูนบนโทรศัพท์มือถือ ซึ่งสามารถดาวน์โหลดการ์ตูนและเก็บไว้ในหน่วยความจำของโทรศัพท์มือถือได้ แต่ไม่สามารถคัดลอก ส่งต่อ หรือพิมพ์ออกมาได้ สำหรับประชากรเป้าหมายคือนักเรียนและนักศึกษาที่ศึกษาในกรุงเทพมหานครที่มีอายุ 13-22 ปี โดยใช้เทคนิคการเลือกตัวอย่างแบบแบ่งชั้นภูมิ 2 ขั้นตอน โดยการแบ่งชั้นภูมิด้วยอายุและประเภทสถาบันการศึกษา ซึ่งชั้นที่ 1 แบ่งสถาบันการศึกษาออกเป็น 2 ชั้นภูมิคือ สถาบันการศึกษาของรัฐและของเอกชน จากนั้นเลือกสถาบันการศึกษาจากแต่ละชั้นภูมิชั้นที่ 2 เลือกนักเรียน/นักศึกษาจากแต่ละสถาบันการศึกษาที่เลือกจากชั้นที่ 1 โดยขนาดตัวอย่างที่สุ่มจากแต่ละสถาบันการศึกษาเป็นสัดส่วนกับจำนวนนักเรียน/นักศึกษาของสถาบันการศึกษา ขนาดตัวอย่างรวมเป็น 451 คน จากการศึกษาพบว่าปัจจัยที่สำคัญในการเลือกซื้อหนังสือการ์ตูนเรียงลำดับจากมากไปน้อยดังนี้ เนื้อหาหลายเส้น สี ราคา ผู้แต่ง และความนิยมตามลำดับ สำหรับประเภทการ์ตูนที่นิยมอ่าน

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เรียงลำดับจากมากไปน้อยดังนี้ การต่อสู้ โรแมนติก ดลก การผจญภัย กีฬา แฟนตาซี ตามลำดับ ใน การศึกษาปัจจัยที่ส่งผลต่อทัศนคติและการตัดสินใจซื้อบริการดาวน์โหลดการ์ตูนบนโทรศัพท์มือถือได้ ใช้เทคนิค การวิเคราะห์สมการโครงสร้าง (Structural Equation Modeling: SEM) การวิเคราะห์ความ ถดถอยโลจิสติกแบบ 2 กลุ่ม (Binary Logistic Regression) และการวิเคราะห์กลุ่มแบบ Tree พบว่า ความคิดเห็นของกลุ่มนักเรียน นักศึกษาต่อการดาวน์โหลดการ์ตูนบนโทรศัพท์มือถือ คือ ความสะดวกใน การดาวน์โหลดการ์ตูนและฟังก์ชันการทำงานของโทรศัพท์มือถือ ส่วนปัจจัยที่ส่งผลต่อการตัดสินใจซื้อ บริการดาวน์โหลดการ์ตูนบนโทรศัพท์มือถือคือคุณภาพของภาพการ์ตูนและความถี่ในการโหลดเกม และได้มีการแบ่งกลุ่มนักเรียน นักศึกษาตามพฤติกรรมการอ่านการ์ตูน และความสนใจในการซื้อบริการ ดาวน์โหลดการ์ตูนบนโทรศัพท์มือถือด้วยเทคนิค CHAID Clustering พบว่าสามารถแบ่งได้ 5 กลุ่มดังนี้ กลุ่มที่ 1 เป็นนักเรียน นักศึกษาที่สนใจจะซื้อบริการดาวน์โหลดการ์ตูนบนโทรศัพท์มือถือสูงถึงร้อยละ 81.9และเป็นผู้ที่อ่านการ์ตูนเป็นประจำและให้ความสำคัญกับคุณภาพของภาพการ์ตูนบน โทรศัพท์มือถือมาก กลุ่มที่ 2 เป็นนักเรียน นักศึกษาที่สนใจจะซื้อบริการดาวน์โหลดการ์ตูนบน โทรศัพท์มือถือร้อยละ 68.3 อ่านการ์ตูนบ้างและให้ความสำคัญกับคุณภาพของภาพการ์ตูนปานกลาง ส่วนกลุ่มที่ 3 - 5 เป็นนักเรียน นักศึกษาที่สนใจจะซื้อบริการดาวน์โหลดการ์ตูนบนโทรศัพท์มือถือร้อยละ 57.5, 50.8 และ 24.2% ตามลำดับ

คำสำคัญ: การ์ตูนบนโทรศัพท์มือถือ, การวิเคราะห์สมการโครงสร้าง, การวิเคราะห์ความถดถอยโลจิสติกแบบ 2 กลุ่ม, การวิเคราะห์กลุ่ม

ABSTRACT

The purpose of this research was to study the factors that affect buying decision of mobile comic that allows the content to be stored in the memory of the mobile phone, but could not be copied, forwarded, or printed. The study focus on studying the likelihood of mobile comic's download service in Thailand. The target group was students whose age between 13 to 22 years old and live in Bangkok. The sample this study were students from both private and public school and university in Bangkok, Thailand. The sampling technique employed was stratified two-stage by age and type of schools. The sample size for each school was proportional to numbers of students in each school. The sample size was 451. Important factors on choosing the comic to read could be ranked from the most important to the least as follows: content, delineate, color, price, author, and popularity. Comic type that samples like to read ranked from maximum to minimum are action, romantic, comedy, adventure, sport, fantasy, detective, and mysterious. In order to find factors that affect the attitude on buying the mobile comic, Structural Equation Modeling was used. In addition,

Binary Logistic regression and Divisive Cluster analysis (TREE) were conducted to classify the interested to buy mobile comic. The finding was that the most important factor for attitude of mobile comic was the download services and the mobile phone function. The factors that affect the interests to buy mobile comic were picture quality and how often they load games. Finally by CHAID method of Divisive Cluster analysis or tree technique, the target group was separate into 5 groups on the basis of their interest to buy mobile comic. The first group consists of students whose 81.9% of them would like to buy mobile comic. They always bought comic book and paid high attention to the quality of picture on mobile comic. 68.3% of the second group would like to buy mobile comic. This group read comics sometimes and moderately paid attention to quality of picture on mobile comic. 57.5%, 50.8% and 24.2% of the third, fourth and fifth group would like to buy mobile comic.

Keywords: Mobile Comic, Structural Equation Modeling, Binary Logistic Regression, Cluster Analysis

Introduction

From the survey on Thai people's reading behavior by National Statistical Office (NSO), comic book was the largest type of book that Thai people read, accounting to 38.87% of all type of books. The age classified of people who read comic books were as follows: (i) Child, 81.5%, (ii) Youth, 78.6%, (iii) Working age, 64.3%, and (iv) Senior, 31.3%.

Nowadays, the reading of comic on mobile phone (AKA, mobile comic) has gained the popularity in Japan and the United States. The main reason for the spread is that mobile comic is very convenient to read. It can be read anywhere, reduce the paper usage, and is cheap. In Thailand, mobile comic business is quite limited. The only service available is the reading application in which the reader can read the comic but could not save it. In addition, most of available comics for such application are not so popular. Hence, the researcher is interested to study the factor (s) that can affect the mobile comic's download service that allows the content to be stored in the memory of the mobile phone, but could not be copied, forwarded, or printed. This research will focused on studying the likelihood of mobile comic's download service in Thailand and its target, for the marketing purpose.

Methodology

This is a quantitative study, in which a questionnaire was used as a primary data collection tool. The target population was students whose age were between 13 to 22 years old and lived in Bangkok. A confidence interval was set at 95% and sampling error equaled to 0.05. The minimum sample size was 384. The sample size in this study was 451. The researcher decided to use stratified two-stage sampling. There are 2 stratum in the first stage: public and private school. In each stratum, the researcher had proportional selected the sample size with number of students in each school.

Result

The samples were female students by 46.9% and male by 53.1%. 78.1% of them were middle and high school students, whereas another 21.9% were bachelors' degree students. 73.5% had income of no more than Baht 4,000 per month as an income, and 43.9% had family income no more than Baht 50,000 per monthly as a family income.

Table 1: Type of comic love to read (Total score = 5)

Type of comic	Mean	SD
Action	3.54	1.41
Romantic	3.32	1.35
comedy	3.15	1.36
Adventure	2.99	1.35
Sport	2.89	1.29
Fantasy	2.82	1.54
Detective	2.72	1.26
mysterious	2.57	1.46

Table 2: Factors that could affect the buying decision of comic (Total score = 5)

Factor	Mean	SD
Content	4.26	1.05
Delineate	3.42	1.33
Color	2.87	1.21
Price	2.52	1.28
Author	2.36	1.26
popularity	2.32	1.24

The important factors on choosing the comic to read ranked from the most important to less as follows: content, delineate, color, price, author, and popularity.

Comic types that the samples like to read ranking from maximum to minimum are combat, romantic, comedy, adventure, sport, fantasy, detective, and mysterious.

The most usage of mobile phone besides the calling in Thailand was listening to the music, 40.4% of the samples always listen to the music from mobile phone. The second one was the camera, 65.8% of the samples reported that they moderately to frequently use it. The third one, moderately to frequent used by 58.1% of them, was playing game. The latter ones, which dedicated 39.1% and 51.4% of the group respectively, were watching the movie and mobile internet. The rest of the popular features were ring tone download and mobile games respectively.

Table 3: Usage of mobile phone (Percent)

Function	Mean (score=4)	No	Rarely	Moderate	Often	Very Often
Listen to the music	2.5	22.2	5.8	12.4	19.3	40.4
Take a picture	2.1	24.2	10	21.3	20.6	23.4
Play games	1.86	23.9	18	21.5	21.5	15.1
See movies/MP4	1.35	40.1	20.2	16.9	10.6	12.2
internet	1.11	48.6	20.4	11.8	10	9.3

Table 4: Downloaded services (Percent)

Download	Mean (score=4)	No	Rarely	Moderate	Often	Very Often
Song/MP3	0.83	60.3	13.5	13.5	8.4	4.2
Waiting voice	0.82	64.5	14.4	10.2	7.5	3.3
Incoming tone	0.71	59.9	13.7	14.6	8.2	3.5
Games	0.63	66.3	14	13.1	3.5	3.1
Clip VDO	0.39	77.4	11.8	6.7	2.4	1.8

51.4% of the samples had, at least once, read the comics from the internet; 52.6% of such group also had downloaded the comics from the internet. The biggest group that had read the comics from the internet is the graduates from secondary school (by 55.8%).

Attitude on Mobile Comic

The samples rates the best score (2.98 out of 4) to the less space used to store the actual comic books. The rest scores belonged to the convenience to use the service, popular trend of the mobile comic in the near future, quality on download service, and, lastly, the security for the downloader in consequence. The samples also specified that the mobile comic might be prone to the virus and might badly affect the eye sight and create other health problems.

Table 5: Attitude on mobile comic (Total score=4)

Prospect	Mean	SD
1. collection	2.98	0.64
1.1 use less storage space than the actual book	3.01	0.82
1.2 use less storage space at home	2.94	0.81
2. convenience to buy	2.85	0.65
3. popular in the future	2.55	0.73
3.1 popular in others country	2.64	0.83
3.2 expected popular in Thailand in the future	2.46	0.85
4.quality	2.20	0.55
4.1 picture and letter are too small	1.91	0.82
4.2 convenience o bring everywhere	3.05	0.82
4.3 may be a collection in the future	2.65	0.93
5. safety	1.97	0.66
5.1 not good for eyesight	1.78	0.83
5.2 not good for health	2.02	0.85
5.3 not safe from virus	2.12	0.90

Expectation on Reading the Mobile Comic

The samples had the most expectation on the regard of convenience to read the comic anywhere (mean score 3.88 out of 5). The rest of the expectation, ranked by scores, were as follows: (i) the content on mobile comic will be published prior to the actual comic book (3.15), (ii) has sound effect when read (3.04), (iii) cheap (2.99), (iv) animation content (2.96), (v) use less space for storage than the actual book (2.85), (vi) color content (2.82), (vii) has a hi-tech feature, such as zoom function (2.52), and (viii) the mobile will shake at the combat scene in the comic (2.24).

Table 6: Expectation for reading comic on mobile phone

Prospect	Mean	SD
1. read anywhere	3.28	1.39
2. market	3.15	1.38
3. voice	3.04	1.17
4. cheap price	2.99	1.58
5. animation	2.96	1.38
6. save area	2.85	1.23
7. color	2.82	1.26
8. functional i.e. zoom,	2.52	1.29
9. vibration	2.24	1.25

Desired Type and Category of Mobile Comic

53.4% of the samples want to download the color content, while 50.6% want animation (VDO), 49.7% want comic to have both color and voice. 47.5% want only black and white color content. Regarding the categories of the mobile comic, the ranking could be sorted as follows: comedy, action, adventure, romance, fantasy, mysterious, detective, and sport.

Table 7: Category of the mobile comic

Type of comic	Percent of cases
1. comedy	56
2. action	43.4
3. adventure	41.4
4. romantic	39.2
5. fantasy	36.9
6. mysterious	35
7. detective	34
8. sport	23.6
9. others	2.9

Table 8: Type of mobile comic (%)

Type	Percent
1. color comic	53.4
2. VDO comic	50.6
3. color and voice	49.7
4. black and white	47.5

Factor that Affects the Mobile Comic Buying Decision

1. Study the factor(s) that affects the attitude on buying the download service by using SEM technique (Structural Equation Modeling)
2. Study the factor(s) that affects the interest to buy the download service using the Binary Logistic Regression and Divisive Cluster Analysis (Tree)

The use of Structural Equation Modeling (SEM) Technique to study factor(s) that affects attitude on mobile comic's download service.

Mobile phone's various functions, the contents available for download, and ages were expected to be the factors for the attitude on mobile comic's service. By using SEM technique, we could conclude that the most important factor was the contents available for download. The second was functions of the mobile phone. We also found that the more the users used the download service and the mobile phone's function, the better the attitude was.

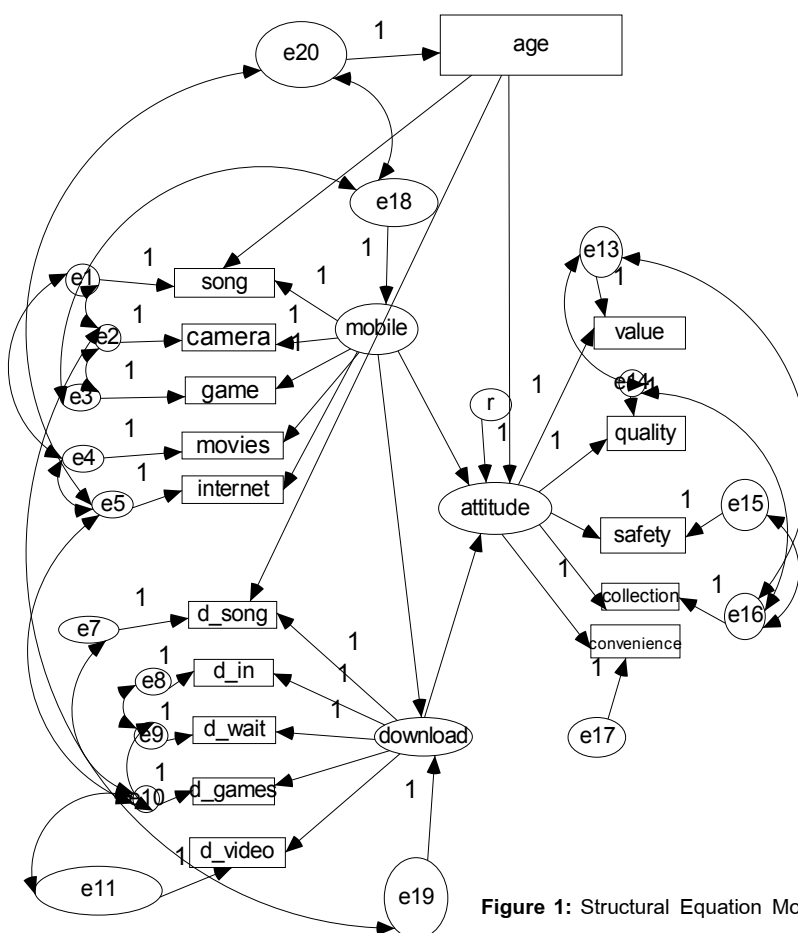


Figure 1: Structural Equation Modeling for Attitude on Mobile Comic

Table 9: Regression weight

	Estimate	SE	CR	P-value
Download	0.602	0.032	18.99	0.000
Mobile	0.419	0.044	9.434	0.000
Age	-0.002	0.007	-0.237	0.813

By checking model fit from table 10, we found that $\frac{Chi-Square}{df} = 1.49$ and GFI (Goodness of fit test) = 0.967. Moreover, error measurement can be completed by using RMSEA (Root Mean Square Error of Approximation) statistics which value must be near zero. In general, if $RMSEA < 0.05$, it leads to the conclusion that the data is fit with the model used. However, for this case, we are going to test the hypothesis for RMSEA value.

$$H_0: RMSEA \leq 0.05 \text{ vs. } H_1: RMSEA > 0.05$$

Table 10: Model fit summary

Chi-Square	GFI	RMSEA	p-value
1.49	0.967	0.033	0.994

We accept H_0 due to large p-value (p-value = 0.994). Besides, we have to check the appropriate sample size by using HOELTER 0.05 which should be more than 200. In this case, we got 382; it means that the sample size (451 samples) was an appropriated size for the SEM model.

The use of Binary Logistic Regression to study factor(s) that affect interest on mobile comic's download service.

Interest to buy download comic on mobile was a dependent variable which could be divided into 2 groups.

$$\text{Interest} = \begin{cases} 0 & \text{Not Interest} \\ 1 & \text{Interest} \end{cases}$$

The number of sample cases was 276 for interested group and 185 for not interested one. While independent variables were consist of age, gender, education, attitude about trend, quality, safety, collection, convenience, number of cartoon buying per month, download song, download games, and download VDO clip. Binary Logistic Regression model by using stepwise method is.

$$P(Int\hat{e}rest) = \frac{e^{a+b_1Age+b_2Gender+...+b_{14}VDO}}{1+e^{a+b_1Age+b_2Gender+...+b_{14}VDO}}$$

By using the Hosmer and Lemeshow Chi-Square to check the appropriateness of the model (model fit). We got p-value = 0.124 and $R^2 = 14.9\%$.

The Wald statistics revealed that factors which affected interest on mobile comic's were numbers of buying cartoon per month, quality attitude, and download games. The model was as follow.

$$P(Int\hat{e}rest) = \frac{e^{-1.989+0.126Comic+0.77Quality+0.474Games}}{1+e^{-1.989+0.126Comic+0.77Quality+0.474Games}}$$

The model implied that, if the target group had good attitude towards the picture quality of the comic or if the score on quality increases by 1 point, the chance to buy the service would increase 16.51 times. If target group had downloaded games before, the probability to buy the service would be 16.236 times higher than students who did not download games. Furthermore, if target group bought 1 more comic book within 6 months ago, the chance to buy the service would increase 9.892 times. The reliability of predict correct is 70%.

The use of Division Cluster Analysis (Tree) to classify Group

By using CHAID method in Divisive cluster analysis to discriminate groups of students who were interested and not interested in buying mobile comic. The percent of persons that interested and not interested to download comic on mobile are 61.2% and 38.8%. The target group could be classified into 5 groups:

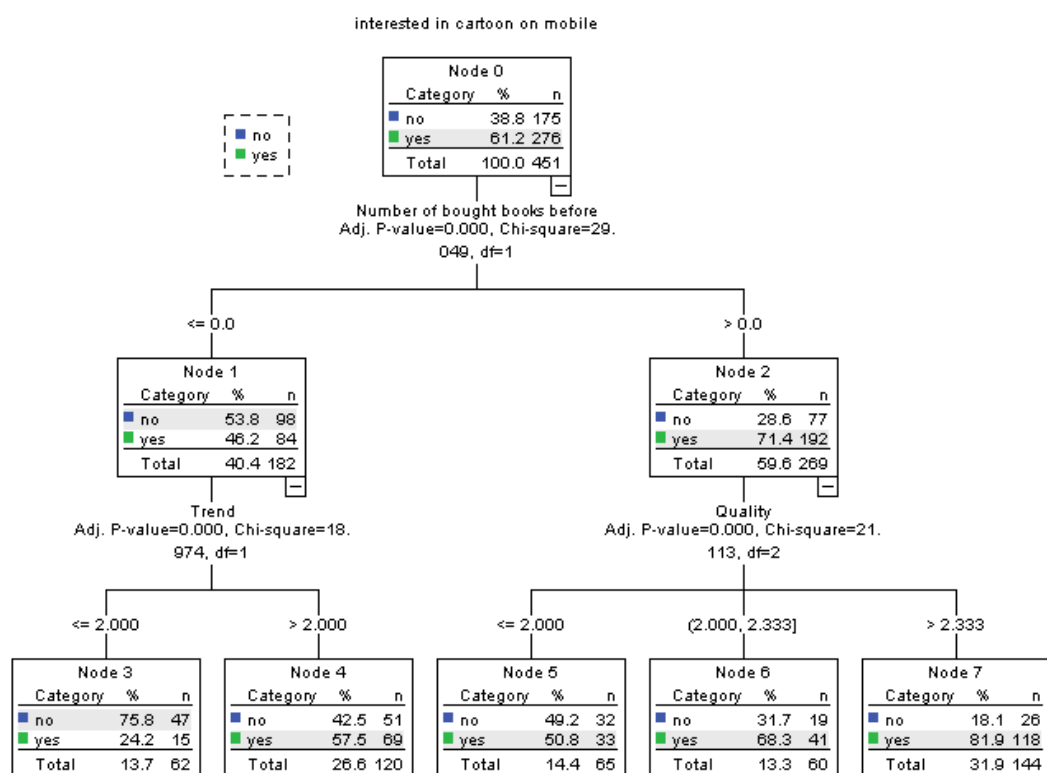


Figure 2: Classification of target group who interests in mobile comic

Group1: This group consisted of 144 students. 81.9% of them were interested in mobile comic's download. Also, the samples bought comic books before and paid high attention to the picture's quality (average point = 2.333).

Group 2: This group consisted of 80 students. 68.3% of them were in mobile comic. Also, the samples bought comic books before and paid moderate attention to the picture's quality (average point = 2 - 2.33 points).

Group 3: This group consisted of 120 students. 57.5% of them were interested in mobile comic. They had never bought comic books before and paid attention to the picture's quality (average point was greater than 2).

Group 4: This group consisted of 85 students. 50.8% of them were interested in mobile comic. Also, they bought comic books before and paid high attention to the picture's quality (average point is not more than 2).

Group 5: This group consisted of 82 students. 24.2% of them were interested in mobile comic. Also, the samples had never either bought a comic book before or paid attention to the picture's quality (average point is lower than 2).

Summary

The research found that the target group like action comic the most and the factors ranked by importance are content, delineate, color, price, author and popularity. The activities ranked by their popularities were listening to music, take photos, play games and interested in download songs, respectively. Meanwhile, the most usage download via mobile phone was music, then waiting voice, ringtone, game and VDO, respectively. Male preferred action, adventure, sport and mysterious comic more than female did. While female liked fantasy, romantic, and mysterious. Important factors on choosing the comic to read could be ranked from the most important to least as follows: content, delineate, color, price, author and popularity.

The attitudes that could affect the usage of mobile comic ranked by their importance were collection, buying convenience, popularity in the future, quality and safety, respectively. Expectations on reading mobile comic were read anywhere, published before comic book, voice, cheap price, good animation, save area, colorful picture, advanced functionality (i.e. zoom) and had vibration function, respectively. Comedy was the most wanted comic's type the rest were comedy then action, adventure, romantic, fantasy, mysterious, detective and sport, respectively. The users expected color, VDO, color with voice and black and white, respectively. The factors that affect the interest to buy mobile download service were the number of comic books, quality attitude and experience in download games.

Recommendations

Entrepreneurs that want to enter mobile comic business should consider about the requirements of the target group, is highly interested in buying mobile comic by 81.2%. Also, the entrepreneurs have to concern that the qualities of picture and the security against virus may affect the buying decision. Moreover, entrepreneurs should try to sell these types of comic: comedy, action, adventure, romantic and fantasy in color and voice-add in. However, in further study, the researcher should study more about the demand of target group who always read comic book and download games on mobile phone.

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