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**Factors towards Intention to Use Mobile Entertainment
Services among Young Users: Comparative
Cross-country and Cross-temporal Studies**

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Factors towards Intention to Use Mobile Entertainment Services among Young Users: Comparative Cross-country and Cross-temporal Studies

Qazi Mahdia Ghyas¹⁾ and Fumiyo N. Kondo²⁾

Abstract

This study aims to understand how mobile usage in Japan and Bangladesh access mobile entertainment services among young users. We examined a cross-national and a cross-temporal analysis of behavioral intention factors by a combined technology acceptance model and the theory of planned behavior model. By using the factors of perceived value, perceived behavioral control, subjective norm and attitude, we analyzed three sets of data: (1) Bangladesh in 2014; (2) Japan in 2014; and (3) Japan in 2009. Results show that consumer's intention to use mobile entertainment services for Bangladesh 2014 was the same as those for Japan 2009: perceived value and attitude were found to have positive significant influence on the intention to use the services. However, results for Japan 2014 show differently from those for Japan 2009: no significant influence on the intention to use the services for perceived value and attitude, but significant for perceived behavioral control.

Keywords: Mobile entertainment services; Cross-country; Cross-temporal; Young users; TAM-TPB model; Perceived value; Perceived Behavioral Control; Attitude, Behavioral intention to use

1. Introduction

Mobile phone services offer a wide range of purposes from business to entertainment and a mobile phone has become a ubiquitous tool in technologically developed or developing places all around the world. There are nearly 7 billion mobile subscriptions worldwide (The International Telecommunication Union). This is equivalent to 95.5 percent of the world population. Mobile market growth is being driven by demand from the developing world, led by rapid mobile adoption in China and India, the world's most populous nations. There are 5.4 billion mobile subscriptions in the developing world – that's 78 percent of global. Mobile penetration in the developing world now is 90.2 percent, but there is still potential for growth. On the other hand, mobile subscriptions in the developed world is rapidly reaching saturation point. There are 1.5 billion subscriptions in developed nations with 120.8 percent mobile penetration. There is already more than one mobile subscription per person in developed nations.

There are significant business opportunities in relation with mobile entertainment service all over the world. Even there is little room for growth in developed countries; the sales of mobile entertainment services by global internet companies such as DeNA and GREE are expanding the market of mobile services, with a focus on social games, e-commerce, and web services for mobile devices (kondo and Ishida, 2014). It has been reported that by 2015 mobile content could be worth well in excess of \$1 trillion, with voice comprising only a 10% share of the market. Especially, the market value of mobile entertainment service is increasing markedly and the number of users is growing rapidly. For the first time since the launch of the iPhone back in 2007, Japan is the top grossing country for iPhone's most popular content: games. Japan that has a history of spending billions on mobile games before the arrival of smartphones and tablets, is taking to the app stores of Google and Apple big

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time. It has estimated that 160 billion apps will be downloaded in 2017, gaming being one of the fastest growing segment for Japan. For Bangladesh, general entertainment services (news, religion, games, music, etc.) are the largest used services, followed by social media, ringtone and the others (services to recharge prepaid, pays for calls/SMS, missed called alerts, etc.) in a sequential order (GSMA Intelligence, 2014). It seems that operators have a large footprint in the mobile entertainment services sector and the market is rapidly expanding in Japan and Bangladesh. With the growing importance of Mobile entertainment services, it is important to identify the factors relating to user intention to obtain mobile entertainment services and investigate their antecedents for current and future service development.

User's perception regarding the use of mobile entertainment services have been identified by exploring their behavioral intention in past researches. Quan et. al., (2010) researched a category of mobile transaction services in China using a TAM-TPB (explained in section 3) approach. They found that a combined TAM-TPB model is suitable for evaluating the potential "intention to use" specific mobile commerce services. Nysveen et al., (2005) developed and tested a modified TAM-TPB in order to explain consumers' "intention to use" four types of mobile services. Even though research in mobile service behavioral intention has used the TAM-TPB extensively, the literature contains little regarding its applicability to mobile entertainment services market. So, here we apply the novel approach to assess the potential adoption of mobile entertainment services through a cross-national analysis based on the technology acceptance model (TAM) and the theory of planned behavior (TPB).

Here we examine whether there are differences within the antecedents of "intention to use" when the services used differ, focusing on multiple mobile information services. Most past studies have focused on adoption of task-oriented technology. Adoption of entertainment-oriented technology such as mobile entertainment service has hardly been addressed. As indicated in the study by Hsu et. al, (2004), the factors influencing the adoption of entertainment-oriented technology are different from the factors influencing the adoption of task-oriented technology. This provides a need for undertaking this study. We also do a cross-national analysis between developed and developing countries, so that we are able to generalize the results and observe any differences. To understand mobile entertainment service acceptance, the TAM-TPB is suitable as it is suggested by Kondo and Ishida, 2014. We ground our research framework in TAM-TPB model of Kondo and Ishida (2014) with their factors of perceived value, perceived behavioral control, attitude and subjective norm on mobile entertainment service intention behavior of young people. More details of the model will be provided later.

The rest of the article is organized as follows. The next sections describe the cross-cultural studies of mobile entertainment services, overview of mobile services in Japan and Bangladesh, the TAM, the TPB, the TAM-TPB model and the background for this study and the hypotheses. These are followed by sections on methodology and statistical results. The last sections present a summary of the findings, conclusions, and directions for future research.

2. Cross-Cultural Studies of Mobile Entertainment Services

As the use of mobile devices and Internet has spread globally, mobile technology and m-commerce usage patterns vary across different cultures. Cross-cultural issues are highly related to mobile commerce adoption. However, little research has been conducted on cross-cultural issues in the mobile entertainment environment. This might be due to the difficulties in conducting culture research (Straub et al. 2002). Okazaki et al., (2008) examined user "intention to use" mobile game application for USA, Spain and Czech Republic customers by using TAM (explained in section 4) model among young users.

Kondo and Ishida (2014) have examined the “intention to use” most frequently used mobile entertainment services (game, music, ringtone) for Japan and USA by using TAM-TPB model.

Very few prior studies focus on the antecedents of consumer acceptance and their intentions to use mobile entertainment services in a cross-cultural context. In a global business environment, researchers and practitioners need to develop deeper understanding of the impact of consumer characteristics and their behavior on the acceptance of mobile entertainment services in different cultures.

3. Overview of Mobile Services in Japan and Bangladesh

There are 14 countries in the world with over 100 million mobile subscriptions; among them Japan is ranging seven and Bangladesh is ranging twelve. In Japan, there were 111 million mobile subscribers, 92.5 million of them use mobile data services – that’s 83 percent of the subscriber base, or 72 percent of the population (Telecommunications Carriers Association Japan, 2010). There are about 69 million mobile Internet users, which equals 62 percent of mobile subscribers in total. According to ComScore's excellent 2010 Mobile Year in Review (February 2011), 16.3 percent of Japanese customers are playing games and 12.9 percent are listening music via mobile.

In recent years, the uses of mobile phones have witnessed tremendous growth in Bangladesh. The total number of Mobile Phone subscriptions has reached 118.49 million at the end of September 2014. Mobile phone penetration rate was 69.5% at August, 2014 (BTRC, 2014). Mobile service users among adults are actually above 50% in Bangladesh (GSMA intelligence, 2014). Bangladesh is predominantly a prepaid and 2G markets, as 3G has only recently been deployed following delays in the auction process (3G today makes up just 2% of connections). However, mobile internet penetration is over 20%, mostly from 2G feature phones. In other words, there is a potential desire for internet access that is growing. Mobile operators in Bangladesh are concentrated in the entertainment category. Mobile services in Bangladesh have categorized in two categories: Entertainment and development services. Among them, general entertainment services (news, religion, games, music, etc.) are mostly used services. Table 1 shows the mobile market of Japan and Bangladesh by number of subscriptions in 2013.

Table 1 Mobile markets by number of subscriptions in 2013

Rank	Country	Mobile subscriptions	Population	% of population	3G/4G subscriptions	% of population
		in millions	in millions		in millions	
7	Japan	137.9m	127.6m	108.00%	108.8m	85.30%
12	Bangladesh	116.0m	154.7m	75.00%	34.6m*	22.3%*

Source: Paul Lambert, Informa (Q2 2013) ; national telecoms regulators

* Bangladesh: mobile Web subscribers (not necessarily 3G)

4. Theoretical Framework

Emerging information technology cannot deliver improved organizational effectiveness if it is not accepted and used by potential users. Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) are the most successful and effective models for measurements of digital device based usage among practitioners and academics.

4.1 TAM

TAM provides a basis for discovering the impact of external variables on internal perceptions (beliefs), attitudes, and intentions (Davis et al., 1992). According to TAM, a person's performance of a specific behavior is determined by his/her behavioral intention (BI) to perform the behavior and BI is jointly determined by the person's attitude (A) and subjective norm (SN) concerning the behavior in question (Ajzen and Fishbein, 1980). Fishbein and Ajzen (1975) define attitude as "an individual's positive or negative feelings (evaluative affect) about performing the target behavior". Individuals form attitudes toward a behavior by evaluating their beliefs through an expectancy-value model. For each attitude toward a behavior, individuals multiply the belief strength by the outcome evaluation and then sum the entire set of resulting weights to form the attitude.

4.2 TPB

TPB includes an additional construct, perceived behavioral control (PBC). PBC is defined as one's perception of the difficulty of performing a behavior (Taylor and Todd, 1995). The TPB views that the people have control over their own behavior lies on a continuum from behaviors that are easily performed to those requiring considerable effort and resources.

4.3 The TAM-TPB Model

In order to form a behavioral intention, customers concern to know what kind of benefit or values they can obtain from the services, this is perceived value. Perceived value defines as "the consumer's overall assessment of the usefulness of a product/service based on perceptions on what is received and what is given (Heinonen, 2004). The consumer's overall assessment of the usefulness of a service depends on the quality and price information for using the services. Perceived value defines the utility derived from the perceived quality and perceived cost when users accept a mobile commerce (Sweeney et al., 1999). The more users will be beneficial, the more they will intend to use the services. Use intention measures the possibility that a consumer will use the service. The more the user intention, the more their willingness will be to use the service (Dodds et al., 1991). The willingness to use is affected by the perceived value as suggested by Groth (1995). Perceived value have positive association with decision making which has also indicated by (Zeithaml, 1988). Therefore, we will observe whether perceived value has any influence on intention to use mobile entertainment services.

Several researches have done by using different theoretical model for mobile service market. TAM model was investigated for mobile application use by Seok Kang, 2014. TPB Model was studied for customers in India on mobile entertainment services (games, music, videos, camera, and internet access) (Kumar and Janaki, 2011). There are very few studies which used TAM-TPB model for mobile entertainment service.

The TAM-TPB is an effective predictive model in field that leads to a certain degree of behavioral change by individuals have summarized by Kondo and Ishida (2014). They proposed to use the concept of perceived value. Our TAM-TPB model will be constructed by using the following five concepts to deal with entertainments services in Japan and Bangladesh mobile markets: Behavioral control, perceived value, attitude towards mobile services, behavioral intention to use, and subjective norm. Therefore, we examine user behavioral intentions based on the model shown in Figure 1. Thus, we postulate the following hypotheses:

- H1. Perceived behavioral control positively influences perceived value in Japan 2009, Japan 2014 and Bangladesh 2014.
- H2. Perceived value positively influences attitude in Japan 2009, Japan 2014 and Bangladesh 2014.
- H3. Perceived behavioral control positively influences attitude in Japan 2009, Japan 2014 and Bangladesh 2014.
- H4. Attitude positively influences behavioral intention of overall entertainment services in Japan 2009, Japan 2014 and Bangladesh 2014.
- H5. Perceived value positively influences behavioral intention of overall entertainment services in Japan 2009, Japan 2014 and Bangladesh 2014.
- H6. Perceived behavioral control positively influences behavioral intention of overall entertainment services in Japan 2009, Japan 2014 and Bangladesh 2014.
- H7. Subjective norm positively influences behavioral intention of overall entertainment services in Japan 2009, Japan 2014 and Bangladesh 2014.

The authors define mobile entertainment as any type of leisure activity consumed on mobile devices that utilizes the wireless telecommunication network which incurs a cost upon usage and interacts with service providers (Wong and Hiew, 2005). They included downloading ring tone, logo, music and movie; playing games, accessing location-based entertainment services and etc. as mobile entertainment services. Usage patterns of mobile entertainment services may have differences or similarities among countries. Four factors of mobile services have identified by Ghyas et al., (2011): Information intensiveness (Factor 1), entertainment (Factor 2), low penetration service (Factor 3), and communication service (Factor 4) on Japan and USA data. Factor 2 represents services with entertainment characteristics. To investigate the intention to use behavior, we focus on Factor 2 entertainment services (game, music and ringtones) for our cross-national analysis. Kondo and Ishida (2014) also researched these services for USA and Japan. Here we consider Game, music and ringtone as mobile entertainment services for the comparison of Bangladesh and Japan.

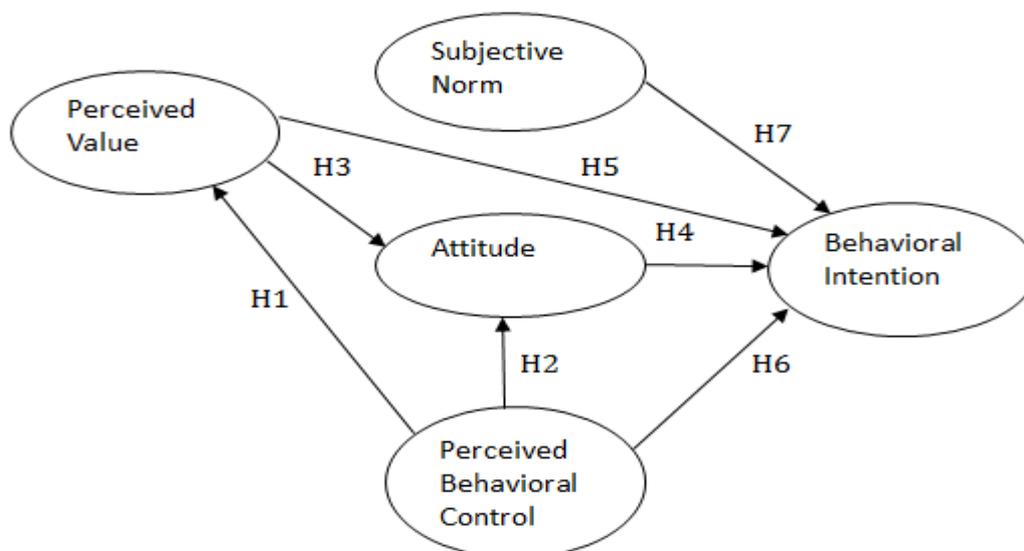


Figure 1. The TAM-TPB model of Kondo and Ishida (2014)

5. Methodology

5.1 Data Collection

Two surveys were conducted in Japan of 214 mobile phone users at a university in Ibaraki and 66 users at a university in Tokyo. An online questionnaire was distributed. The Japanese surveys were conducted in Ibaraki and Tokyo in November, 2009 and in Ibaraki from August to October, 2014. Valid responses were received from 173 individuals in 2014 and 242 respondents in Japan in 2009.

Five surveys were conducted in faculty of Business Administration from five universities in Dhaka, Bangladesh in the period of June-August, 2014. Individual mobile phone users from three different private universities were invited to participate and 135, 40 and 50 responses were obtained, respectively. In addition, two surveys were conducted in two public universities, resulting in 68 and 33 responses from mobile phone users, respectively. In total, 326 subjects received the questionnaires, resulting in 276 completed responses.

We used responses from young users who were 18-30 years for this research as it has been found that the youth is the lead segment in adopting mobile entertainment (Andreou et al. 2002). We also used responses from experienced mobile device users, following the approach of Kondo and Ishida (2014) that experience is required to form opinions. They eliminated non-mature cell phone users in order to eliminate the strong influence of IT dexterity in their research. We also eliminated 2 responses from the data set, which were from non-user and non-mature (less than 6 months) cell phone users. Therefore, after the elimination, in table 2 there were 251 respondents for Bangladesh in 2014, 173 for Japan in 2014 and 242 for Japan in 2009.

Table 2 Demographics of Respondents to Q1: How many years have passed since you started to use your first cell phone?

Category	Values	Bangladesh 2014		Japan 2009		Japan 2014	
		N=251	(%)	N=242	(%)	N=173	(%)
Age	18-20	35	13.9	40	17	80	46
	20-25	203	80.9	160	66	93	54
	25-30	13	5.2	12	5	N/A	N/A
	No answer	N/A	N/A	30	12	N/A	N/A
Gender	Male	163	65	162	67	143	83
	Female	88	35	80	33	36	21
Q1	6 months - less than 1 year	1	0.4	1	0	1	1
	1 year - less than 2 years	12	4.8	4	2	7	4
	2 years - less than 3 years	20	7.9	6	2	5	3
	3 years - less than 5 years	48	19.1	57	24	51	29
	5 years - less than 10 years	142	56.6	158	65	100	58
	10 years or more	28	11.2	16	7	9	5

Our initial survey items have shown in table 3. These items were adapted from previous studies, Kondo and Ishida (2014). We used the following sets of 5 and 10 point likert scales: Strongly disagree/strongly agree; unfair/fair; very low/ very high; definitely won't/ definitely will.

Table 3 Constructs name, item, type and source

Construct	Items	Type	Sources
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name				
Behavioral intention to use	Either (1) "Do you have the intention to use the following mobile information service on a continuous basis?" or (2) "Do you have the intention to use the following mobile information service in the future?" (3) Please rate the intention to use for the following service by checking.	5-point Likert	Definitely won't -- definitely will	Kondo and Ishida (2014)
Attitude towards mobile services	(1) Overall, mobile information services are important to me. (2) Overall, mobile information services can satisfy different needs of mine.	5-point Likert	Strongly disagree -- strongly agree	Kondo and Ishida (2014),
Subjective norm	(1) People important to me think I should use mobile information services (family members, lovers, friends, your boss etc.) (2) It is expected that people like me to use mobile information services. (3) People I look up to expect me to use mobile information services.	5-point Likert	strongly disagree -- strongly agree	Kondo and Ishida (2014)
Perceived behavioral control	(1) I feel free to use the kind of mobile information services I like to. (2) Using mobile information services is entirely within my control. (3) I have the necessary means and resources to use mobile information services.	5-point Likert	strongly disagree -- strongly agree	Kondo and Ishida (2014)
Perceived value	(1) Please rate the quality of mobile services given the prices you pay. (2) Please rate the prices of mobile services given the quality you receive.	10-point bipolar	Unfair -- fair	Kondo and Ishida (2014),

5.2 Measurement Scales

In order to assess the reliability and validity of the constructs, several measures were computed. The composite reliability (CR), average variance extracted (AVE) and the squared inter-correlations (SIC) are reported for Japan 2009, Bangladesh 2014 and Japan 2014 in table 4, 5 and 6. The coefficients for each factor are shown in table 4, 5 and 6. Since all values exceeded 0.7, it was concluded that the items of these constructs had common parts. The threshold for CR is 0.70 or higher (Bagozzi & Yi, 2011). All AVE values were above 0.5 indicating convergent validity. For discriminant validity, the AVE of each construct should exceed the SIC of the construct with other constructs. As shown in the table 4, 5 and 6, this holds true for all constructs.

Table 4 CR, AVE, and SIC for Each Construct for Japan 2009

Constructs	CR		Constructs
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		AVE	1	2	3	4	5
			AVE and SIC				
ATT	0.893	0.807	0.807				
BI	0.883	0.716	0.220	0.716			
PBC	0.844	0.652	0.374	0.165	0.652		
PV	0.862	0.757	0.258	0.226	0.216	0.757	
SN	0.902	0.754	0.534	0.216	0.426	0.261	0.754

Note: The values of AVE are on the diagonal and those of SIC on the off-diagonal.

Table 5 CR, AVE, and SIC for Each Construct for Bangladesh 2014

Constructs	CR	AVE	Constructs				
			1	2	3	4	5
			AVE and SIC				
ATT	0.900	0.818	0.818				
BI	0.889	0.728	0.269	0.728			
PBC	0.865	0.681	0.406	0.102	0.681		
PV	0.862	0.757	0.287	0.232	0.209	0.757	
SN	0.892	0.733	0.528	0.211	0.635	0.215	0.733

Note: The values of AVE are on the diagonal and those of SIC on the off-diagonal.

Table 6 CR, AVE, and SIC for Each Construct for Japan 2014

Constructs	CR	AVE	Constructs				
			1	2	3	4	5
			AVE and SIC				
ATT	0.920	0.852	0.852				
BI	0.778	0.554	0.180	0.554			
PBC	0.838	0.639	0.556	0.269	0.639		
PV	0.882	0.790	0.297	0.045	0.134	0.790	
SN	0.854	0.663	0.563	0.112	0.516	0.262	0.663

Note: The values of AVE are on the diagonal and those of SIC on the off-diagonal

5.3 Analytical Method

The research models were analyzed for Bangladesh 2014, Japan 2009 and Japan 2014 via structural equation modeling (SEM) by using the statistical software AMOS version 22.0. The SEM is a statistical approach to understand social and natural phenomena by identifying a causal relationship between the observed variables and the latent variables that cannot be observed directly. A useful and powerful aspect of SEM is the test of hypotheses across samples (Bagozzi & Yi, 2011). In order to compare Japan 2009 and Bangladesh 2014 data, multi-group analyses were conducted on the models to determine whether there are statistically significant differences between the parameter estimates for Japan and United Bangladesh. The research model for Japan 2014 data were analyzed individually.

Based on fit indices, the best was obtained. the classification of these model fit indices as roughly two types, absolute fit indices and comparative fit indices summarized by Hooper et. al. (2008). The absolute fit indices include goodness-of-fit (GFI), adjusted goodness-of-fit (AGFI) and root mean square error of approximation (RMSEA). The comparative fit indices include Akaike Information Criterion (AIC), Browne-Cudeck Criterion (BCC), Normed Fit Index (NFI) and Tucker-Lewis Index (TLI). Threshold guidelines exist for these indices. The overall fit indices of the revised models were examined.

6. Results

We have conducted Three TAM-TPB models in order to establish the best-fit index. The three TAM-TPB models are as follows: The research model in Figure 1 was Model 1. Model 2 and 3 were created by using a step-by-step approach. Model 2 was created by deleting the non-significant path from subjective norm to behavioral intention in Model 1. Model 3 was created by deleting the non-significant path from PBC to behavioral intention in Model 2. Table 7 shows the fit measures for the three models for Bangladesh 2014 and Japan 2009 data. All fit indices are in the acceptable range for model 3. These results indicate that Model 3 has the smallest AIC value (183.8) and has the information criterion with the most significant estimated coefficients. Therefore, it was selected as the best model. The values for GFI (0.963) and AGFI (0.931) exceeded 0.9 and are thus in the acceptable range. The RMSEA is 0.031, which is less than 0.05 and thus considered to be a good fit (Tsang et al. 2004). Table 7 shows that the goodness of fit of generated or re-specified models are better compared to the hypothesized model. Table 8 shows the combined multi-group used in Model 3. In summary, generated values for model 3 are superior to those for the other models.

Table 7 Values of Model Selection Criteria on Each Model for Japan 2009 and Bangladesh 2014 (N=214)

Multi-group analysis	GFI	AGFI	RMSEA	CFI	AIC	BCC
Model 1 (hypothesized model)	0.889	0.825	0.79	0.851	559.6	568.9
Model 2 (without SN->BI)	0.963	0.930	0.031	0.981	186.2	191.8
Model 3 (without PBC->BI)	0.963	0.931	0.031	0.982	183.8	189.2

Table 8 Comparison of Model Fitting on Model 3 between Japan 2009 and Bangladesh 2014

	GFI	Sample size	AGFI	RMSEA	CFI	AIC	BCC	TLI
Japan 2009	0.961	214	0.928	0.048	0.978	94.4	97.1	0.966
Bangladesh 2014	0.964	214	0.935	0.038	0.985	89.4	92.1	0.978
Multi-group	0.963	214	0.931	0.031	0.982	183.8	189.2	0.972

The final model for Japan is shown in Figure 2 and for Bangladesh in Figure 3. The coefficients of the measurement variables that explain the latent variables are all significant at the 5% level. Therefore, the measurement variables generally appear to explain the latent variables well. Table 9 shows the standardized estimates for Japan 2009 and Bangladesh 2014. All of the constructs for both countries are statistically significant at the 10% level or less. These results show that the models for the two countries fit well and that they were structurally similar. Hypotheses from H1 to H5 in model 3 were supported for Japan 2009 and Bangladesh 2014 in our analysis.

We also observed slightly different levels of standardized estimates for the path from PBC to attitude and attitude to behavioral intention between two countries. The standardized values of the estimates for the path from PBC to attitude in the Bangladesh data (0.439) were larger than those for the Japan (0.392). Similarly, for the path from attitude to behavioral intention, the estimated value for Bangladesh (0.230) was larger than that for Japan (0.172).

Table 9 Standardized Estimates of Model 3 for Japan 2009 and Bangladesh 2014

Hypotheses	Paths	Japan 2009	Bangladesh 2014	z- value
H1	Perceived behavioral control → Perceived value	0.283**	0.279**	0.541
H2	Perceived behavioral control → Attitude	0.392***	0.439***	-1.10
H3	Perceived value → Attitude	0.252**	0.265**	0.15
H4	Attitude → Behavioral intention	0.172**	0.230**	-0.322
H5	Perceived value → Behavioral intention	0.221**	0.220**	0.316

Note: *** $p < 0.001$; ** $p < 0.05$; * $p < 0.1$

These results appear to generally the strength of consumers' perceptions on the primary constructs to behavioral intention could be similar among countries and cultures. In order to confirm the differences between the estimated values, we conducted Z-tests on the level differences between the estimates for Japan 2009 and the Bangladesh 2014. The Z value shows no statistically significant differences exist in the estimated values. The basic causal structure of TAM-TPB research model could be equivalent across these countries after adjusting of time differences.

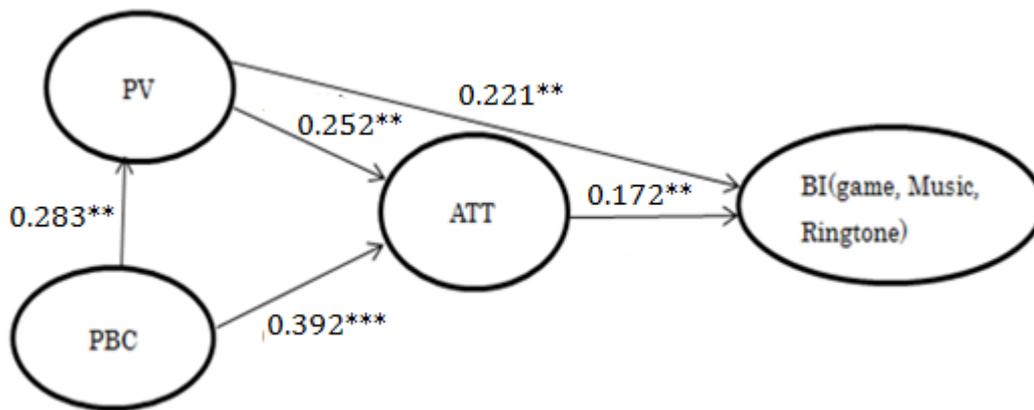


Figure 2. Path Analysis of Model 4 for Japan 2009 at significance level

Note: *** $p < 0.001$; ** $p < 0.05$; * $p < 0.1$.

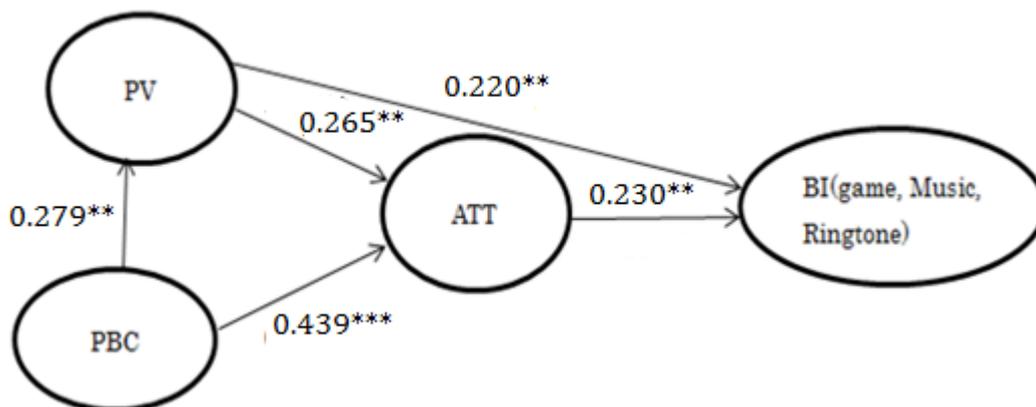


Figure 3. Path Analysis of Model 4 for Bangladesh 2014 at significance level

Note: *** $p < 0.001$; ** $p < 0.05$; * $p < 0.1$.

The three TAM-TPB models for Japan 2014 data have observed. The research model in

Figure 1 was Model 1. Model 2 was created by deleting the non-significant path from subjective norm to behavioral intention in Model 1. Model 3 was created by deleting the non-significant path from PV to behavioral intention in Model 2. Table 10 shows the fit measures for the three models for Japan 2014 data. All fit indices are in the acceptable range for model 3. These results indicate that Model 3 has the smallest AIC value (89.47). The values for GFI (0.957) and AGFI (0.921) exceeded 0.9 and are thus in the acceptable range. The RMSEA is 0.043, which is less than 0.05 and thus considered to be a good fit (Tsang et al. 2004). The final selected model 3 with the standardized estimates for Japan 2014 is shown in Figure 4. All of the constructs are statistically significant at the 10% level or less except the path from perceived value and attitude to behavioral intention. But perceived behavioral control becomes significant positive relation with intention to use for Japan in 2014. This makes it convenient for Japanese customers in 2014 to use mobile entertainment services, giving perceived behavioral control a significant effect on intention to use. Hypotheses from H1 to H3 and H6 in model 3 were supported for Japan 2014 data. These results of Japan 2009 and Japan 2014 seem that the relationship of the perceptions of value, control belief and attitude to behavioral intention could vary in the same country (Japan) at different times.

Table 10 Values of Model Selection Criteria on Each Model for Japan 2014

	GFI	AGFI	RMSEA	CFI	AIC	BCC	TLI
Model 1 (hypothesized model)	0.892	0.830	0.106	0.849	235.698	241.546	0.797
Model 2 (without SN->BI)	0.957	0.919	0.045	0.980	91.124	94.677	0.969
Model 3 (without PV->BI)	0.957	0.921	0.043	0.981	89.473	92.889	0.972

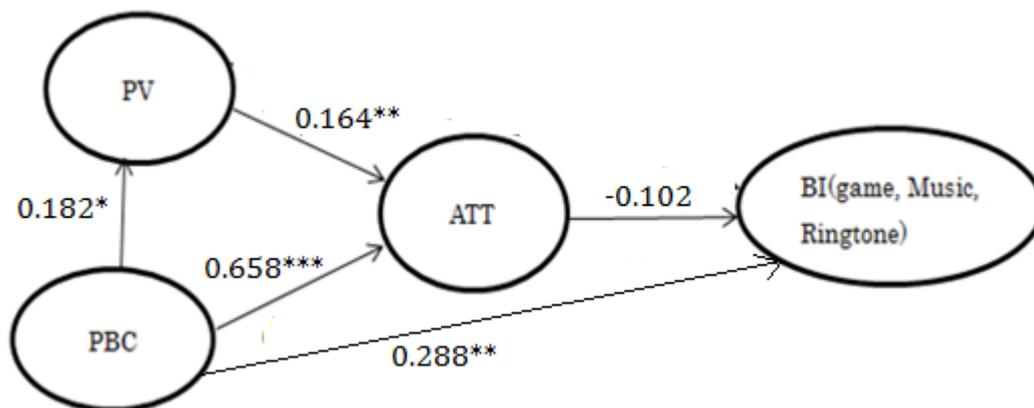


Figure 4. Path Analysis of Model 4 for Japan 2014 at significance level

Note: *** $p < 0.001$; ** $p < 0.05$; * $p < 0.1$.

Therefore, the supported hypotheses are:

H1: Mobile users' perceived behavioral control towards mobile entertainment services have a direct positive impact on their perceived value to use mobile entertainment services for Japan 2009, Japan 2014 and Bangladesh 2014 and the hypothesis is accepted.

H2: Mobile users' perceived behavior control towards mobile entertainment services high positive impact on their attitude to use mobile entertainment services for Japan 2009, Japan 2014 and Bangladesh 2014 and the hypothesis is accepted.

H3: Mobile users' perceived value towards mobile entertainment services has positive impact on their attitude to use mobile entertainment services for Japan 2009, Japan 2014 and Bangladesh 2014 and the hypothesis is accepted.

H4: Mobile users' attitude towards mobile entertainment services has a direct positive impact

on their intention to use mobile entertainment Japan 2009 and Bangladesh 2014 and the hypothesis is accepted. But Mobile users' attitude towards mobile entertainment services has a non-significant and negative impact on their intention to use mobile entertainment for Japan 2014.

H5: Mobile users' perceived value towards mobile entertainment services has positive impact on their behavior intention to use mobile entertainment services for Japan 2009 and Bangladesh 2014 and the hypothesis is accepted.

H6: Mobile users' perceived behavioral control towards mobile entertainment services has positive impact on their behavior intention to use mobile entertainment services for Japan 2014 and the hypothesis is accepted.

7. Discussion

Based on various theories in information systems, we empirically tested TAM-TPB model that explains consumers' intention to use mobile entertainment services in two distinct cultural contexts: Japan 2009 and Bangladesh 2014. We also operationalized consumers' intention to use mobile entertainment services in two different time contexts: Japan 2009 and Japan 2014. The results are discussed below.

7.1. Comparative examination of Similarities

There have similarities in the path relationship of construct in Japan 2009 and Bangladesh 2014. We could not detect any statistically significant differences between Japanese and Bangladeshi consumers along the dimensions of perceived value, subjective norm, behavioral control, attitude and behavioral intention to use in the mobile entertainment service environment. In other words, they regard these characteristics of m-entertainment service at about equal level in Japan 2009 and Bangladesh 2014.

Our analysis found strong impact of attitude to behavioral intention, perceived behavioral control to attitude, perceived behavioral control to perceived value, perceived value to attitude and perceived value to behavioral intention for mobile entertainment services in Japan 2009 and Bangladesh 2014. This follows same what were found in previous research of Kondo and Ishida (2014) for 2009 mobile entertainment service data of Japan and USA. They also similarly suggested that Users' positive attitude is influenced by the positive value perception and the perception of value is affected by the user's positive perception of their ability to using entertainment services.

Our results show that behavioral control concerning mobile entertainment services is a very important driver of attitude comparing other constructs. But perceived behavioral control is not supportive for intention to use both for Japan 2009 and Bangladesh 2014. This is an agreement with Kim et al (2009) for Korea on mobile entertainment services. This indicates that levels of skillfulness in using mobile services are not related to intention to use mobile entertainment service when the both countries were at the innovation level of smartphone and 3G services.

Young user's intention to adopt mobile entertainment services appears to be determined to a greater extent by perceived value that they are receiving. Constantiou et al (2009) for Denmark and Uk young adults and Wong and Hiew (2005) for Malaysia have also underlined the importance of perceived value to intention to use for mobile services. It means that potential new adopters will only be attracted to mobile entertainment if there is a clear perceived benefit of the services from their perspective.

As technology grows and develops, the mobile phone appears to be at the forefront of both exponential growth and the evolution of culture. In this sense, the Japanese mobile market is years ahead of the Bangladesh market and is leading the way with respect to the

mobile phone culture. The smart phone and 3G market in Japan expanded in 2008-2009 with innovative and diverse formats such as personal/governmental/corporate communications. At the “innovator” phase, disposable income has been highly correlated with early-stage mobile phone adoption in developed and emerging markets. Marketing become generally more important in maturing mobile service market (Kalba 2008). To shine with the 3G growing world, Bangladesh had started its journey of smartphones and 3G on 2012-2013. Our data deal with mobile entertainment service in Japan 2009 and Bangladesh 2014 in order to adjust adoption stage of smartphones and 3G. There were time difference but the results seem similar because Bangladesh in 2014 is at the same growth stage of provided 3G mobile services where Japan was in 2009.

On the other hand, after making a cross-country inference from the convergence of mobile entertainment service adoption, this study summarized that young consumer’ basic perceptions on behavioral intention and attitude toward mobile entertainment services will be similar because of the presence of global youth culture. Constantiou et al (2009) also did not get significant differences in the mobile services use (such as entertainment services) except banking services between Denmark and UK. May be at that time, developed countries was in same situation of providing 3G mobile services as now Bangladesh is in 2014.

7.2. Comparative examination of differences

Our results confirmed the significant paths from perceived behavioral control to attitude, perceived behavioral control to perceived value, perceived value to attitude and perceived behavioral control to behavioral intention for mobile entertainment services for Japan 2014. There are significant differences in consumers’ perceptions of value, behavioral control, attitude to behavioral intention between Japan 2009 and Japan 2014.

The path from perceived value to intention to use was supportive for Japan 2009. As in Japan 2009, smartphones and 3G services was just introduced in Japan they were conscious about their monetary and perceived entertainment benefit. The finding suggests that the Japanese young consider the value of entertainment services and cost before deciding to use mobile entertainment services in 2009. For perceived value, the condition can be for innovators.

Perceived behavioral control has become a supportive indicator to intention to use but perceived value was not for Japan 2014. After being an experienced users of 3G/4G services and smartphones, now most of the young users might feel that they have skills, ability, money, time and others resources which form their positive intention to use mobile entertainment services (game, music, ringtone). The result shows that PBC can be effective when most of people are in later stage of using mobile information services through their smartphone and 3G/4G services.

Attitude does not find significant relationship with behavioral intention to use mobile entertainment services in Japan 2014. With an agreement, Taylor and Todd (1995) and Venkatesh et al. (2003) also found no empirical support for this relationship for the experienced individual oriented and organizational-oriented information technologies. The path from attitude to BI was not significant but the path from PBC to BI was stronger in their findings. They suggested that attitude will not translate completely to behavior intention. As individuals gain experience over time, their perception and attitude changes. This refers to the degree that user’s favorable evaluation at early moment of adoption become useless for the intention to use mobile entertainment services at the later moment of adoption stage. The effect of attitude has been possibly captured by the perceived behavioral control and knowledge gained from experience, so that attitude has no significant effect on users’ behavioral intention.

We also obtained supportive result from Yang (2013) which predicted young American consumers’ mobile apps intention and use in Nov, 2011. Mobile application attitude was not

supported but PBC was supported for mobile apps intention in this research. A 2011 Nielsen survey reveals that 44% of U.S. mobile subscribers own a smartphone and 63% of these smartphone owners have mobile data services on their devices. In Feb 2010, 72% of total population used mobile data services in Japan. In Oct 2013, 85.3% of total population in Japan was 3G/4G subscribers. The global youth in developed spaces have experienced more about smartphones and data services after 2009-2010 with introduction of iPhone and 3G/4G services. The developed nation seems almost in the same situation of using mobile information services. The users who believe that they have necessary means and resources to use mobile entertainment services are more likely to use mobile entertainment services. Without a data plan and necessary means, young consumers will have no control over using mobile entertainment services.

We found differences between Japanese 2009 and Japanese 2014 and similarities between Japanese 2009 and Bangladeshi 2014 mobile entertainment service usage by young adults through TAM-TPB model. Thus, after having economic status of the two countries and time differences, these patterns can be considered as universalities or generalities of mobile service use beyond recognized cultural differences. Service providers in Bangladesh can revise their business models to reach out to mobile entertainment consumers when they are in early stage of smartphones and 3G by following the introduction stage of Japan in 2009 which will provide an expectation of further expansion of its future market.

8. Limitations

Our study has some limitations. All of the respondents are young students who have good education and knowledge in technology who had from several universities in Japan and Bangladesh. Also, they are convenience samples. Thus the results cannot be generalized to the whole population in Japan and Bangladesh. Although the limitations exist, the usage of such samples provides useful insights on describing an emerging market of mobile entertainment services among young adults who are innovative users, which are otherwise not available.

9. Conclusion

This study represents an attempt to find out the factors that influence the intention to use of mobile entertainment services among Japan 2009, Bangladesh 2014 and Japan 2014. This study makes an important contribution to the consumer behavior literature, because it is one of the first attempts to explain mobile entertainment service adoption by both a cross-country and cross-temporary context.

The findings of our study fully corroborate the previous studies of Constantiou et al (2009) concerning Denmark and UK, Kim et al (2009) for Korea and Kondo and Ishida (2014) concerning USA and Japan customers. At introduction stage of smartphone and 3G services (2009), this global adoption patterns for mobile entertainment services seemed accepted by other technologically developed places like Japan USA, Korea, Denmark, UK and etc. So, the globalization has forged a common consumer profile in the mobile entertainment service marketplace on the basis of market growth. This study finding can be used by service developers to devise appropriate service strategy to strengthen their products and design recommendations and improve interfaces and technologies for the potential users in technologically developing spaces as like Bangladesh in 2014.

In this study, we noted that having resources and skill to use smart mobile devices and mobile data services could affect the intention to use mobile entertainment services. At the early moments of adoption of smartphones and 3G services in Japan 2009 and Bangladesh 2014, we found factors' concerning perceived value was an effective factor on intention to use. Whereas at the later moment of adoption of smartphones and 3G/4G services in Japan

2014, we found factors' concerning perceived behavioral control is an effective factor on intention to use. We strongly recommend an increased focus on the effects of perceived value and perceived behavioral control in future research.

This suggests that this TAM-TPB is fairly efficient as a model to predict the behavioral intention to use mobile entertainment services among global young and cross temporal researches. Concerning the impact of perceived value, perceived behavioral control and attitude on intention to use mobile entertainment services, the interaction between the later-emerging market and early-emerging market dimensions leads to choices on what factors need to be customized to a given market. However, the model of intention to use mobile entertainment service may vary across different life cycle stage of mobile information services. Therefore, future studies by researchers should classify into more understanding of user's perceived value, perceived behavioral control and attitude towards intention to use mobile entertainment services in a developed and developing society that highlights the earlier and later moment of mobile information service adoption. Identification of such structural differences may provide an opportunity for expanding similar markets internationally after adjusting time differences.

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